

Lifeguard Knowledge and Understanding of CPR



Dr Kevin Moran
Jonathon Webber

Background

- SLSNZ lifeguards are required to hold current CPR/first aid qualifications and undergo annual refresher training
- Lifeguarding is one of only a few 'professions' where performing CPR forms part of the job description

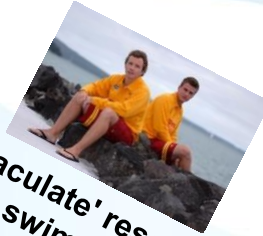


Background



'Teens breathe life into dying man'

By [Anna Leask](#), NZ HERALD
Saturday Feb 19, 2011



'Immaculate' rescue for swimmer

By [Abby Gillies](#) NZ HERALD
Sunday Feb 13, 2011

'Swimmer drowns at notorious west Auckland beach'

NZ HERALD, Sunday Feb 6, 2011

"Lifeguards did CPR on the man for about 10 minutes but he had been in the water for more than an hour so chances of reviving him were next to nothing."

Background

- In spite of this, little is known about the real and perceived ability of volunteer lifeguards (Faddy, 2002; Manolios & Mackie, 1988, in Australia)



Background

- Fire-fighters, police but not lifeguards identified in a comparative study of CPR training in Europe (Garcia-Barbero & Caturla-Such, 1999)
- Little is known how frequently CPR is used by surf lifeguards, the outcomes of the intervention, how confident they are, how willing they are to do CPR



Study Design

Two part study:

1. Survey of lifeguard CPR knowledge and beliefs
2. Practical test of CPR skills via simulated manikin practice



Method – participants/procedures

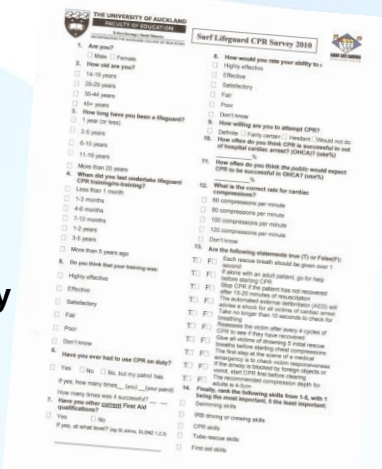
- 250 volunteer lifeguards in 16 clubs on weekend patrols in summer of 2010-2011 in Greater Auckland region
- Completed survey during patrol (randomly selected)
- Survey - 10-15 minutes duration, 15 questions, followed by
- Manikin simulation - Laerdal Skillreporter, simulation of OHCA on adult patient (NZRC protocols)



Method – Instruments

1. Written survey

- Demographics e.g. age, gender, length of service
- CPR training, when and at what level, previous use
- Perceptions of competency
- Success of CPR in ROSC
- Knowledge of CPR protocols/procedures



Method – Instruments

- 2. Practical skills test on Resusci® Anne Skillreporter™ manikin**
- Observed skills, e.g. correct sequence, open airway etc
 - Ventilation skills, e.g. correct/incorrect ventilation
 - Compression skills, e.g. correct/incorrect compression



Method – Instruments

- 2. Practical skills test on Resusci® Anne Skillreporter™ manikin**
- Observed skills, e.g. correct sequence, open airway etc
 - Ventilation skills, e.g. correct/incorrect ventilation
 - Compression skills, e.g. correct/incorrect compression

Attachment 2
Surf Lifeguard CPR Survey 2010

Practical Skills test

Participant number: _____ Club: _____
 Tester: _____ Date: _____

Item No.	Description	Pass (1)/Fail (2)
1	Rescue (checks safe to approach, don't panic)	
2	Resuscitator (checks setting, valve and mouth)	
3	Head for help (only 1) (memory memory)	
4	Airway (opens airway, bring head-tilts-back)	
5	Breathing (checks breathing < 10 seconds)	
6	1 low being and 1 no breathing - give 5 air help (or indicate they would do so)	
7	Check compressions (continuous CPR)	
8	Correct ratio (30:2)	
9	Maximum primary between sets of compressions	
10	Correct sequence (DRS&C)	
Chest compression skills		
1	Average compression rate	Number %
2	Average compression depth	
3	Average number of compressions per minute	
4	Percentage of correct chest compressions	
5	Number of too deep chest compressions	
6	Number of too shallow chest compressions	
7	Total number of chest compressions	
8	Number of wrong hand positions	
9	Number of incorrect ratios	
10	Percentage of correct compressions	
Ventilation skills		
1	Average number of ventilations	
2	Average volume of ventilations	
3	Minimum volume ventilations	
4	Number of too fast ventilations	
5	Number of too slow ventilations	
6	Number of too much ventilations	
7	Total number of ventilations	
8	Percentage of correct ventilations	

Results – Demographics

Gender	Male	144	57%
	Female	108	43%
Age	<19 years	158	63%
	20-29 years	48	19%
	30+ years	46	18%
Length of lifeguard service (N= 252)	1 year or less	76	30%
	2-5 years	117	46%
	6-10 years	27	11%
	>10 years	32	13%

Results – CPR TRAINING

Last lifeguard CPR training (N=250)	<3 months	162	65%
	4-6 months	31	12%
	7-12 months	37	15%
	> 1 year	20	8%
Use of CPR in emergency response	Yes	23	9%
	No, but my patrol has	25	10%
	No	203	81%

Results – CPR perceived ability

Self-rated CPR ability	Highly effective	11 (4%)
	Effective	118 (47%)
	Satisfactory	101 (40%)
	Fair	15 (6%)
	Poor	2 (1%)
	Don't know	5 (3%)

Results – Willingness to perform CPR

Willingness to perform CPR	Definite	99 (39%)	39%
	Fairly certain	109 (43%)	83%
	Hesitant	44 (18%)	100%

Results – ROSC using CPR (lifeguard)

Lifeguard belief of CPR value in Return of Spontaneous Circulation (ROSC) use in Out-of-Hospital-Cardiac-Arrest (OHCA)	0-25% success	120 (48%)
	26-50% success	75 (30%)
	51-75% success	23 (9 %)
	76-100% success	30 (12%)

Results – ROSC using CPR (public)

Lifeguard estimate of public belief of ROSC via CPR use in OHCA	0-25% success	15 (6%)
	26-50% success	64 (26%)
	51-75% success	33 (13%)
	76-100% success	135 (55%)

Results – Lifeguard rating of CPR skills

Lifeguard ranking of important skills	Swimming skill	103 (41%)
	CPR skill	59 (23%)
	First aid skill	56 (22%)
	Rescue tube skill	19 (7%)
	Rescue craft skill	15 (6%)

CPR Knowledge

Most lifeguards correctly responded to statements about:

- Clearing the airway (98%)
- When to stop CPR (93%)
- Correct compression depth (89%)
- Duration of breathing check (79%)
- When to go for help (71%)
- Correct initial response at scene of an emergency (69%)
- Duration of rescue breaths (66%)

CPR Knowledge

Fewer correctly responded to statements about:

- AED advising shock for all cardiac arrest victims (49%)
- 5 initial rescue breaths prior to commencement of compressions in drowning (44%)
- Reassessing victim during CPR (34%)



SUMMARY

LIFEGUARD BACKGROUND & PERCEPTIONS:

- 63% <19 years old, 76% <5 years experience
- 77% received CPR training < 6 months
- 9% had used CPR in emergency
- 51% self-rated skill as effective, 40% as satisfactory
- 48% estimated ROSC after CPR at <25%
- 55% estimated public think CPR was >75% effective



SUMMARY

LIFEGUARD CPR KNOWLEDGE:

- **86% Recalled correct comp rates of 100 p.m.**
- **89% Recalled correct comp depth**
- **93% Knew not to stop CPR after 15 mins.**
- **98% Knew to clear airway before commencing CPR**
- **77% Knew to do breathing check in <10 seconds**

FURTHER RESEARCH

Prior to making recommendations from this study, the following further analysis is required:

- **Analyse the results of the Skillreporter™ simulated test of practical skill**
- **Compare ‘real’ skills with ‘perceived’ skills**
- **Compare written understanding of CPR protocols with lifeguards’ application in simulated practice**

ACKNOWLEDGEMENTS

The authors would like to acknowledge the collaborating organisations who made this study possible:



Laerdal
helping save lives

Further Information

Moran, K. & Webber, J.(2010). *Surf Lifeguards' Knowledge, Practice and Perception of CPR.* Report to Surf Life Saving New Zealand and WaterSafe Auckland Inc. Auckland: WaterSafe Inc

Full copy of the Report will be available in June in PDF format at: www.watersafe.org.nz