**Consensus on Science:**

SALINE (I) vs WATER (C)

pH level.

For the critical outcome of “pH level,” studied as maximum pH of the anterior chamber following alkali application to the cornea, we identified very low quality evidence (downgraded for indirectness and imprecision) from one in-vivo observational animal study (Kompa 2005, 467) using eyes of 16 rabbits divided in 4 groups of 4 rabbits (8 eyes) in which 2N NaOH was applied to the corneas demonstrating no benefit to flushing with 0.5L of 0.9% normal saline versus 0.5L of tap water (MD 0.62 CI 0.25 to 0.99 ), 1.5L of 0.9% normal saline versus 0.5L tap water (MD 0.57 CI = 0.035 to 1.105) 0.5L of 0.9% normal saline versus 1.5L of tap water (MD 0.5 CI = 0.119 to 0.881 ), or flushing with 1.5L of 0.9% normal saline versus 1.5L of tap water (MD 0.45 CI = -0.09 to 0.994 ). We did not identify any evidence to address the critical outcome of intraocular penetration, the important outcomes of reduce the risk of secondary glaucoma or corneal thickness (swelling) or to address the low outcome of intraocular pressure.

**Treatment Recommendations:**

We suggest that first aid providers use tap water for irrigation of eye injuries (weak recommendation based on very low quality of evidence). In making this recommendation we take into account the limitation of having little raw data specific to this question. The study used in making this recommendation looked at injury due to an alkaline solution, which is known to be one of the most significantly damaging solutions. In the first aid environment it is likely that the first aid provider may not know the substance involved and therefore should flush the eye with the solution demonstrated to be of higher benefit when in the presence of one of the most eye-damaging substances. Irrigation with water in the presence of any foreign substance in the eye is a widely accepted treatment and we place value in the fact that in many areas of the world, tap water for use in eye irrigation is readily available and inexpensive. Availability of specific antidote solutions for initial irrigation may of value in certain situations of high risk of exposure to certain toxins.