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## “First, Do No Harm”: Old and New Paradigms in Prehospital Resuscitation in the Aquatic Domain


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## Abstract

The balance between benefit and risk is central to the work of all those involved in aquatic services. The Hippocratic exhortation of *Primum non nocere*, “First, do no harm,” has a history of over 2000 years. Superficially, all would support this dictum, but harm can result from inaction. The balance between no or little intervention on the one hand and proactive intervention with iatrogenic risk on the other is complex and enduring. Risk implies that one does not have all the information available to know the exact likelihood of an outcome, a common situation involving rescue, first aid, and resuscitation. The theme of *Primum non nocere* (and its congener, *risk-benefit ratios*) in the aquatic rescue and resuscitation domain has both ethical (e.g., Good Samaritan) and legal (e.g., tort action) implications. Recently, a reversal in intervention philosophy, “Any attempt at resuscitation is better than no attempt,” has emerged. This aphorism is in stark contrast to the traditionally conservative, “Don’t do anything for which you are untrained.” Current and continuing research audits are needed to assess whether this newer paradigm results in a risk-benefit ratio low enough to counter the traditional *Primum non nocere*.

*Keywords:* aquatic legal issues, aquatic risk management, fatal/non-fatal drowning, first aid and CPR, lifesaving, rescues

The basic ethos of water safety is, on the one hand, the encouragement of participating in aquatic activities, and on the other hand, education and training in order that drowning not occur (Peden, Franklin, & Leggat, 2016; Franklin, Pearn, & Peden, 2017; Peden, Franklin, & Queiroga, 2017). A balance between benefits and risks is central to the professional endeavours of all who work in the aquatic domain. This domain involves education and training (Franklin et al, 2015), the promotion of safe physical environments (Bugeja & Franklin, 2012), advocacy for safety legislation (Peden & Franklin, 2009; Peden, Franklin, & Leggat, 2017), and, as a form of secondary prevention, improvements in rescue, resuscitation, bystander first aid, and advanced life support (Pearn & Franklin, 2012).

Those who endeavour to promote safety in any of these themes study the perception of risk. Risk can be expressed in mathematical terms; but in practice one acts by ascribing a different quantity, the subjective interpretation of risk, to the quantitative likelihood of a deleterious outcome (Pearn, 1977). Furthermore, in the field of safety promotion, it has been shown that it is not only the *likelihood* of an injury that is more appreciated as hazard, but the *severity* of injury if a risk eventuates (Wogalter, Young, Brelsford, & Barlow, 1999). The subject of risk-benefit outcome is a topical one in the public domain with headlines that proclaim, “More harm than good” (Ablin, 2014).

The ancient and entrenched tradition of *Primum non nocere*, “First, do no harm,” dominated the ethos of prehospital resuscitation until the last decades of the twentieth century. Nevertheless, research reports in the drowning literature from the 1970s began to show benefit from a proactive approach. For example, research conducted at the Royal Children’s Hospital in Brisbane showed that if bystanders, whether previously trained in first aid/CPR or not, attempted resuscitation of apparently-drowned toddlers, the survival rates were higher (Pearn, 1985). It was also found that if bystanders involved in a rescue had earlier received any first aid training, however long before a resuscitation incident, survival rates were higher. These studies, and other similar reports, led eventually to a change in emphasis from “First, do no harm” with its connotations of passivity to a “Have a go” ethos. The Australian Resuscitation Council formally abandoned the *Primum non nocere* ethos and from 2003 onward promoted

the maxim, “any attempt at resuscitation is better than no attempt” (Australian Resuscitation Council, 2003, p. 2). In the current edition of the St John Ambulance *Australian First Aid* (an annual Australian best-seller), the relevant text contains the explicit exhortation, “You may feel uncertain but should remember that any attempt in providing first aid is better than no first aid at all” (St John Ambulance Australia, 2011, p. 36).

Currently, proactive intervention is promoted, however cavalier this might be, although with a cautious tone of not extending past basic skills (e.g., no attempt at tracheostomy, if not trained). We advocate, in this paper, for current and continuing audits to apply to these newer approaches.

## Origins

The concept of avoiding risks, if proactive intervention is contemplated, is enshrined in the *Epidemics* of what is called the Hippocratic Corpus, circa 400 B.C.E. Hippocrates professed caution in intervention. In the Hippocratic Oath, doctors (and by implication, all healthcare workers) are exhorted not to undertake interventions in which they are not trained. Hippocrates was not familiar with experiments or the scientific method, “but no physician ever profited more by experience” (Garrison, 1929, pp. 92-101). Hippocrates was the first to acknowledge that intervention might cause harm (Osler, cited in Garrison 1929, p. 95). The aphorism, “First, do no harm,” especially in its Latin form, *Primum non nocere*, became a central canon of all healthcare, particularly that relating to bystander resuscitation and first aid (Pearn, 2013).

The core meaning of *Primum non nocere* was one of conservatism and prudence and of acknowledging that unskilled or ignorant action might have unfortunate, albeit unforeseen, consequences. The *Corpus* taught that a prudent person acknowledges the possibility of unanticipated secondary injury. The message was that unskilled intervention must be resisted, if need be, by remaining inactive or passive.

The pragmatic ethical principle that whatever one does, one should not make a bad situation worse, is very old (Sharpe & Faden, 1998). It dates from a passage in the Rig Veda of Hinduism – “Do no harm to any living creature” (Tahtinen, 1976, p. 631). The impost implied not doing conscious hurt. Evolving from the origins of Hinduism in the third millennium B.C.E., this concept became formalised in the word “ahimsa,” a code of conduct dated to the 8<sup>th</sup> century B.C.E. Later, ahimsa, or the impost of doing no harm, intentional or otherwise, evolved into a fundamental ethical virtue of Hinduism; later in the decades of the 6<sup>th</sup> century B.C.E., it was incorporated into the religions of Buddhism and especially Jainism. The virtue, “ahimsa,” is the Sanskrit word for “non-injury” (*Encyclopaedia Britannica*, 1974).

The exact Latin phrase itself, *Primum non nocere*, of course does not date from the era of ancient Greece or even from the later Galenic promotion of the principle. Research by the New York Medical pharmacologist, Dr Cedric Smith, showed that the phrase, *Primum non nocere*, was first used by one of the founders of modern medicine, the English physician Dr Thomas Sydenham (1624-1689). This attribution was made by an anonymous reviewer, “H.H.,” [probably Henry Hartshorn] of a book, *Foundations of a New Theory and Practice of Medicine*, written by Dr T. Inman and published in 1860 in London (Inman, 1860).

In the late twentieth century, the dictum of *Primum non nocere* was reinforced by an unrelated source – that of the widespread institutional adoption of the principles of post-war bioethics. In the 1970s, the Beauchamp-Childress principle of non-maleficence – “not to cause

harm” as one of four cardinal ethical principles - carried within it the connotation of avoiding inadvertent harm (Gillon, 1985).

### **Rescue and Resuscitation**

In the prehospital domain, there developed the acknowledgment that doing nothing (if this was the pragmatic response to *Primum non nocere*) may be worse than trying something. This trend, evident since the 1980s in all resuscitation doctrine, is seen particularly in two domains: that of first aid teaching and that embodied in safety legislation. Both fields are of particular importance in the context of drowning prevention.

The ethic of the Good Samaritan has a history of two thousand years. In modern terms, it began in Amsterdam in 1767 with the foundation of the *Maatschappij tot Redding van Drenkelingen* (Society for the Saving of Drowning Victims). It was extended, in the military domain, by the Prussian Surgeon-General, Friedrich von Esmarch (1823-1908). In his 1871 book, the translated English title of which was “First Aid in the Field Hospital” (Esmarch, 1871). In 1878, the Scottish military surgeon, Surgeon-Major Peter Shepherd (1841 - 1879), an Associate of the St John Ambulance Association, introduced the novel concept of teaching members of the general public the drills and skills of first aid including those of resuscitation. His (posthumous) publication was entitled *Handbook Describing Aids for Cases of Injuries or Sudden Illness*. Surgeon-Major Shepherd was the first person to employ the term, “first aid,” in the English language.

Shepherd advocated trained lay bystanders using a proactive approach, but from the outset, he empered this interventionist approach with conservative warnings of what might happen if unskilled operators intervened. Shepherd included a series of specific “don’ts” in the formal curriculum taught in his first aid classes. In the doctrine he invented, his implicit philosophy was one of not causing unintentional harm. This emphasis on the ethos embodied in *Primum non nocere* continued until the last decade of the Twentieth Century. Subsequent editions of first aid handbooks contained many examples of the importance of abstaining from specific interventions. During the First World War, for example, the perceived threat of German gas attacks on the British civilian population led to the widespread distribution of the *Air Raid Precaution Handbook No.2* entitled *First Aid and Nursing for Gas Casualties*. It taught that:

*Artificial respiration must not be carried out on these patients. The lungs are seriously damaged, and in a water-logged condition, artificial respiration is likely to do more harm than good, and may even be itself a cause of sudden death (Lung irritant gas, 1916, p.7).*

The erstwhile inviolate wisdom of *Primum non nocere* was reinforced by the increasing fear of tort action if iatrogenic morbidity resulted. Regretfully, this has meant that sometimes bystanders are fearful to step forward even in emergency situations to render help in the Good Samaritan tradition. Passivity in response to inflight calls for doctors’ assistance, particularly during international flights, is one specific example.

### **Contemporary Trends**

The emergent trend of auditing healthcare interventions (e.g., the ILCOR audits; Hazinski et al., 2015) using the core principles of evidence-based medicine has justified intervention in many circumstances. In Australia legislation has been introduced to promote proactive intervention by bystanders in emergency situations. All Australian States and Territories have

responded to this risk to casualties' lives as the result of the perceived (but unrealised) threat to sue Good Samaritans. In 2007, for example, the Queensland Government passed the *Protection for Good Samaritans under the Civil Liability (Good Samaritan) Amendment Bill 2007*.

The Northern Territory Government went further. It introduced pioneering legislation (still unique in Australia) which made it mandatory for bystanders to attempt to help a victim in need of physical help. Section 155 of the *Criminal Code Act 1995* (NT) reads:

*Any person who, being able to provide rescue, resuscitation, medical treatment, first aid or succour of any kind to a person urgently in need of it and whose life may be endangered if it is not provided, callously fails to do so is guilty of a crime ...*

Specific protection was provided for such Good Samaritans under Section 8 of the *Personal Injuries (Liabilities and Damages) Act 2003* (NT) with assent on 18 March 2003. The Northern Territory Act guaranteed protection "... in which a good Samaritan does not incur personal civil liability for a personal injury caused by an act done in good faith and without recklessness while giving emergency assistance to a person."

This trend towards proactivity with subjugation of the *Primum non nocere* theme can of course have potentially harmful effects in some casualty scenarios. This is a consequence of the fact that a proportion of bystanders who attempt cardiopulmonary resuscitation (CPR) of a cardiac arrest victim, themselves are distressed by the event. This can result in the long term harm of chronic severe emotional stress to first aiders, particularly if their CPR efforts have failed (Axelsson, 2001). Many bystanders who have performed CPR fear that their intervention made things worse: "...when I heard a rib crack I wondered if I was doing it correctly...and just then I wondered if I was doing more harm than good" (Alexsson, Herlitz, & Fridlund, 2000). It is known that debriefing first aiders or bystanders, who have attempted Good Samaritan interventions, will reduce this secondary harm (Alexsson et al., 1998).

### Conclusion

Healthcare professionals and untrained bystanders alike, having to make a clinical decision involving outcome risks, can be reassured by dictums such as those enunciated by the British medical peer, Baroness Finlay (2013, pp. 16-19): "... [one] should be more risk-aware and less risk-averse."

*Primum non nocere* long has related to the risk-benefit ratio. If this ratio is perceived to be small, most decision-makers will opt for non-intervention. Just how "small" is small is a matter for judgement. If set too low, "this becomes the shield of the therapeutic nihilist" (Wogalter, Young, Brelsford, & Barlow, 1999), or the battle cry of the overly cautious or of those who see the absence of litigable intervention as more desirable than the lives which might otherwise be saved. While the proactive approach to saving a life should be lauded, this approach should not be considered without appropriate exploration of the complete picture. In the teaching of first aid and resuscitation, instructors should continue to exhort the "D" – Danger – to oneself, to the casualty, and to others, as part of the DRABCD acronym promoted by all Western teaching bodies. The not insignificant number of rescuers who drown while attempting to save others, for example, is another core theme resulting from *Primum non nocere* (Franklin & Pearn, 2011).

History shows that the ethical challenge here is also a pragmatic one. It results from the fact that the risks (i.e., the costs, and harm to individuals – both casualties and rescuers) are easily measured and sometimes costs, in monetary terms, in courts of law. By contrast, the benefits (e.g., well survivors and fulfilled rescuers) cannot so easily be ascertained. Times have changed, but time continues to be a continuum. Although the Hippocratic exhortation of “At least, do no harm” and its later Latin form of *Primum non nocere* continues to be influential in healthcare, it is appreciated today that not doing anything can be just as harmful as inactivity, even “watchful expectancy.” Nevertheless, in the new and current paradigm, constant reappraisal of risks of both proactive intervention, on the one hand, and acceptance of the *status quo*, on the other, will constantly revise the risk-benefit ratios of resuscitation.

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