

Investigating the impact of indemnity waivers on the length of stay of cats at an Australian shelter*

Jessica Pockett¹, Bronwyn Orr¹, Evelyn Hall², Wye Li Chong³ and Mark Westman¹

¹ The University of Sydney, Camperdown, NSW, 2006, Australia.

² The University of Sydney, Camden, NSW, 2570, Australia.

³ RSPCA ACT; Weston ACT, 2611, Australia.

*A published version of this paper is available from *Animals* (open access) <https://www.mdpi.com/2076-2615/9/2/50/html>.

Abstract

Due to resource limitations, animal shelters in Australia historically have focused on rehoming animals considered ‘highly adoptable’. Increasingly, animal shelters in Australia are rehoming animals with pre-existing medical and/or behavioural issues. These animals are often rehomed with an indemnity waiver to transfer the responsibility of ongoing financial costs associated with these conditions from the shelter to the new owner. However, it is unknown what effect these indemnity waivers have on the length of stay (LOS) of animals prior to adoption. The current study used data collected from the Royal Society for the Prevention of Cruelty to Animals (RSPCA) Weston shelter located in the Australian Capital Territory (ACT), Australia in 2017 to investigate the effect of indemnity waivers on the LOS of cats. A restricted maximum likelihood model (REML) was used to determine the effect of breed, age, coat colour, presence of a waiver, waiver type (categorised into seven groups) and waiver number (no waiver, single waiver or multiple waivers) on LOS. In the final multivariate model, age, breed and total waiver number were found to have a significant effect on LOS. Younger cats generally adopted fastest ($P = 0.004$), purebred cats had a lower mean LOS compared to non-purebred cats (2.0 +/- 0.56 days *versus* 6.6 +/- 0.56 days; $P < 0.001$), and cats with multiple waivers (2+ waivers) had an increased LOS compared to cats rehomed without waivers (4.8 +/- 0.89 days *versus* 2.8 +/- 0.5 days; $P = 0.016$). Coat colour and waiver type were not found to have a significant effect on LOS. This study is the first to report the effect of indemnity waivers on the adoptability of cats from shelters.

1. Introduction

Animal shelters play a vital role in providing a safe, comfortable environment for unwanted, stray and injured animals before they are reunited, rehabilitated, rehomed or, as a last resort, euthanased [1,2]. One organisation that works to care for and protect animals in Australia, the Royal Society for the Prevention of Cruelty to Animals (RSPCA), receives thousands of animals annually in every state and territory [3]. During the 2016-2017 financial year, RSPCA Australia received a total of 135,872 animals, with cats comprising the highest proportion (53,912; 40%) of the total number of animals received [1]. The majority of these cats (33,253; 62%) were either rehomed or reclaimed, but a proportion (14,563; 27%) were euthanased for a variety of reasons [2].

The aim of every rehoming organisation is to maximise rehoming and minimise euthanasia. Integral to both of these aims is to minimise the length of stay (LOS) of animals (defined as the amount of time from availability to adoption). The longer an animal's LOS, the higher the risk of that animal contracting disease (in particular feline upper respiratory tract infection and dermatophytosis in cats) or developing negative behavioural traits [3,4]. This then creates a cycle whereby the animal becomes less adoptable, the LOS is increased further, and euthanasia becomes more likely [2,3,5,6,7]. Animals with a prolonged LOS also occupy valuable cage space which might be better utilised to rehome other more adoptable animals. Therefore, LOS is an important statistic that is monitored closely by shelters and resources are targeted towards strategies to reduce LOS.

A cat's behaviour, temperament and personality have been found to be important factors influencing potential adopters' choices when selecting a cat, in particular playfulness and approachability, even more than physical appearance [8-13]. Physical traits that are associated with a shorter LOS include age (younger cats), sex (male), breed (exotic/purebred), coat colour (light-coloured) and coat pattern (tortoiseshell-tabby) [8,13,14].

In response to changing community expectations about acceptable euthanasia rates, shelters are increasingly rehoming animals with pre-existing medical and/or behavioural issues to new owners who sign an 'indemnity waiver/s' at the time of adoption. An indemnity waiver is a legal document that ensures the new owner understands that the animal is being rehomed with a pre-existing condition/s, and that all financial costs associated with the pre-existing condition/s become the responsibility of the new owner following adoption. However, the effect of waivers on LOS and adoptability is unknown. It is assumed by shelters that animals without pre-existing conditions are generally rehomed

faster than those animals rehomed with identified conditions, due to the additional time and financial costs possibly associated with such conditions.

The aim of this study was to determine the effect of indemnity waivers on the LOS of cats rehomed from an Australian shelter.

2. Materials and Methods

2.1. Study population

This study used computerised adoption records from cats admitted to a managed RSPCA admission shelter in Weston, Australian Capital Territory (ACT), Australia. Cats were either owner-relinquished or strays. Once admitted to the shelter, the cat underwent a full physical examination by a shelter veterinarian, was vaccinated with a core trivalent vaccine (F3), treated for internal and external parasites, and, if needed, microchipped. Any obvious medical abnormalities were noted at this time by the veterinarian and, if no further intervention was required, an indemnity waiver was placed on the cat's file to inform new owners of any medical issues that required consideration prior to adoption. A behavioural examination was then performed by a senior shelter staff member trained in behavioural assessments and, based on this assessment, the cat was either passed as being behaviourally suitable for adoption and transferred to a cage in the rehoming area or left to settle in a holding cage. If the cat was left to settle, a further behavioural examination was performed three days later. Any perceived behavioural issues observed during either examination were recorded as an indemnity waiver. Once a surrendered cat had passed both its medical and behavioural assessment, if it didn't require veterinary treatment it was immediately ready for adoption. Stray cats were required to complete a mandatory holding period of seven days before ownership was assigned to the RSPCA and they could be made available for adoption. Surrendered and stray cats that required additional tests and procedures, such as desexing, dental procedures, radiographs and surgery, had these interventions performed before becoming available for adoption.

2.2. Description of data set

All cats six months-of-age and older adopted between the 1st of June and the 11th of December 2017 were included. Cats under six months of-age were not included as cats in this age bracket are rarely rehomed with any type of waiver from the shelter (W. Chong, *per comms*). In addition, young cats (< 6 months) are generally rehomed faster than adult

cats, meaning this group wouldn't have represented a suitable non-waiver group for comparison. Three cats rehomed with waivers for simply being geriatric were excluded from final analysis, since this waiver may have been a confounding factor when considering the effect of age on LOS. These geriatric cats had no pre-existing conditions identified on examination, and the 'geriatric waiver' was simply seen a way of fast-tracking adoption without having to perform additional testing, e.g, blood tests for chronic kidney disease or hyperthyroidism (W. Chong, *per comms*). Cats not placed for adoption, such as those reclaimed by owners or euthanased for medical or behaviour reasons, were also excluded from the study.

Information collected for the purpose of this study included the cat's identification number, sex, estimated primary breed, primary coat colour/pattern, approximate or known age, description of indemnity waiver/s, number of waivers (if more than one), reason for return (if previously returned) and LOS. Data were extracted from the shelter management software (Shelter Buddy[®]) and exported to and managed using Microsoft Excel[®].

2.3. Age categories

Age was estimated by RSPCA employees based on physical traits including dental wear. Based on this estimate, 'juveniles' were defined as cats aged 6 months to 1 year, 'young adults' 1-5 years, 'adults' 5-8 years and 'geriatric adults' 8 years and older.

2.4. Breed designations

Cats were categorised into primary breeds based on phenotype. From an original characterisation of 13 breeds, breed was retrospectively standardised by the primary author (JP) into two primary groups for study analysis: 'Non-purebred', which included domestic short-haired, domestic medium-haired, domestic long-haired and domestic bob-tailed cats; and 'Purebred', which included Siamese, Tonkinese, Burmese, Russian Blue, Birman, Ragdoll, Bengal cross, Turkish Van and Abyssinian cats.

2.5. Coat colour definitions

Coat colour was retrospectively categorised into seven groups by the primary author (JP) to facilitate statistical analysis. The final seven groups, with the original coat colour included in parentheses, were: Dark (black, brown and chocolate), ginger, white, grey

(grey, blue, lilac), two tone (black/white, brown/ white, grey/white, blue/white, ginger/white, tabby/white, lilac point/seal point), tortoiseshell and tabby.

2.6. Length of stay (LOS)

LOS was defined as the time (in whole days) from when the animal's status on Shelter Buddy® was changed from 'available for adoption' to 'adopted'. The calculated LOS did not include the mandatory holding period for stray cats or the time spent awaiting initial examination, routine testing, behavioural assessment or treatment by a veterinarian. As some cats were made immediately available for adoption and others had to remain for a holding period, LOS was defined as a conservative variable for statistical analysis. For cats that were returned to the shelter after being adopted, only their first LOS was included in the analysis. If returned cats were subsequently euthanased, their data were still included in the analysis.

2.7. Waiver type and waiver number

A brief description of individual waivers ($n = 26$) is provided in Table 1, with these waivers retrospectively categorised into seven groups ('waiver type') by the primary author (JP) for analysis (Table 2). For analysis, both waiver type and the number of waivers an individual cat held (0, 1 and 2+) were considered. Cats rehomed with two or more waivers were considered together to make the waiver number group sizes comparable (Table 3).

2.8. Returned cats

Cats were also split into two groups (returned versus not returned) for bimodal analysis.

Table 1. Cat adoption waivers used at the RSPCA Weston shelter in the ACT, Australia with accompanying explanations for potential adopters.

Waiver	Explanation and/or reason for waiver
Obesity ($n = 5$)	Animal requires weight reduction program to return to a healthy weight
Squamous cell carcinoma (SCC) risk ($n = 95$)	Risk of SCC due to white or pink features on face and ears

'Cat flu' (<i>n</i> = 33)	Exposed or previously contracted cat flu (feline upper respiratory tract disease), likely to have latent viral infection for life
Umbilical hernia (<i>n</i> = 1)	A condition in which the intestine protrudes through the abdominal muscles at the umbilicus
FLUTD (feline lower urinary tract disease) (<i>n</i> = 7)	Showed evidence of blood in urine or FLUTD-like symptoms whilst in care, possibly predisposed to FLUTD in the future
Ringworm (<i>n</i> = 5)	Exposed or previously contracted ringworm
Flea allergy dermatitis (FAD) (<i>n</i> = 1)	Showed signs of FAD in care, owners will need to continue flea treatment to prevent recurrence
Dental disease (<i>n</i> = 44)	Minor or major dental disease identified on examination, likely to require some treatment for dental disease in future (minor = scale and polish, major = extractions)
Teeth extracted (<i>n</i> = 11)	Major dental surgery performed with the possibility for future dental disease
Osteoarthritis (<i>n</i> = 6)	Evidence of arthritis, management of condition required in future
Tremoring (<i>n</i> = 1)	Undiagnosed neurological tremor
Abscess (<i>n</i> = 1)	Presented to shelter with an abscess which was in the process of healing
FIV (feline immunodeficiency virus) (<i>n</i> = 12)	Tested FIV-positive, not showing clinical signs, disease might progress in future
Feline acne (<i>n</i> = 3)	Evidence of feline acne whilst in care, management changes will be required in future
Femoral head excision (FHE) (<i>n</i> = 1)	Femoral head was surgically removed in care due to previous trauma, ongoing management may be required
Pelvic fractures (<i>n</i> = 1)	Old injury, likely will have arthritis in future
Luxating patella (<i>n</i> = 1)	Diagnosed with low grade luxating patella, not surgically corrected, will require ongoing management

Hyperthyroidism (<i>n</i> = 1)	Surrendered on hyperthyroid medication, however no clinical signs while in care and T3 and T4 levels normal. Possibility of requiring treatment for hyperthyroidism in the future
CKD (chronic kidney disease) (<i>n</i> = 1)	Diagnosed with CKD while in care, management of the condition will be required
Oral trauma (<i>n</i> = 1)	Presented with this, still healing during adoption
Corneal ulceration (<i>n</i> = 1)	Presented with this, still healing during adoption
Anxiety (<i>n</i> = 1)	Will need ongoing management
Skin mites (<i>n</i> = 1)	Diagnosed while in care and treated but might reoccur
Pica (<i>n</i> = 1)	The persistent behaviour of eating non-food material (e.g. blankets, socks, grocery bags)
Medical fail (<i>n</i> = 1)	Chronic medical issue likely to deteriorate with time (e.g. advanced CKD, congenital heart disease)
Wound (<i>n</i> = 1)	Presented with large skin wound, still healing during adoption

Table 2. Categorisation of waivers from Table 1 into seven groups ('waiver type') for the purposes of statistical analysis. The total number of waiver types included for this study is summarised in Table 3.

Waiver type	Waivers included
Behavioural	Pica, anxiety and tremoring
Feline immunodeficiency virus (FIV)	FIV-positive
Major medical	CKD, hyperthyroidism and medical fail
Minor medical	Abscess, umbilical hernia, obesity, 'cat flu', SCC risk, oral trauma, corneal ulceration, wound and FLUTD
Musculoskeletal	Luxating patella, FHE, pelvic fractures and

	osteoarthritis
Dermatological	Skin mites, FAD, feline acne and ringworm
Dental	Minor dental disease - without extractions, major dental disease - with extractions

2.8. Statistical analysis

An Anderson Darling test for normality determined that the LOS data were not normally distributed, and examination of a Q-Q plot demonstrated that logarithmic transformation was suitable. All statistical analysis was conducted in GenStat® (v.17, VSNi). For all analyses, a *P* value of < 0.05 was considered significant. As some cats were adopted within 24 hours of entering the shelter and had a '0' LOS, each length of stay had 1 added to its value to make the data statistically meaningful. Two separate Restricted Maximum Likelihood (REML) models were used: Firstly, the impact of age, breed, colour, presence of a waiver (Y/N) and waiver number (0, 1, 2+) on LOS; and secondly, the impact of waiver type on LOS. Univariate analyses were conducted on each model to determine initial significance, followed by a stepwise backwards elimination approach to determine a final model where all factors were significant. Post-hoc testing was conducted using least significant differences (LSD) to determine significant pairwise comparisons for significant effects. Bimodal analysis using ANOVA was the conducted to determine if there was a significant difference in LOS between cats that were returned and cats that were not returned.

2.9. Ethics approval

Ethics approval was not sought for this study. The research presented in this paper is analysis of historical data involving an accepted practice, i.e. applying indemnity waivers to animals available for adoption. No animals or humans were directly involved or recruited for the study. Written permission was received from the shelter supplying the data for analysis before research commenced.

3. Results

3.1. Study population

The final study cohort comprised of 249 cats of varying ages, sexes, breeds and health statuses (Table 3). The average LOS for the 249 cats rehomed during the study period was 8.8 days, with a range of less than 1 day to 70 days.

Table 3. Summary of the study cohort ($n = 249$) by sex, breed, age, presence or absence of a waiver, number of waivers assigned to each cat ('waiver number') and waiver type. In total there were 237 waiver types analysed due to the variation in waiver number between cats (i.e. 0, 1 and 2+).

Variable	Categories	Number
Sex	Male	116
	Female	133
Breed	Non-purebred	234
	Purebred	15
Age	Juveniles (6-12 months)	28
	Young adults (1-5 years)	145
	Adults (5-8 years)	38
	Geriatrics (> 8 years)	34
	Unknown	4
Coat colour	Dark	55
	Ginger	8
	White	11
	Grey	12
	Two tone	38
	Tortoiseshell	30
	Tabby	95
Waiver presence	Yes	163
	No	86
Waiver number	No waiver	88
	One waiver	99

	Multiple waivers (i.e. 2 or more) [#]	62
Waiver type	Behavioural	3
	Feline immunodeficiency virus (FIV)	11
	Major medical	3
	Minor medical	146
	Musculoskeletal	9
	Dermatological	10
	Dental disease	55

[#] Cats with two or more waivers were considered together to make the waiver number groups of comparable size. Multiple waivers included 50 cats with two waivers, 11 cats with three waivers and one cat rehomed with five waivers.

3.2. Univariate analysis

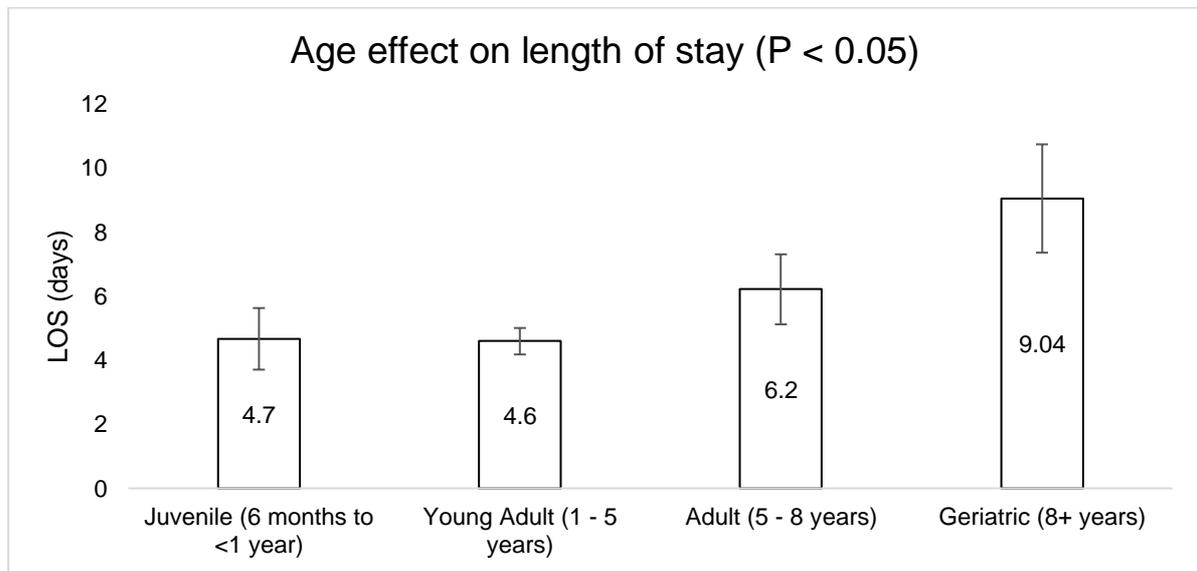
Controlling for other variables (breed, age, coat colour, waiver presence and waiver type), sex was not found to have a significant effect on LOS (females 5.6 +/- 0.53 days *versus* males 4.8 +/- 0.50 days; $P = 0.312$). Age was found to have a significant effect on LOS, with younger cats generally adopted fastest ($P = 0.009$). Geriatric cats were found to have the longest LOS, remaining in the shelter for an average of 9 +/- 1.69 days, followed by adult cats (6.2 +/- 1.09 days), juvenile cats (4.7 +/- 0.96 days) and young adults (4.6 +/- 0.41 days) (Figure 1). Purebred cats had a 62% lower mean LOS compared to non-purebred cats (2.1 +/- 0.6 days *versus* 5.5 +/- 0.39 days; $P < 0.001$). Coat colour was not found to have a significant effect on LOS ($P = 0.476$). Cats rehomed with an indemnity waiver had a significantly higher mean LOS compared to the non-waiver population (5.9 +/- 0.51 days *versus* 4.1 +/- 0.49 days; $P = 0.015$). The number of waivers assigned to a cat was also found to have a significant effect on LOS ($P = 0.006$). Cats that were rehomed without a waiver had the shortest LOS (4.15 +/- 0.48 days), followed by cats rehomed with one waiver (5.1 +/- 0.56 days) and cats rehomed with multiple waivers (7.41 +/- 1.02 days). A summary of these results is presented in Table 4.

Table 4. REML univariate model output assessing interactions between predictor values and LOS.

Name of variable	Wald statistic	n.d.f	F statistic	d.d.f	F pr
Sex	1.03	1	1.03	247.0	0.312

Breed	10.91	1	10.91	247.0	0.001
Age	11.95	3	3.98	241.0	0.009
Colour	5.56	6	0.93	242.0	0.476
Waiver (yes/no)	5.97	1	5.97	247.0	0.015
Total waiver number (0, 1, 2+)	10.39	2	5.19	246.0	0.006

Figure 1. Effect of age on LOS. Age was found to have a significant effect, with juvenile and young adult cats rehomed faster than adult and geriatric cats ($P = 0.009$).



3.3. Multivariate analysis

Age, breed and total waiver number were included in the REML multivariable model to assess the effects of these proposed predictor values on LOS, based on significant results from univariate analysis ($P < 0.05$). In the multivariate model, all variables remained significant ($P = 0.004$, $P < 0.001$ and $P = 0.016$, respectively) (Table 5). Purebred cats had a lower mean LOS compared to non-purebred cats (2.0 ± 0.56 days versus 6.6 ± 0.56 days; $P < 0.001$), and there was a significantly increased LOS for cats with multiple waivers (2+ waivers) compared to cats with no waivers (4.8 ± 0.89 days versus 2.8 ± 0.5 days; $P = 0.016$) (Figure 2). Possible interactions between breed and age, age and waiver number and waiver number and breed were then tested, with no interactions observed ($P = 0.83$, $P = 0.23$ and $P = 0.45$, respectively).

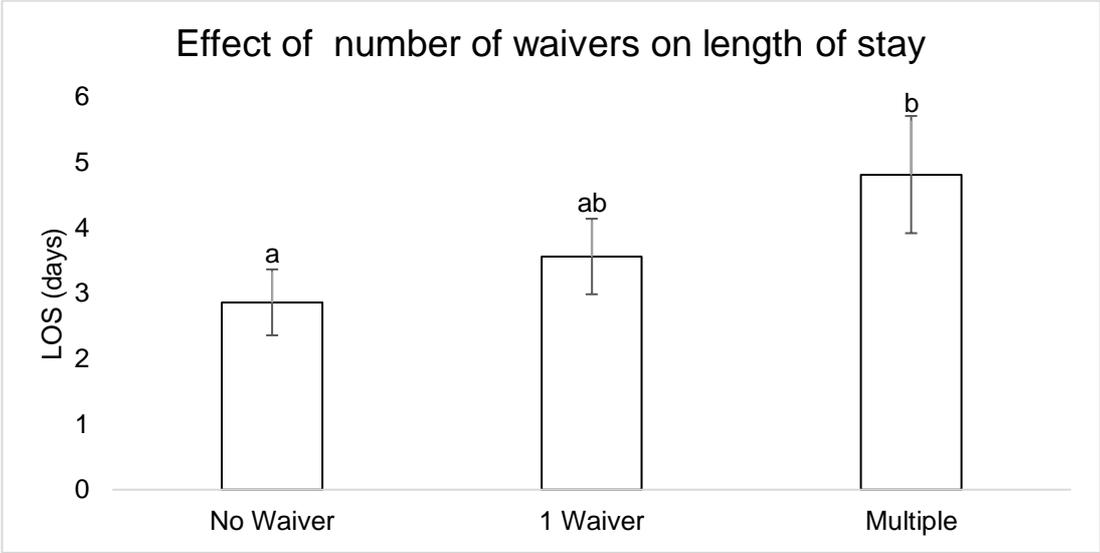
With relation to waiver type, none were found to be significant when compared to the average LOS for the waiver group (Figure 3): Behaviour ($P = 0.98$, 7.0 ± 4.5 days), FIV

($P = 0.062$, 12.2 +/- 4.1 days), major medical ($P = 0.32$, 4.3 +/- 2.8 days), minor medical ($P = 0.28$, 6.2 +/- 0.6 days), musculoskeletal ($P = 0.23$, 10.3 +/- 3.8 days), dental ($P = 0.54$, 5.7 +/- 0.6 days) and dermatological ($P = 0.093$).

Table 5. REML multivariate model output assessing interactions between predictor values and LOS (final model).

Name of variable	Wald statistic	n.d.f	F statistic	d.d.f	F pr
Age	13.63	3	4.54	238.0	0.004
Breed	17.36	1	17.36	238.0	< 0.001
Waiver number	8.41	2	4.20	238.0	0.016

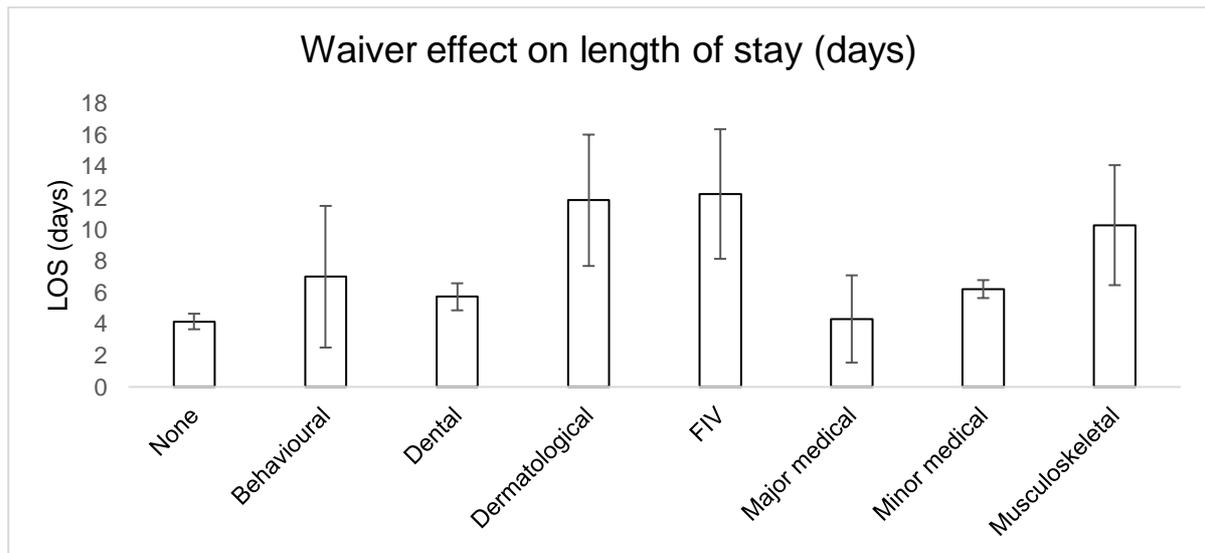
Figure 2. Effect of total waiver number on LOS.



3.4. Bimodal analysis

There was no significant difference in LOS between cats that were returned and those that were not ($P = 0.654$, no return LOS 5.8 +/- 1.07 days versus returned LOS 6.8 +/- 4.17).

Figure 3. Effect of waiver type on LOS.



4. Discussion

The adoptability of cats from an Australian shelter, as measured by LOS, was influenced by age, breed, the presence of an indemnity waiver and the number of indemnity waivers. This is, to our knowledge, the first time the effect of pre-existing conditions on adoptability has been reported in the literature. Cats rehomed with an indemnity waiver/s were found to have a significantly longer LOS compared to those cats rehomed without a waiver. This finding was most likely the result of waivers being a major point of discussion and deliberation during the adoption process, with potential owners needing to consider if they had the time, capacity and/or finances to appropriately care for the cat. Cats rehomed with multiple waivers took significantly longer to rehome than cats with a single waiver, suggesting that potential adopters were put off when confronted with multiple issues. The actual waiver type was not found to have a significant effect on LOS. However, both the FIV and dermatological waiver groups had *P*-values that approached significance ($P = 0.062$ and 0.093 , respectively). The small sample sizes for these groups (11 and 10 cats, respectively) may have contributed to this conclusion, and it is possible that significant associations may have been found with larger sample sizes, meaning more research in this area is needed.

Age was found to significantly effect LOS, with young adults having the shortest LOS, followed by juveniles, adults and geriatrics. A study conducted across three cat shelters in the Czech Republic reported that adult cats had the shortest LOS, followed by kittens, juveniles, young adults and geriatric cats [8]. Young adult cats may have had the shortest LOS in our study due to an overrepresentation ($145/249 = 58\%$). Similar to the results from our study, geriatric cats rehomed from a no-kill shelter in New York State had the longest

LOS [14], and other studies have reported that the likelihood of adoption decreased with increasing age [6,11,14-16]. It is clear that age is an important factor for predicting LOS, with increasing age generally resulting in an increasing LOS [13].

Breed was found to influence LOS in this study, with purebred cats breeds having a shorter LOS compared to non-purebred cats. This finding is consistently reported in the literature [14,17]. One study concluded that Persians, Russian Blues and Ragdolls had a LOS 64% shorter than non-purebred cats, similar to the 62% reported in our study [2].

Sex was not found to have a significant effect on the LOS of cats in our study. This contrasts from the general trend reported in other studies, with males repeatedly found to be adopted faster than females [10, 14, 16]. Brown and Morgan (2015) reported that male kittens were adopted ten days earlier than females [14], and similarly Janke *et al.* (2017) reported that males had a LOS 20% shorter than females [2]. It has been suggested that this finding is the result of behavioural differences between males and females, with male cats approaching potential adopters more readily than females and being more playful [14]. In contrast, a study conducted across three shelters in the Czech Republic found no difference in LOS between male and female cats [8]. However, this finding was thought to be a result of the predominance of female cats in the shelters [8]. As our study also had a slight predominance of female cats (133/249 = 56%), it is possible that our results were similarly skewed, or may have been affected by an insufficient sample size.

Coat colour was another physical trait that was found to have no impact on LOS in the current study. This finding contrasts many other studies that have reported a significant impact of coat colour on LOS [8,14,16,17]. Generally, cats with darker coats have been reported to take longer to adopt than medium-shade or lighter coloured cats [8,14,16,17]. Kubesova *et al.* (2017) reported that darker coloured cats remained in shelters approximately one month longer than other coloured cats [8]. Similarly, Brown and Morgan (2015) reported that cats with seal colouration had the shortest LOS, whilst cats primarily yellow or black in colour had the longest LOS [14]. The difference in coat colour findings from our study compared to previous studies is most likely attributed to our small sample size and limited variation within each colour category. It is also possible that local preferences for coat colour and pattern exist among shelters, and this possibility should be explored further [15].

The finding that the presence of an FIV waiver did not have a significant impact on LOS is important as previously some shelters haven't rehomed FIV-positive cats on the basis that

they will have a prolonged LOS and occupy space that could be used for more 'adoptable' cats [18]. In one unpublished study, 4/17 Australian shelters responded that they euthanased all FIV-positive cats regardless of health status (BO, *per comms*). Results from this study may therefore increase the number of FIV-positive cats rehomed from shelters in Australia. With appropriate management, FIV-infected cats can live as long as FIV-uninfected cats and, if kept indoors, FIV-positive cats pose a minimal transmission risk to other animals [19].

Out of a total of 249 cats studied, only 20 cats were returned to the shelter. Out of these 20 cats, 7 had not been assigned a waiver. Bimodal analysis revealed that there was no significant difference found between cats that had been returned and those that had not. Reasons for return included both human and animal factors: lack of time, behaviour or temperament related issues, moving to a new house, allergies to the animal, the animal not being house trained, owner health or just because, with behaviour/temperament being the most common reason for return. Further research should be conducted to determine if this finding is representative of return rates for shelter cat populations. Additionally, it would be useful to determine the return rate of cats adopted with waivers, and if this rate differs across waiver type.

Important variables that may impact cats' LOS in shelters and were not considered in the current study include the behaviour of the animal, the photo of the animal used on the website and any associated text, provision of toys, time of year, the name of the cat, the description of the cat on the cage card, the relationship of the cat to adoption staff and the language adoption staff used to describe the cat, as well as any seasonal effects. Future LOS studies should attempt to take into consideration as many of these variables as possible. A cat's behaviour has been found to be the primary factor influencing potential adopters' choice in selecting a cat, with temperament and personality ranked higher than physical appearance [9-13]. Based on a questionnaire, cats that appeared 'friendly', 'happy', 'relaxed', 'playful', 'friendly with other cats' and 'smart' were most attractive to potential adopters [12]. The same questionnaire revealed that individual cats and cats observed trying to hide in the litter box were unattractive to potential adopters [12]. In other studies, active cats and cats provided with toys in their cage were viewed for significantly longer than cats that were less active or without toys [11,12]. Future research, which was not possible in the current study due to the retrospective design, should attempt to investigate any potential correlation between LOS and whether a cat passed its initial behavioural examination or needed to undergo additional behavioural assessments. Cat adoption has also been found to be influenced by season, with one study reporting that

adoption rates increased following the breeding season [8]. Certain medical conditions are also more prevalent during specific periods of the year, for example flea allergy dermatitis (FAD) is usually worse during the summer months, which may result in an increased number of cats with dermatological waivers during this period. As only one cat presented with a seasonal condition (FAD), the effect of seasonal conditions on waiver type and LOS was not investigated.

Finally, this study primarily assessed the impact of a waiver on cats' LOS but did not assess whether or not this impact was the primary consequence of the waiver itself or the arrangement it results in. Further research to determine if the impact was the result of the waiver (and signing process), or the post-adoption conditions required by the waiver, would therefore be useful.

5. Conclusions

This study was the first to determine that the presence of a waiver, but not the waiver type, had a significant negative impact on the LOS of cats rehomed from an Australian shelter. Shelters should direct resources, reserve prominent cage locations and target media efforts towards rehoming cats with waivers in order to reduce LOS and increase rehoming rates. Shelters should also consider whether a waiver is absolutely necessary (e.g. for very minor conditions), knowing that it may increase the LOS of these cats.

Acknowledgements

We are extremely grateful to, and would like to acknowledge the support of, all the staff at RSPCA ACT for the successful completion of this project. Thank you for your ongoing hard work caring for abandoned, unwanted, neglected and abused animals in your care. We would also like to acknowledge funding from the Sydney School of Veterinary Science, the University of Sydney, and RSPCA Australia, in order to publish these results in an open access journal.

References

1. Royal Society for the Prevention of Cruelty to Animals. RSPCA Australian National Statistics 2016-2017. Available online: <https://www.rspca.org.au/sites/default/files/RSPCA%20Australia%20Annual%20Statistics%20final%202016-2017.pdf> (Accessed 02 February 2018)

2. Janke, N.; Berke, O.; Flockhart, T.; Bateman, S.; Coe, J.B. Risk factors affecting length of stay of cats in an animal shelter: A case study at the Guelph Humane Society, 2011-2016. *Prev Vet Med* 2017, 148, 44-48, DOI 10.1016/j.prevetmed.2017.10.007. Available online: <https://www.sciencedirect.com/science/article/pii/S0167587717302647> (accessed on 02 February 2018)
3. Dinnage, J.D.; Scarlett, J.M.; Richards, J.R. Descriptive epidemiology of feline upper respiratory tract disease in an animal shelter. *J Feline Med Surg* 2009, 11, 816–825. DOI 10.1016/j.jfms.2009.03.001. Available online: <https://www.ncbi.nlm.nih.gov/pubmed/19782625> (accessed on 13 September 2018)
4. Edinboro, C.H.; Janowitz, L.K.; Guptill-Yoran, L.; Glickman, L.T. A clinical trial of intranasal and subcutaneous vaccines to prevent upper respiratory infection in cats at an animal shelter. *Feline Pract.* 1999, 27, 7–11, 13, DOI 10.1016/j.prevetmed.2003.10.001. Available online: <https://www-sciencedirect-com.ezproxy1.library.usyd.edu.au/science/article/pii/S0167587703002769> (accessed on 13 September 2018)
5. Federation of Humane Societies - Animal Shelter Statistics 2015. Available online: <https://www.stratfordcanada.ca/en/insiddecityhall/resources/Animal-Control/CFHS-Report---2015-Animal-Shelter-Statistics.pdf> (Accessed 02 February 2018)
6. Gouveia, K.; Magalhaes, A.; de Sousa, L. The behaviour of domestic cats in a shelter: residence time, density and sex ratio. *Appl Anim Behav Sci* 2011, 130, 53–59, DOI 10.1016/j.applanim.2010.12.009. Available online: <https://www.sciencedirect.com/science/article/pii/S0168159110003606> (Accessed 14 March 2018)
7. Dybdall, K.; Strasser, R. Is there a bias against stray cats in shelters? People's perception of shelter cats and how it influences adoption time. *J Anthrozoös* 2014, 27 (4), 603–614, DOI 10.2752/089279314X14072268688087. Available online: <https://www.tandfonline.com/doi/abs/10.2752/089279314X14072268688087> (Accessed 14 March 2018)
8. Kubesova, K.; Voslarova, E.; Vecerek, V.; Vucinic, M. Investigating some of the factors that affect the selection of shelter cats by adopters in the Czech Republic. *J Anthrozoös* 2017, 30 (4), 623-633, DOI: 10.1080/08927936.2017.1370230. Available online: <https://www.tandfonline.com/doi/abs/10.1080/08927936.2017.1370230> (Accessed 14 March 2018)
9. Delgado, M. M.; Munera, J.D.; Reeve, G.M. Human perceptions of coat color as an indicator of domestic cat personality. *J Anthrozoös* 2017, 25, 427–440, DOI 10.2752/175303712x13479798785779. Available online:

<https://www.tandfonline.com/doi/abs/10.2752/175303712X13479798785779>

(Accessed 14 March 2018)

10. Fantuzzi, J.M.; Miller, K.A.; Weiss, E. Factors relevant to adoption of cats in an animal shelter. *J Appl Anim Welf Sci* 2010, 13, 174–179, DOI 10.1080/10888700903583467. Available online: <https://www.ncbi.nlm.nih.gov/pubmed/20349382> (Accessed 07 May 2018)
11. Gourkow, N.; Fraser, D. The effect of housing and handling practices on the welfare, behaviour and selection of domestic cats (*Felis sylvestris catus*) by adopters in an animal shelter. *Anim Welfare* 2006, 15, 371–377. Available online: https://www.researchgate.net/publication/228677173_The_effect_of_housing_and_handling_practices_on_the_welfare_behaviour_and_selection_of_domestic_cats_Felis_sylvestris_catus_by_adopters_in_an_animal_shelter (Accessed 07 May 2018)
12. Kry, K.; Casey, R. The effect of hiding enrichment on stress levels and behavior of domestic cats (*Felis sylvestris catus*) in a shelter setting and the implications for adoption potential. *Anim Welf* 2007, 16, 375–383. Available online: https://www.researchgate.net/publication/229001589_The_effect_of_hiding_enrichment_on_stress_levels_and_behaviour_of_domestic_cats_Felis_sylvestris_catus_in_a_shelter_setting_and_the_implications_for_adoption (Accessed 07 May 2018)
13. Weiss, E.; Miller, K.; Mohan-Gibbons, H.; Vela, C. Why did you choose this pet? Adopters and pet selection preferences in five animal shelters in the United States. *Animals* 2012, 2, 144–159. DOI 10.3390/ani2020144. Available online: <https://www.ncbi.nlm.nih.gov/pubmed/26486914> (Accessed 08 May 2018)
14. Brown, W.P.; Morgan, K.T. Age, breed designation, coat colour, and coat pattern influences the length of stay of cats at a no-kill shelter. *J Appl Anim Welf Sci* 2015, 18 (2), 169–180. DOI: 10.1080/10888705.2014.971156. Available online: <https://www.ncbi.nlm.nih.gov/pubmed/25347158> (Accessed 08 May 2018)
15. Onodera, N.; Uchida, K.; Kakuma, Y. Association between characteristics of cats and satisfaction of owners who adopted cats from an animal hospital in Japan. *J Vet Med Sci* 2014, 76 (5), 729–733, DOI 10.1292/jvms.12-0569. Available online: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4073343/> (Accessed 08 May 2018)
16. Lepper, M.; Kass, P.; Hart, L. Prediction of adoption versus euthanasia among dogs and cats in a California animal shelter. *J Appl Anim Welf Sci* 2002, 5, 29–42, DOI 10.1207/S15327604JAWS0501_3. Available online: <https://www.ncbi.nlm.nih.gov/pubmed/12738587> (Accessed 08 May 2018)
17. Alberthsen, C.; Rand, J.S.; Bennett, P.C.; Paterson, M.; Lawrie, M.; Morton, J.M. Cat admissions to RSPCA shelters in Queensland, Australia: description of cats and risk factors for euthanasia after entry. *Aust Vet J* 2013, 95, 35–42, DOI 10.1111/avj.12013.

Available online: <https://onlinelibrary.wiley.com/resolve/doi?DOI=10.1111/avj.12013>
(Accessed 09 May 2018)

18. Mullan, S. Are you positive? The fate of a shelter cat. *In Practice* 2012, 34, 550-551, DOI:10.1136/inp.e6711 (Accessed 12 June 2018)
19. Hosie, M.J.; Addie, D.; Belak, S.; Boucraut-Baralon, C.; Egberink, H.; Frymus, T.; Gruffydd-Jones, T.; Hartmann, K.; Lloret, A.; Lutz, H.; Marsilio, F.; Pennisi, M.G.; Radford, A.D.; Thiry, E.; Truyen, U.; Horzinek, M.C. Feline immunodeficiency ABCD guidelines on prevention and management. *J Feline Med Surg* 2009, 11 (7), 575-84, DOI: 10.1016/j.jfms (Accessed 12 June 2018)