



CHILDREN
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Challenges to Pool Fencing

Richard Franklin

NATIONAL DROWNING PREVENTION SUMMIT 2014

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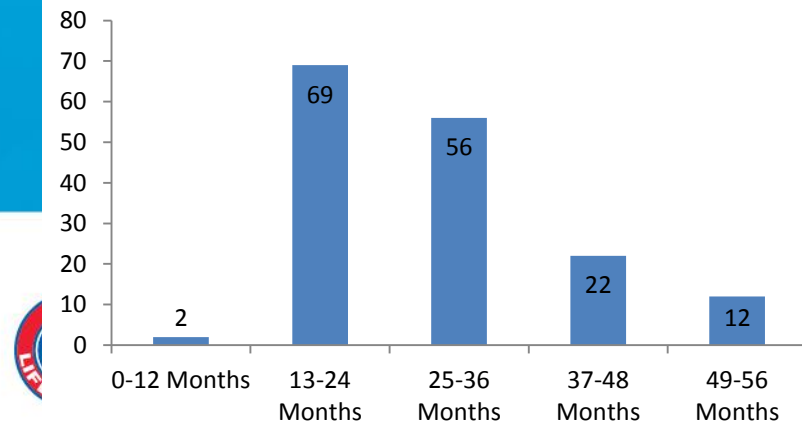
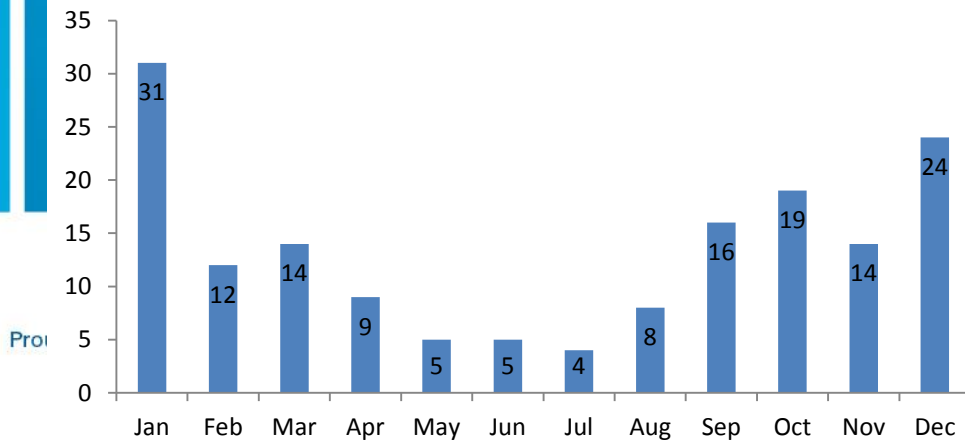
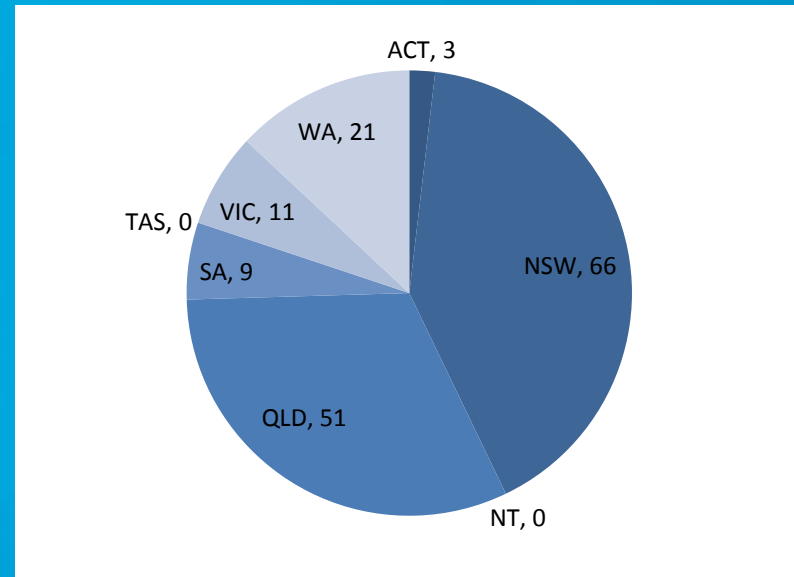
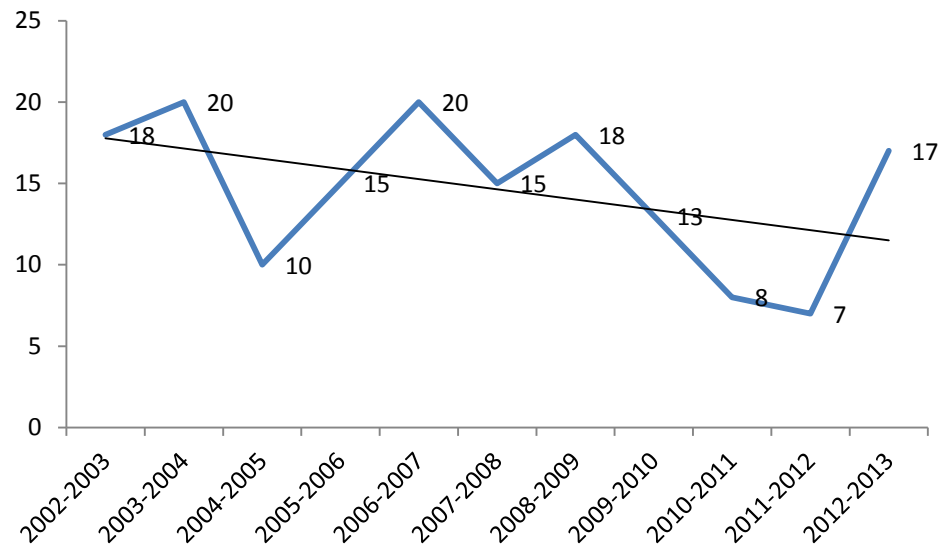


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Australia – 0-4 Home Swimming Pool Drowning Deaths





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Who is drowning in swimming pools?

- Males
- 13-36 Months
- Resident
- Weekday
- Presence of other children

Table 1. Drowning deaths of young children by child demographics and incident circumstances, Victoria 1989–2007.

Child demographics and incident information*	n	%
All deaths	80	100.0
<i>Sex</i>		
Male	53	66.3
Female	27	33.7
<i>Age in months</i>		
0–12	5	6.3
13–24	30	37.5
25–36	30	37.5
37–48	11	13.8
49–60	4	5.0
<i>Resident</i>		
Yes	47	58.7
No – Visitor	28	35.0
No – Neighbouring	5	6.3
<i>Time of week</i>		
Weekday	52	65.0
Weekend	28	35.0
<i>Interaction with water on day of incident</i>		
No	62	77.5
Yes	16	20.0
Unknown	2	2.5
<i>Presence of other children</i>		
Yes	50	62.5
No	30	37.5
<i>Social gathering</i>		
No	56	70.0
Yes	24	30.0

Note: *All of the above variables were examined against the four protective stratagems to test for any variance. There was no statistical variance found.

Bugeja, Lyndal, and Richard C. Franklin. "An analysis of stratagems to reduce drowning deaths of young children in private swimming pools and spas in Victoria, Australia." *International journal of injury control and safety promotion* 20.3 (2013): 282-294.

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What works to prevent children drowning in Swimming Pools?

Table 2. Drowning deaths of young children by presence of stratagems, Victoria 1989–2007.

Presence of stratagem	Yes		No		Unknown		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Legislatively compliant safety barrier	4	5.0	64	80.0	12	15.0	80	100.0
Adequate caregiver supervision	13	16.3	67	83.7	–	(–)	80	100.0
Water familiarisation	13	16.3	9	11.3	58	72.5	80	100.0
Early administration of CPR	9	11.3	40	50.0	31	38.7	80	100.0

Stratagem combinations present	Known stratagems present [#] <i>n</i> (%)	Possible stratagems present* <i>n</i> (%)
0 stratagem present	51 (64)	4 (5)
1 stratagem present	22 (28)	25 (31)
Legislatively compliant safety barrier	1 (5)	3 (12)
Adequate caregiver supervision	9 (41)	– (–)
Water familiarisation	8 (36)	21 (84)
Early administration of CPR	4 (18)	1 (4)
2 stratagems present	5 (6)	41 (51)
Legislatively compliant safety barrier AND Adequate caregiver supervision	1 (20)	– (–)
Legislatively compliant safety barrier AND Water familiarisation	1 (20)	5 (12)
Adequate caregiver supervision AND Early administration of CPR	1 (20)	1 (2)
Adequate caregiver supervision AND Water familiarisation	– (–)	6 (15)
Water familiarisation AND Early administration of CPR	2 (40)	29 (71)
3 stratagems present	1 (1)	7 (9)
Legislatively compliant safety barrier AND Adequate caregiver supervision AND Water familiarisation	– (–)	1 (14)
Legislatively compliant safety barrier AND Water familiarisation AND Early administration of CPR	– (–)	4 (57)
Adequate caregiver supervision AND Water familiarisation AND Early administration of CPR	1 (100)	2 (29)
4 stratagems present	1 (1)	3 (4)
Legislatively compliant safety barrier AND Adequate caregiver supervision AND Water familiarisation AND Early administration of CPR	1 (100)	3 (100)

Note: [#]When it was not known if the stratagem was present it was assumed to be not present. *Where unknown – assumed it was present to provide a range of possible stratagems.





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Pool Fence configuration

- In-ground RR 4.1 (2.11 to 8.00)
- Above ground RR 4.3 (1.09-16.9)

TABLE 3: Relative risk (unfenced:fenced) of drownings and near-drownings involving unintended access to domestic pools

Pool type	Type of pool fencing			Relative risk (RR)	95% confidence limits
	Unfenced	Three-sided*	Four-sided ¹		
Inground				4.10	2.11, 8.00
Immersion injuries ²	33	12	10		
Pools ³	34	59	34		
Above-ground				4.30	1.09, 16.9 ⁴
Immersion injuries	10	3	0		
Pools	31	31	9		
Spa				**	**
Immersion injuries	4	0	0		
Pools	3	1	2		
All pools				3.76	2.14, 6.62
Immersion injuries	47	15	10		
Pools	68	91	45		

*All children gained access to these pools through a house door

¹All children gained access to these pools through a pool gate

²Numbers of immersion injuries from the injury surveillance database

³Numbers of pools from the Homesafe survey

⁴**Number too small for analysis

Pitt, W. Robert, and Kevin P. Balanda. "Childhood drowning and near-drowning in Brisbane: the contribution of domestic pools." *Med J Aust* 154.10 (1991): 661-665.

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Top 5 Issues

- Gate does not latch
- Gate does not self close
- Climbable objects
- Ground movement
- Gate is propped open

Table 2: First inspection compliance results and types of faults.

	Council A ^a (n=1,003)		Council B ^b (n=863)		Council C ^d (n=464)	
	n	%	n	% ^e	n	%
Inspection results						
Compliant	487	48.6	835	96.8	212	45.7
Non-compliant	516	51.4	28	3.2	252	54.3
Faults						
Fence-related faults						
Not isolation fence	27	5.2		5	63	25.0
Height less than 1200mm	36	7.0		5		
Defective condition	15	2.9				
Incorrect vertical space	25	4.8				
Incorrect horizontal space	24	4.7				
Excess space under fence	94	18.2				
Climbable objects too close	132	25.6		^e		
Gate-related faults						
Height less than 1200mm	13	2.5			78	30.9
Not opening outwards	36	7.0				
Not self-closing	163	31.6		^e		
Not self-latching	234	45.3		^e		
Latch-related faults						
Latch not minimum 1500mm (externally)	53	10.3			105	41.6
Latch not minimum 1200mm (internally)	25	4.8				
No latch shield	33	6.4				
Other faults						
Door access to pool area	44	8.5		50 ^e		
Window access to pool area	30	5.8		30		
No/inadequate signage	169	32.8		^e	82	32.5

(a) Results from first inspection.

(b) There were 1,262 pools on Council B's pool register, 399 of which were still to be inspected and so of unknown status.

(c) Based on estimated percentages from expert opinion. Council B's pool register cannot tally faults in specific categories.

(d) There were 645 pools on Council C's pool register, 181 of which were still to be inspected.

(e) Other faults included defects such as gates not self-closing or self-latching, climbable objects too close to the fence, or inadequate signage.

van Weerdenburg, Katherine, Rebecca Mitchell, and Frank Wallner. "Backyard swimming pool safety inspections: a comparison of management approaches and compliance levels in three local government areas in NSW." *Health Promotion Journal of Australia* 17.1 (2006): 37-42.

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L. Bugeja and R.C. Franklin

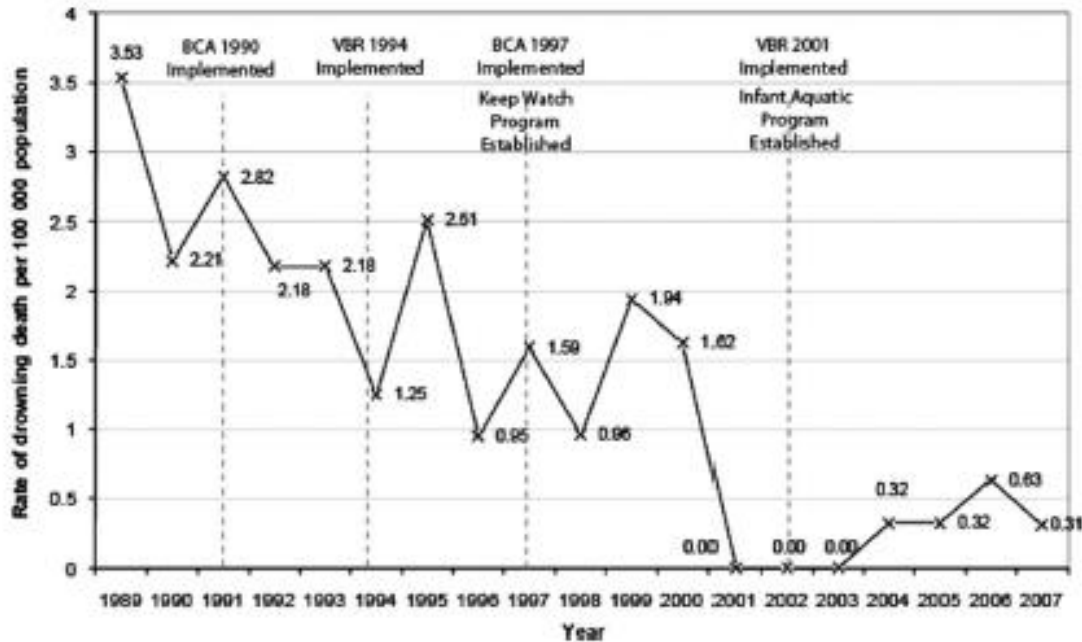


Figure 1. Rate of drowning deaths per 100,000 population for 0-4 year old children, Victoria 1989-2007. BCA = Building Code of Australia; VBR = Victorian Building Regulations.

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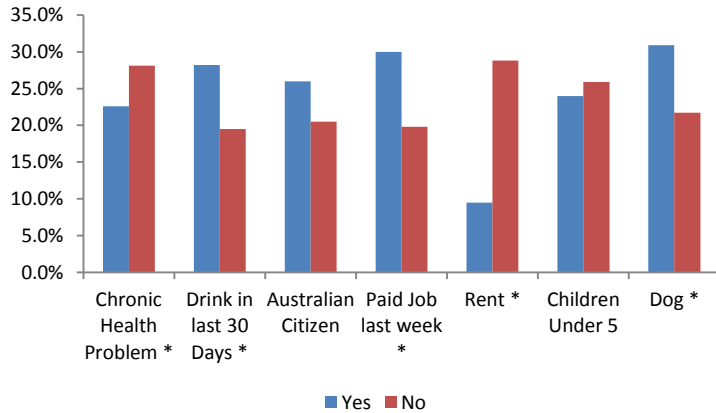


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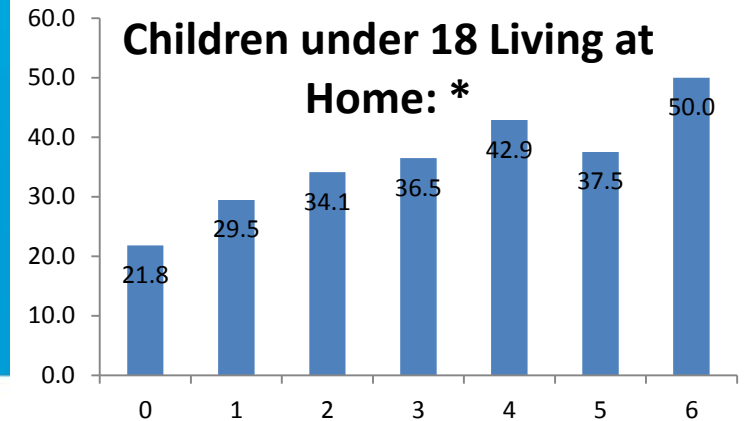
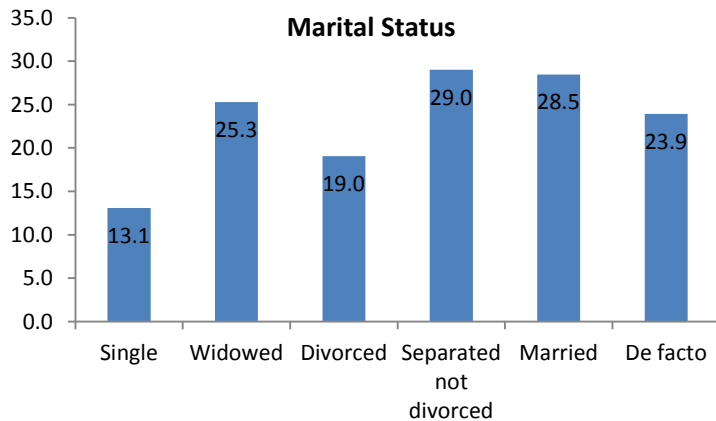


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What type of person owns a pool?



- Healthy
- Drinks
- Paid
- Own
- Dog
- Not Single or divorced
- Have older children at home



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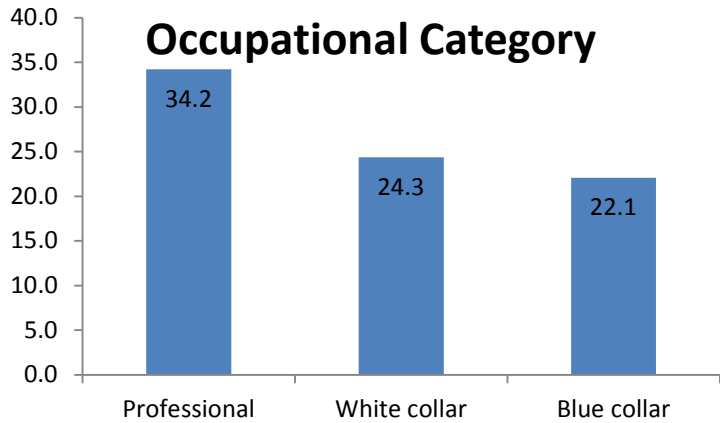


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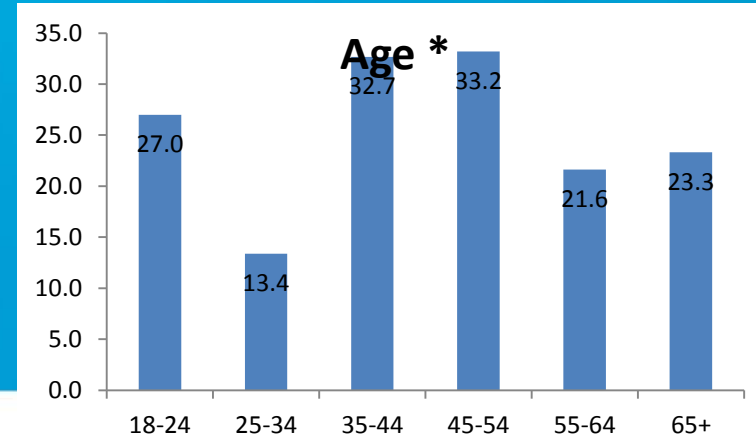
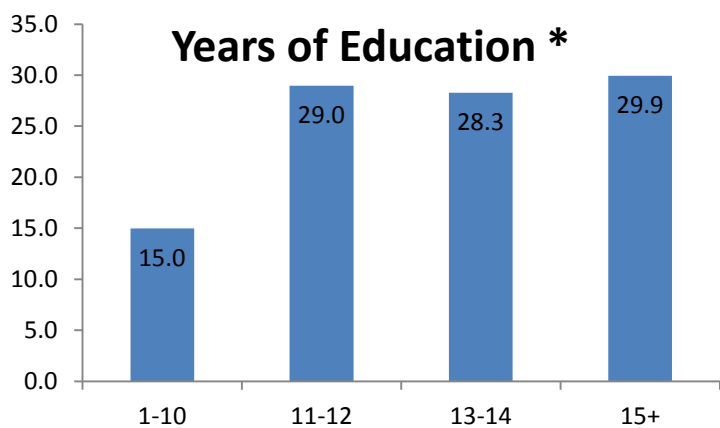


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What type of person owns a pool?



- Professional
- Makes >\$100k
- Educated
- Aged 35-54 Years



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Challenges



- Fencing ✓
- 4 sided pool fencing
 - (slowly fixing some retrospective issues)
- Rental properties
- Enforcement
- Ageing infrastructure
- Australian Standards
 - (Continuous process of improvement)
- Supervision
 - An ongoing process

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Rental

- Responsibility
- Who rents?
- Knowledge?

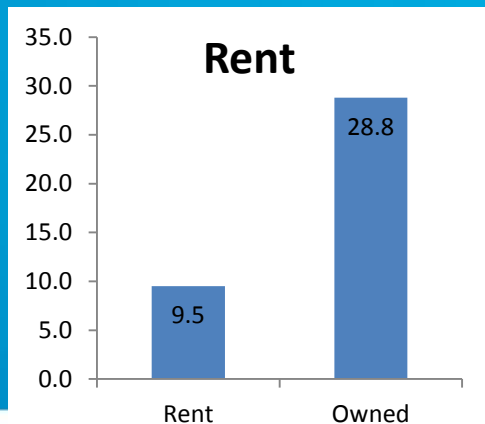


Table 6 Duration of residence in current dwelling by selected characteristics (per cent distribution), people aged 15 and over, Australia, 1992

Characteristic	Duration of residence (years)						Total	Median (years)
	<2	2-6	7-11	12-16	17-21	22+		
Age								
15-29	47.8	23.0	8.7	9.3	7.9	3.3	100.0	2.5
30-44	33.3	35.5	17.2	8.4	3.3	2.3	100.0	4.3
45-59	16.8	24.7	15.3	13.2	12.7	17.2	100.0	9.8
60+	9.8	19.0	13.1	9.9	9.8	38.4	100.0	16.1
Marital status								
Never married	41.1	20.7	10.9	11.1	9.2	7.0	100.0	4.1
Married	24.0	29.7	15.2	9.8	7.5	13.9	100.0	6.4
Separated	52.8	23.8	9.5	5.7	3.0	5.3	100.0	1.9
Divorced	40.7	30.9	12.0	6.4	4.3	5.7	100.0	3.5
Widowed	12.4	19.7	11.6	10.6	9.9	35.8	100.0	15.0
Family type (heads)								
Couple	29.2	22.8	11.4	7.4	6.9	22.4	100.0	6.6
Couple and children	25.6	33.4	16.7	10.2	7.0	7.0	100.0	5.6
Sole parents	38.0	24.6	11.5	7.7	5.7	12.4	100.0	4.4
Lone person	32.0	23.6	11.3	7.6	6.0	19.5	100.0	5.8
Group household	68.3	19.6	4.6	1.9	1.7	3.9	100.0	1.5
Type of dwelling (heads)								
Separate house	24.1	27.5	14.5	9.4	7.4	17.1	100.0	6.7
Other dwelling	54.1	26.1	8.7	5.0	3.0	3.1	100.0	1.8
Other	61.1	25.0	5.7	3.7	1.9	2.5	100.0	1.6
Nature of occupancy (heads)								
Owned	9.0	21.5	17.0	12.2	11.6	28.7	100.0	13.0
Being purchased	27.5	40.3	14.9	9.0	4.2	4.1	100.0	4.8
Rented	65.8	22.3	5.8	2.7	1.1	2.3	100.0	1.5
Boarding	59.8	20.9	6.7	5.4	2.9	4.3	100.0	1.7
Living rent free	37.0	26.8	11.6	3.8	5.5	15.3	100.0	4.4
Labour force status								
Employed	32.0	28.4	14.0	9.8	7.9	7.8	100.0	5.2
Unemployed	48.3	22.9	9.2	9.4	6.4	3.8	100.0	2.4
Not in LF	22.4	23.9	13.3	10.2	8.0	22.2	100.0	8.4
Total population	30.0	26.4	13.4	9.9	7.8	12.4	100.0	5.8

Source: ABS Survey of Families 1992 (unpublished data).

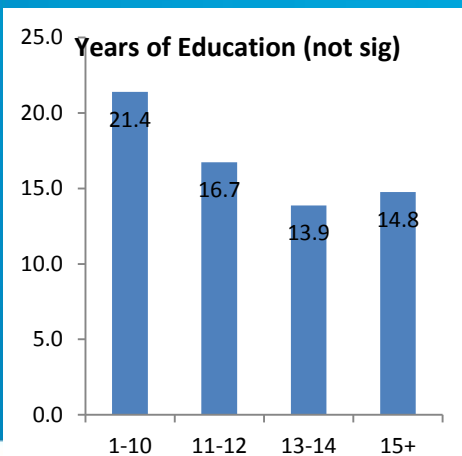
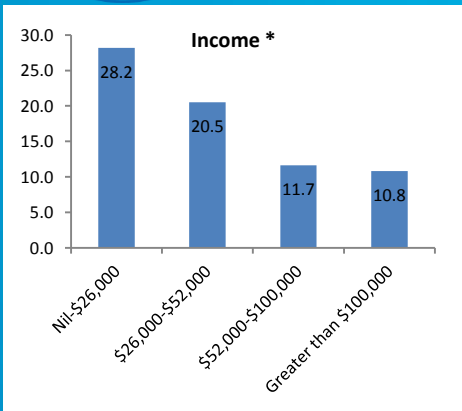
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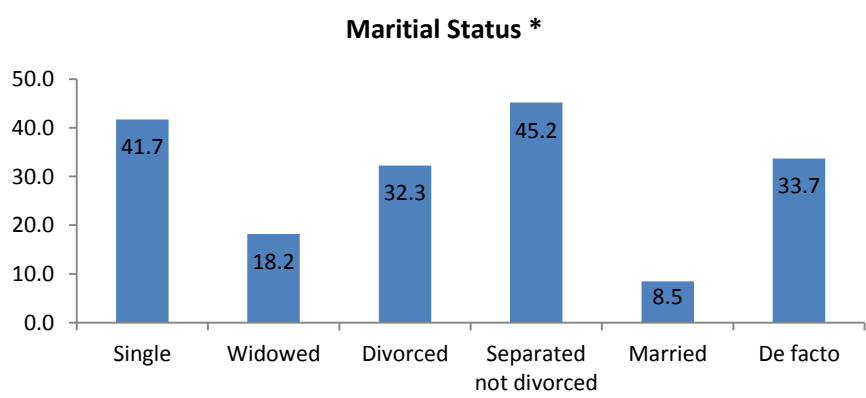
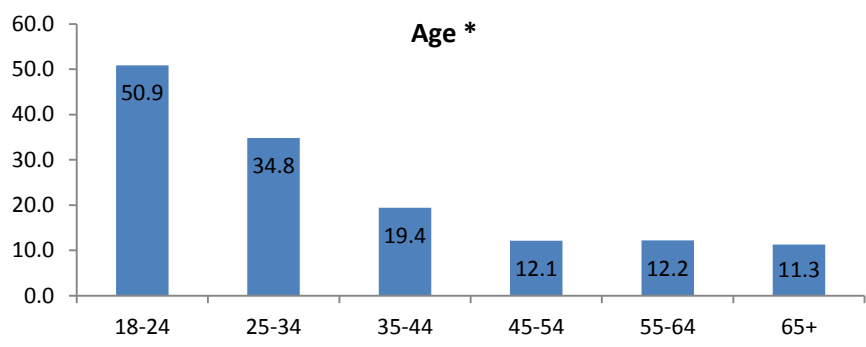
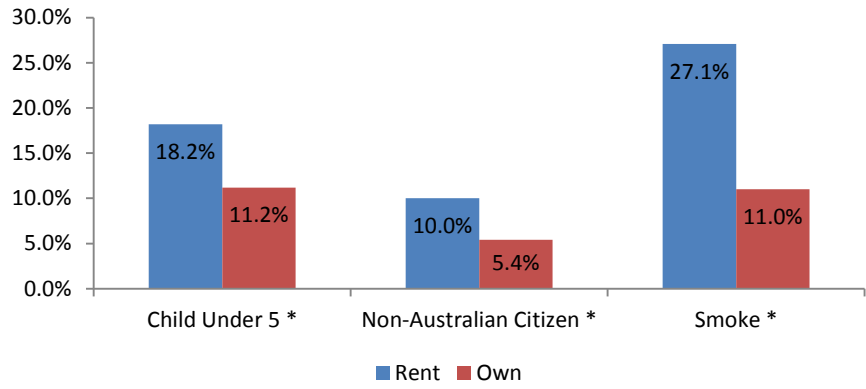
Bell, Martin. "How often do Australians move? Alternative measures of population mobility." *Journal of the Australian Population Association* 13.2 (1996): 101-124.



Who rents?



- People with children <5
- Non-Australian Residents
- Smokes
- Younger
- Earn less money
- Single / Separated / Divorced



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Actions

- Rental properties requiring a higher level of compliance?
 - 4 sided (i.e. brought up to current standard)
 - Certified and checked regularly
 - No exemptions
- Complaints by tenants need to be fix within? ...
- New tenants provided with information about?
- Penalties?

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Enforcement

NSW

- Mainly on pool completion
- Cost (only 1/3 thought the pool owner should pay)

Table 3: Have you ever had an inspection of your swimming pool to ensure it is safe? (If yes, what year approximately)?

		Before 1990	1991-1999	2000-2009	Other	TOTAL
Council A	No.	16	90	395	2	503
	57.7% %	3.2%	17.9%	78.5%	.4%	100.0%
Council B	No.	14	18	73	1	106
	44.9% %	13.2%	17.0%	68.9%	.9%	100.0%
Total	No.	30	108	468	3	609
	%	4.9%	17.7%	76.8%	.5%	100.0%

Pro Simmonds, Erin, et al. "What do pool owners think about pool safety? An examination of the views of pool owners within two local councils in NSW." *written communication* (2010).



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Table 1: Council management processes for backyard swimming pools.

Factor	Council A	Council B	Council C
Property management database (pool development application)	Yes	Yes	Yes
Swimming pool register	No	Yes	Yes (reactivated in 2000)
Individual with designated responsibility for management of existing pools and enforcement of the NSW Swimming Pools Act 1992	No	Yes	Yes
Pool inspection program	No	Annual blitz	Annual blitz (since 2000)
Enforcement of act	No	Yes	Limited
Pool owner contact	No	At inspection and during campaigns	At inspection and during campaigns
Process to manage non-compliance	Yes	Yes	Yes

van Weerdenburg, Katherine, Rebecca Mitchell, and Frank Wallner. "Backyard swimming pool safety inspections: a comparison of management approaches and compliance levels in three local government areas in NSW." *Health Promotion Journal of Australia* 17.1 (2006): 37-42.

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Enforcement Challenges

- Climbable Objects
- Inspectors
- Certification
- Registers
- Signage

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Ageing infrastructure

- How do you update
 - Qld at time of sale
- New technology?
 - Magnetic gate latches
 - Alarms
- Disasters

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