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## Pool water safety signage – A Brazilian proposal

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### Background

Pools are not the riskier aquatic scenario for drowning deaths in Brazil, but are responsible for 53% of the drowning deaths of children aged 1-9 years old. Brazil has an estimated 1,7 million pools with an associated estimated risk of 1 death per 639 pools, considering a pool lifetime of 20 years. This confined and built for fun environment is an unexpected drowning location for most people, although any pool death draws great media attention since it affects specially children. Despite of being reported has having good knowledge of swimming, 15-20% of all children drowning deaths were caused by trapping at the suction systems.

This particular characteristic needs to be considered when educating people on drowning prevention. This research aims to review all water safety signs used and create specific signage for pools. We also intend to collect feedback from the conference audience for improvement.

### Methods

We started by reviewing the ISO 20712-1:2008 (water safety signs and beach safety flags, Part 1: Specifications for water safety signs used in workplaces and public areas) which recommends water safety signs intended for use in association with the aquatic environment. The document is intended for owners and operators of aquatic environments and for signage and equipment manufacturers/sellers. However, it is not directed specifically to pools. Proposed shape, color and design criteria were based on ISO 3864-1-3. According to ISO, signs require that supplementary text should be used together to improve comprehension. 10 Brazilian pool lifeguard experts reviewed all existing pool water safety signs and gaps, through a Delphi process in 4 rounds. They've looked for important and absent messages or signs, based on ISO and on Brazilian pool water safety recommendations.

### Results

Signage was classified by contents in 5 different levels: Important general information, prevention (green colored square), warning (yellow colored triangle), danger/prohibition (red colored circle) and first aid information. Important general information depicts 3 different big signs at pool entrance, containing messages regarding prevention, warnings and dangers at the pool, the drowning chain of survival with all 5 steps and the main 5 tips of a pool safe. All other signage is to be used at a specific location at the pool when appropriate and are smaller in size. Proposed prevention signs are 3: Lifeguard on duty, lifesaving buoy available here, and special pool access for elderly and handicaps. Proposed warning signs were 6: sudden depth, slippery area, deep area, strong current, floor step, stop pump button. To sign Dangers/prohibitions 4 proposals: No lifeguard on duty, no diving, no pushing or diving play, no swimming. And finally, 3 first aid signs were proposed: depicting the emergency phone number, first aid kit and External Automatic Defibrillator locations. A rationale was also included in the signs targeting education and more compliance. All signs were design in a fun and attractive way using a lifeguard cartoon character. All water safety signs produced are available at <http://www.sobrasa.org/sinalizacoes-em-piscinas/>

### Conclusion

Pool water safety signage is an important tool for education and trauma and drowning prevention at clubs, gyms, hotels and swim schools. It reduces the owner's liability by giving the user a co-responsibility of being pro-active and allows lifeguards to base their warnings in written criteria posted in plain sight.