Several child drowning deaths have occurred aboard cruise ships in the past year. In one of the most recent, a four-year-old boy died in a swimming pool aboard a Norwegian Cruise Line ship off the coast of North Carolina on 3 February.\(^1\) His six-year-old brother was also found in the pool, resuscitated and flown to hospital. The FBI is reported to be investigating since the ship was in international waters at the time of the incident and the deceased boy was a United States citizen.\(^2\)

This was the fourth high profile incident in the past year involving children at tourist venues. On 13 October 2013 a six-year-old boy drowned in the swimming pool aboard Carnival Cruise Lines’ *Carnival Victory*.\(^3\) On 31 March 2013 a four-year-old boy sustained brain damage in a near drowning incident on Disney cruise ship the *Fantasy*.\(^4\) Earlier in March a 13-year-old boy died after he was pulled from a swimming pool at Disney’s Pop Century Resort.\(^5\) In all of these cases questions have been raised about the availability of lifeguards at the swimming pools.\(^6\)

A review of tourist drowning deaths in recent times (Table 1) shows a wide range of locations, activities and ages of the victims. In calculating the costs of drowning deaths many would argue that a human life is priceless, especially the life of a child cut short. While legal damages in wrongful death claims are calculated largely as economic loss, the wider effect of a fatality on family, friends and communities must also be considered.

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Abelson\textsuperscript{7} notes that over the last two decades economists around the world have devoted considerable study to the valuation of life and health, and proposed many numbers. One outcome was establishing the value of a statistical life (VSL). Economists define this concept as the amount that society is willing to invest ex-ante (before the event) to save the life of one person whose identity we do not know in advance. By convention VSL is usually assumed to be the life of a young adult with at least 40 years of life ahead. It is a statistical life because it is not the life of any particular person.

VSL was used by PricewaterhouseCoopers in calculating the economic contribution of Surf Life Saving to the Australian community.\textsuperscript{8} This involved measuring the value of lives saved and injuries avoided as a result of surf lifesaver and lifeguard activities. Based on a very conservative number of 18,507 rescues undertaken nationally in the 2009/2010 season, without lifesaver and lifeguard services there would have been:

- 596 additional drowning deaths
- 555 additional permanent incapacitations, and
- 2,591 additional minor injuries or first aid treatments.

The value of a statistical life has been estimated by the Office of Best Practice Regulation to be equal to AUD $3.5 million in 2008 (3.7 million indexed to 2010 terms).\textsuperscript{9} For permanent incapacitation a similar approach has been developed, where loss of wellbeing and premature mortality – called ‘burden of disease and injury’ – are measured. The total burden of disease from spinal cord and traumatic brain injuries was calculated at AUD $2.1 million per incident, per year. Finally, the cost of minor injuries and first aid, through reducing hospital and clinic visits, was calculated at AUD $34.50 per incident.

Using the rescue numbers from 2010 the PricewaterhouseCoopers report found that Surf Life Saving services in Australia provided the greatest value in avoiding costs associated with drowning deaths, and overall the total value of lives saved and assisted was estimated to be AUD $3.4 billion.

- Drowning deaths prevented $2.2 billion
- Permanent incapacitations prevented $1.2 billion
- Minor injuries and first aid treatments prevented $90,000

In addition to these costs the report found that the flow-on effect of lost productivity avoided for the broader economy from Surf Life Saving services was an estimated AUD $154 million per year. When combined with the economic flow-on effects, the total value of lifesaver and lifeguard services was AUD $3.6 billion per year.


Providing Lifeguard Services

In their extensive review of water safety and drowning prevention for the Journal of Travel Medicine, Cortés and associates recommended that travellers should always swim in areas supervised by a lifeguard as the scientific evidence shows the presence of lifeguards increases favourable outcomes should a submersion injury occur.10 They conclude that knowing whether hotels or other types of lodging offer lifeguard supervision of designated water-recreation areas is very important.

In reply to questions raised about the 31 March 2013 near drowning incident on cruise ship the *Fantasy*, Disney reports that across its corporate group it trains more than 1200 lifeguards a year.11 According to the 2008 Disney Safety Report, lifeguards must complete a thorough training programme that exceeds most US standards and includes both a water-skills test and up to 24 hours of basic training in water rescue techniques, CPR, basic first aid, oxygen administration and the use of AEDs. After completion of basic training, lifeguards must also perform four hours of in-service training each month, undergo eight hours of re-certification training every year and participate in frequent unannounced audits by one of the world’s premier aquatic safety service providers.

While corporations like Disney and Club Med12 employ large numbers of in-house lifeguards, economies of scale suggest that smaller operations such as local government councils, independent hotels and resorts, water parks and providers of aquatic recreation that all have legal duties of care to their customers should consider outsourcing lifeguard services.

Cost/Benefit of Lifeguard Services

In 2004 Surf Life Saving Queensland commissioned accounting and management firm Ernst & Young to provide a cost/benefit assessment of the provision of in-house professional lifeguard services compared to outsourcing.13 The assessment was in response to serious issues facing lifeguard services in Australia, in particular media reports highlighting the high risk and potential liabilities of local government authorities and service providers associated with the supply of lifeguard services. The issues covered in the report are still very pertinent today.

Through stakeholder workshops, interviews with government officers and industry representatives the project confirmed the benefits of outsourcing lifeguard services, especially in terms of:

Value for money

- Service provider supplies all necessary equipment, as well as qualified staff
- Service provider takes responsibility for ongoing staff training, rostering, accreditation and employment obligations for lifeguards
- Client gains extra staff with first aid, CPR and emergency management skills and equipment if required for incidents not directly related to the water environment

Quality

- Lifeguards will have consistent standards of accreditation and training, with certification from an internationally recognised water safety agency
- Client can draw on expertise for broader risk management planning, such as appropriate signage and identification of areas where client may be exposed to risk

Transfer of risk

- Inclusion of lifeguards under the service provider’s insurance cover
- Freeing up client’s time and resources if the lifeguard service is externally managed
- Use of already developed and tested expertise, written manuals, policies and procedures by outsourcing the lifeguard service.

Lifeguards in tourism

The common practice of merely placing a sign reading ‘No Lifeguard on Duty, Swim at Your Own Risk’ and assuming that will completely discharge all legal duty of care responsibilities must now be questioned. It is not only ‘reasonably foreseeable’ but an established fact that tourists on holidays will swim in pools and at beaches outside designated opening times.14,15 Knowing this, many hotels and resorts are now employing professional lifeguards. A cost/benefit analysis shows that for many local government councils, hotels and resorts it may be more cost effective and beneficial to outsource lifeguard services. Using the value of a statistical life (VSL) as AUD $3.7 million, Australian research shows that having lifesavers and lifeguards in place directly saved the country $2.2 billion on drowning deaths in 2010.

The additional benefits of preventing permanent incapacitation, such as spinal cord and traumatic brain injuries, conservatively costing AUD $2.1 million per incident, per year, further justifies having lifeguards in place at tourist facilities.

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Table 1 Recent tourist drowning incidents reported in the media

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 April 2014</td>
<td>Pulau Perhentian Besar, Malaysia</td>
<td>A Chinese tourist drowned in the sea off Pasir Panjang beach on Pulau Perhentian Besar.</td>
</tr>
<tr>
<td>14 March 2014</td>
<td>Northern Territory, Australia</td>
<td>American tourist drowns at Kakadu</td>
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<tr>
<td>12 March 2014</td>
<td>New South Wales, Australia</td>
<td>British tourist only in the country three days has drowned at Brunswick Heads.</td>
</tr>
<tr>
<td>3 March 2014</td>
<td>Cayman Islands</td>
<td>A 46-year-old Canadian tourist in the Cayman Islands drowned while snorkeling off a popular beach.</td>
</tr>
<tr>
<td>24 February</td>
<td>Goa, India</td>
<td>Russian tourist drowns at Arossim Beach</td>
</tr>
<tr>
<td>3 February 2014</td>
<td>North Carolina, USA</td>
<td>Four-year-old boy drowns in cruise ship pool alongside brother, six, who was revived and flown to hospital</td>
</tr>
<tr>
<td>10 January 2014</td>
<td>New South Wales, Australia</td>
<td>British tourist drowns at Burrill Beach</td>
</tr>
<tr>
<td>2 January 2014</td>
<td>Maldives</td>
<td>A Chinese female tourist drowned while snorkeling in the Maldives.</td>
</tr>
<tr>
<td>3 November 2013</td>
<td>Sri Lanka</td>
<td>A 65 year old British tourist has died by drowning in the sea off Southern Sri Lanka.</td>
</tr>
<tr>
<td>13 October 2013</td>
<td>Florida, USA</td>
<td>A six-year-old boy drowned on the Carnival Victory cruise ship</td>
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<tr>
<td>6 October 2013</td>
<td>Florida, USA</td>
<td>Tourist from France drowns in rip current off South Beach after pre-dawn swim with wife</td>
</tr>
<tr>
<td>4 August 2013</td>
<td>Singapore</td>
<td>A 15-year-old tourist from China died three days after a drowning incident at a five-star hotel.</td>
</tr>
<tr>
<td>23 April 2013</td>
<td>Puerto Rico</td>
<td>A US tourist drowned at a popular beach along Puerto Rico’s north coast.</td>
</tr>
<tr>
<td>31 March 2013</td>
<td>Florida, USA</td>
<td>Boy, 4, airlifted off Disney cruise after near drowning in swimming pool</td>
</tr>
<tr>
<td>13 March 2013</td>
<td>Florida, USA</td>
<td>Boy dies after losing consciousness in pool at Disney World hotel</td>
</tr>
<tr>
<td>28 March 2013</td>
<td>Hawaii</td>
<td>A 70-year-old man visiting from Canada drowned while snorkeling at Kahaluu’u Beach Park in Kona.</td>
</tr>
<tr>
<td>27 February 2013</td>
<td>Mexico</td>
<td>A passenger of the cruise ship Carnival Elation, drowned in a beach area on the east coast of the Cozumel.</td>
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</tbody>
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