Tip Sheet - Disinfectants

Microorganisms present varying degrees of resistance to germicide. To ensure selection of an effective germicide for the work environments, consider the following: What common human pathogens may be encountered while providing care to study participants? What is the most resistant microorganism one may encounter while disinfecting surfaces during and room turnovers?

The table below describes the hierarchy of microbial resistance and examples of effective germicide for each class of microorganisms and viruses. This table, when used with the Environmental Protection Agency FIFRA websites (Selected EPA-Registered Disinfectants | US EPA) can help you select a category of germicide shown to be efficacious against microorganisms of concern. In general, it is acceptable to use a category of germicide listed that is cross-referenced to a microbial group. For example, alcohols, aldehydes, and peroxides can be used to disinfect surfaces to remove Gram Negative and Positive bacteria, but these will be ineffective if used against prions.

	Microbial Group Examples	Susceptibility to Germicides	Treatment Required	Effective Germicides	Example Products
Least Resistant	Mycoplasma	Highly Susceptible	Low or intermediate disinfection	Alcohols, aldehydes, biguanides, QACs, halogens, ozone, peroxide, phenols	70% ethanol
	Gram-negative bacteria: *Pseudomona, Escherichia*	Susceptible	Intermediate disinfection	Alcohols, aldehydes, biguanides, halogens, ozone, peroxide, some phenols, some QACs	PDI Super Sani-Cloth© wipe (purple top), EPA# 9480-4; 2-min. contact time PDI Sani-Cloth© Prime Germicidal wipe (pink top), EPA #9480-12, 1-min. contact time Dispatch Hospital Cleaner Disinfectant with bleach EPA# 56392-7, 1-min. contact time
	Gram-positive bacteria: MRSA, MSSA, streptococci, enterococci, *Legionella*				
	Enveloped viruses: HIV, HBV, measles virus, herpes simplex virus, influenza				
	Vegetative fungi: *Aspergillus, Candida*				
	Fungal spores: *Aspergillus, Penicillium*	Susceptible, but some species may be more resistant	High-level disinfection	Some alcohols, aldehydes, biguanides, halogens, peroxide, some phenols	Peridox RTU, EPA# 8383-13, 2-min. contact time 10% freshly prepared sodium hypochlorite, 10-min. contact time
	Nonenveloped viruses: Parvovirus, HPV, Norovirus, Adenovirus	Resistant to highly resistant	High-level disinfection	Aldehydes, halogens, ozone, peroxide	
	Myobacteria: MTB, *M. chelonae*			Aldehydes, halogens, some peroxide, some phenols	
	Bacterial spores: *Bacillus, Clostridium*	Highly resistant	High-level disinfection; sterilization	Aldehydes, high-concentration halogens, peroxides (prolonged exposure time)	Spor-Klenz Ready-To-Use (RTU), EPA# 1043-119, 10-min. contact time
Most Resistant	Prions: Scrapie, CJD	Extremely resistant	Special techniques	High-concentration NaCl; heated NaOH	

Intermediate level disinfectants are effective against bloodborne pathogens and are optimal for use in a clinical setting.