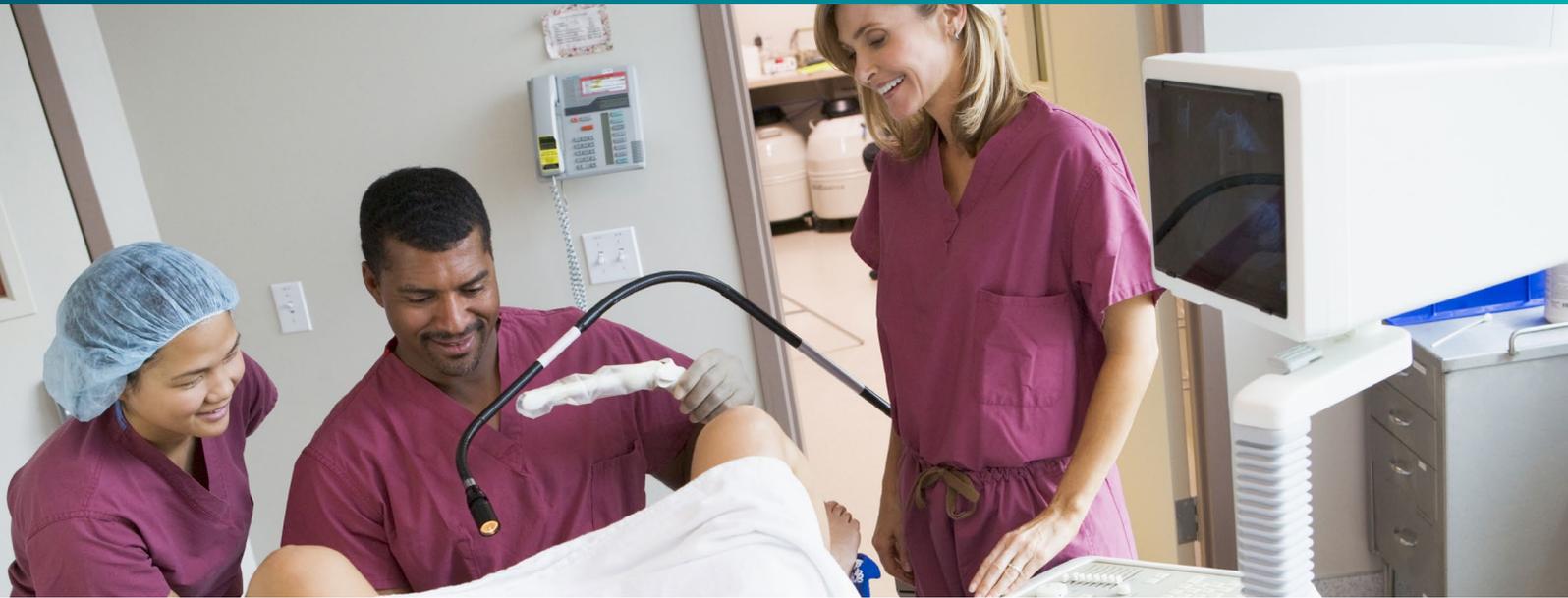


# IVF success rate in mind

EXPOSURE TO TOXIC DISINFECTANT CAN IMPACT IVF SUCCESS RATE



**The risk of exposure to toxic residuals can impact oocyte retrieval, embryo transfer and other IVF applications during pelvis ultrasound probe procedures.**<sup>1-3</sup>

In a study conducted at FDA's Office of Science and Technology, it measured the integrity on cellular membrane, metabolic activity or cell growth and found that there was several-hundredfold difference in the relative toxicity of various disinfecting substances. The liquid disinfecting agents were classified into three main groups according to their relative toxicity<sup>2</sup>:

**Mild** (TC(50) > 1 mM, including phenol, hydrogen peroxide (30% w/v), and formaldehyde (37% w/v))

**Moderate** (1mM > TC(50) > 0.1 mM, Sodium hypochlorite (4% w/v))

**Severe** (TC(50) < 0.1 mM, glutaraldehyde (50% w/v), cupric ascorbate, and peracetic acid (32% w/v)) toxicity.

**An alternative solution is to use a chemical-free High-Level Disinfection method such as Ultraviolet Light (UV-C) which has no chemical toxicity that could impact retrieved cells.**

**A recent sonographer user study,<sup>5</sup> found the following concerns with chemical disinfectant:**



**At least 1-in-3 sonographers are concerned about the risk of exposure to hazardous chemicals,** and other potential risks associated with chemical exposure.



**47% of sonographers have personally experienced an adverse event** from using a chemical system most commonly skin burns.



**Probes are difficult to dry completely** with residuals left on the probe after disinfection e.g. in biopsy guide grooves.

## Don't risk your IVF success rate!

All chemicals require a rinsing or drying step to remove disinfectant residue toxicity from the probe surface – a crucial step that could be forgotten.

Remove the risk of chemical toxicity in selecting Chronos UV-C High Level Disinfection for pelvic ultrasound examinations that is chemical-free and ultrafast, thus improving quality patient care.

While it is clear that UV-C HLD technology has many favourable characteristics for disinfection in IVF applications, it also removes other issues caused by chemicals:<sup>4-11</sup>

- **Respiratory problems**
- **Anaphylaxis**
- **Skin reactivity, irritation**
- **Dermatitis**
- **Systemic antibody production**
- **Chemical burns to staff and patients**
- **Further well designed experimental scientific studies are needed to fully understand and demonstrated the chemical toxicity impact at the cavitory site.<sup>1</sup>**



**References:** **1.** Rutala WA, Weber DJ, HICPAC. 2008. Guideline for Disinfection and Sterilization in Healthcare Facilities. In Control CfD (ed.), USA. **2.** Sagripanti JL, Bonifacino A. 2000. Cytotoxicity of liquid disinfectants. *Surgical infections* 1:3-14. **3.** Ackerman, S.B., et al., Toxicity testing for human in vitro fertilization programs. *J In Vitro Fert Embryo Transf*, 1985. 2(3): p. 132-7. **4.** Lawson CC, Rocheleau CM, Whelan EA, Lividoti Hibert EN, Grajewski B, Spiegelman D, et al. Occupational exposures among nurses and risk of spontaneous abortion. *Am J Obstet Gynecol*. 2012;206(4):327 e1-8. **5.** METIS Healthcare Research 2019. **6.** H. Fujita, M. Ogawa, and Y. Endo. A case of occupational bronchial asthma and contact dermatitis caused by ortho-phthalaldehyde exposure in a medical worker," *J Occupational Health*, vol. 48, pp. 413-416, 2006. **7.** W. N. Sokol. Nine episodes of anaphylaxis following cystoscopy caused by Cidex OPA (orthophthalaldehyde) high level disinfectant in 4 patients after cystoscopy. *J Allergy and Clinical Immunology*, vol. 114, pp. 392-397, 2004. **8.** Cooper DE, White AA, Werkema AN, Auge BK. Anaphylaxis following cystoscopy with equipment sterilized with Cidex OPA (ortho-phthalaldehyde): a review of two cases. *J Endourol*. 2008;22(9):2181-4. **9.** Suzukawa M, Yamaguchi M, Komiya A, Kimura M, Nito T, Yamamoto K. Ortho-phthalaldehyde-induced anaphylaxis after laryngoscopy. *J Allergy Clin Immunol*. 2006;117(6):1500-1. **10.** Suzukawa M, Komiya A, Koketsu R, Kawakami A, Kimura M, Nito T, et al. Three cases of ortho-phthalaldehyde-induced anaphylaxis after laryngoscopy: detection of specific IgE in serum. *Allergol Int*. 2007;56(3):313-6. **11.** Anderson SE, Umbricht C, Sellamuthu R, Fluharty K, Kashon M, Franko J, et al. Irritancy and allergic responses induced by topical application of ortho-phthalaldehyde. *Toxicol Sci*. 2010;115(2):435-43.

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