

Drowning Death in Brazil: Can we trust our database of death certificates concerning place and circumstance?

Organization: Brazilian Lifesaving Society - SOBRASA

Principal Author: Dr David Szpilman, MD

Abstract

Brazil with population of 190 million people (2007) and extensive water to recreation year round has one of the highest rates of death by drowning(1). Comprehensive and reliable information on the drowning profile is essential to develop an effective, strategic prevention campaign, and ensure focus and resources where they are most needed. To adequately inform the process, that must include location of the incident (e.g. bathtub, pool, river, lake, ocean), type of watercraft involved (if any), and whether the incident involved a transportation accident or flooding disaster. In Brazil this information is exclusively collected from death certificates completed by a medical doctor who rarely understands how useful and practical this information can be for lifesaving and drowning prevention. Our objective is to test how reliable the death certificate database on drowning is in Brazil.

Methods: All ICD 10 W65-74 (unintentional drowning deaths), from January 1996 to December 2007(12 years), in Brazil were considered using death certificates based on Health Ministry-DATASUS- <www.datasus.gov.br>. We evaluated all ICD fourth subdivisions W65-74(.0 residence, .1 collective residence, .2 Schools, and other public institutions, .3 Sports area, .4 Street and roads, .5 Business and service area, .6 Industrial and building areas, .7 farm, .8 Other specified places, .9 Other places not specified), V90(.0 merchant ship, 0.1 passenger ship, .2 fishing boat, 0.3 other powered watercraft, 0.4 sailboat, 0.5 canoe or kayak, 0.6 inflatable craft (non-powered), 0.7 water-skis, 0.8 other un-powered watercraft, 0.9 unspecified watercraft) and V92 (same as V90 but without accident).

Results: From January 1996 to December 2007, drowning was responsible for 85,540 deaths (average of 7,128 death per year and 4.1/100,000 inhabitants). The average incidence of death was: unintentional-89,5%(3.7/100.000), intentional-2,1% and unknown-8,4%. Unintentional drowning death was subcategorized in primary(ICD W65-74)(88,8%) and secondary to watercraft(ICD V90 & V92)(0,7%). Primary were: ICD W65-while in bath-tub-0,1%; W66 fall into bath-tub-0,07%; W67 while in swimming pool-0,99%; W68 following fall into swimming pool-0,47%; W69 while in natural water-34,7%; W70 fall into natural water-2,1%; W73 Other specified drowning and submersion-1,9% and W74 Unspecified drowning and submersion-48%. Drowning secondary to watercraft was: V90 Accident to watercraft-0,5% and V92 Water transport related drowning without accident to watercraft-0,1%. The fourth subdivisions ICD for W65 to 74 (place of occurrence of events) and for V90 & 92 (type of water craft) were shown on table 1. Report ICD fourth subdivisions rates for bath tubes(64%), pools (54%) and water craft(53%) incidents were much higher than for natural bodies of

water(13%). Considering all drowning ICD W65 to 74 and V90 & 92 cases, just 10.8% of all cases were appropriately report by medical doctors.

Discussion:

Drowning is a complex process, from the perspective of epidemiology, that needs a lot of information to be fully understood. High quality information is essential for a successful strategic prevention campaign. Rescues reports, other than those generated by county lifesaving services, are very difficult to obtain and numbers are often underestimated, which in turn results many places without a full lifeguard service reporting few or no drowning incidents, despite their having taken place. Nevertheless, our gold standard for drowning is still based on death certificate. In 1996(inclusive), the International Code of Disease(ICD) was upgraded to version 10 and became both more complex and more complete, with many variables concerning drowning incidents. This strategy alone did not correspond with an increase of knowledge, as medical doctors did not always report appropriately and information coming from pre-hospital care remains highly incomplete. The cause of drowning(intention or not) was appropriately established (91,6%), but information concerning places of occurrence was unknown in 50% of cases. Concerning the specific place of occurrence (fourth subdivision), bathtub, pools and water craft is not fully reported and natural water is reported in only 13% of cases. When considering all cases, the report of 10.8% is a great statistic “fiasco”. This research demonstrated clearly that medical doctors in Brazil need to be educated about the importance of the death certificate report in creating accident prevention programs. There is also a need to reevaluate changes at ICD 10, as some information could be excluded (drowning while in bathtub or pool, versus fall) and others should be included (natural bodies of water could be stratified to ocean, river and lakes). Natural disaster (flooding) is completely excluded, and needs to be tabulated. WHO and ILS should lead the effort to highlight the benefits of having reliable information on drowning, to be used in prevention.

Bibliographical references:

1. WORLD DROWNING REPORT 2007 Edition; INTERNATIONAL LIFE SAVING FEDERATION; Published September 27, 2007. www.ilsf.org

Principal Author:

Dr David Szpilman, MD

Founder, Former President and Medical Director of Brazilian Life Saving Society – SOBRASA; Retired Medical Chief of Drowning Resuscitation Center and Aeromedical Helicopter Staff MD - Fire Department of Rio de Janeiro (CBMERJ); Head of Adult Intensive Care Unit - Hospital Municipal

Miguel Couto; Member of Brazilian National Resuscitation Council; Member of ILS Medical Committee; BOD Member of Sports Medical Council Rio de Janeiro;
Av. das Américas 3555, Bloco 2, sala 302. Barra da Tijuca - RJ - Brazil 22631-004
Phones 055 21 99983951 Phone/Fax 055 21 33262378 or 24307168
david@szpilman.com www.szpilman.com