**PREFERRED COVID 19 DISINFECTING AGENTS**

According to the United States Centers for Disease Control (CDC) and as stated in the Journal of Hospital Infection [104 (2020): 246-251] the novel human corona virus, SARS-CoV-2, a virus that can cause severe lung infections is presently resulting in an emergent global health concern. As of April 6th there have been 356,007 confirmed cases in the United States and 10,467 deaths for a death rate of approximately 2.95%. There has been a similar death rate in Alaska though only 185 documented COVID 19 infections as of April 6th.

Human-to-human transmission has been described with 2-10 incubation days before symptoms of the lung disease occur allowing for significant transmission of the virus via droplets (sneezing, coughing or even breathing) or by contaminated hands on surfaces before an infected person may realize that they are infected. Additionally, the virus can persist on inanimate surfaces (metal, glass, or plastic) for up to 9 days which further understates the need to be hypervigilant in the use of disinfectants to clean possible contaminated surfaces to decrease the spread of COVID 19. The virus appears to persist longer in humid conditions which may further increase its ability to persist and spread in many environments around Alaska.

The best agents known to significantly disinfect surfaces of the SARS-CoV-2 virus are 62-71% ethanol (i.e., 124 to 142 proof liquor), 0.5 % hydrogen peroxide or a 0.1% sodium hypochlorite solution (1/3 cup of standard household bleach in a gallon of clean water) for a minimum of 1 minute. Most standard consumable drinking alcohols are not strong enough in ethanol content and would generally be too expensive for use as a disinfectant other than possibly Everclear (120-190 proof) being of high enough ethanol content to be used as a disinfectant. Typical drug store (brown bottle) hydrogen peroxide is 3%, therefore you could mix 1 part of this hydrogen peroxide with 5 parts clean water to obtain a 0.5% solution for disinfecting. Because of availability and cost, a solution of 1/3 cup standard household bleach (i.e., Chlorox) in 1 gallon of clean water may be the most practical. However, it would be your choice since repeated cleaning with hydrogen peroxide solution or Bleach solution may discolor surfaces.

If you decide to use a bleach solution as your disinfectant there are a few precautions you should know of. First, **never mix chloride bleach with other household cleansers.** This can release very toxic gases into the air. Even simple chlorine bleach fumes are a lung irritant and the bleach solution should only be used when the ability to ventilate the area being cleansed is open to good ventilation. Second. Chlorine is toxic to many life forms including but not limited to humans, domestic animals, fish and aquatic life so disinfecting treatments should be performed an appropriate distance from streams, rivers, lakes, salt waters as well as any site that may get into food supplies. Third, chlorine can cause irreversible eye damage and severe skin burns, so be careful when mixing disinfecting solutions and always keep concentrated or mixed chlorine solutions away from children. Fourth, store chlorine solutions in cool dry areas, sunlight can deactivate the solutions. Lastly, mix the disinfecting solution the day of use, any longer and the chlorine will continue to evaporate from the solution and become too weak for it's intended use.