



This WALTHAM Foundation Agreement ("Agreement") for a WALTHAM Foundation grant is made this 1st day of June 2012 ("Effective Date") by and between Dr. Jacque Rand and Sarah Zito (collectively "Researcher") and University of Queensland ("University") and The WALTHAM Foundation, through Mars, Incorporated ("WF").

WF has been established with the aim of promoting innovative and humane studies that advance the understanding of the nutrition, welfare and healthy longevity of companion animals worldwide and benefit the public and

WF grants are selected on the basis of their scientific merit and contribution to companion animal welfare, health and longevity and, to this aim, WF desires to support the "Equipping veterinary students to address pet overpopulation" research project to be conducted by the Researcher at the University as detailed in Attachment A ("Project") which is incorporated herein and made part of this Agreement.

The Researcher, University and WF agree as follows:

1. The Researcher and the University desire to and will conduct the Project at the University and will conduct the Project in accordance with the terms and conditions of this Agreement.
2. The Researcher will commence the Project on or after 1 June 2012 and complete the Project by 31 May 2014.
3. The Researcher and the University will be responsible for and ensure that all appropriate agreements and documents are executed in order to give effect to the purpose and provisions of this Agreement.
4. The University will allow the Researcher to conduct the Project using its facilities (or facilitate the use of such other facilities as have been specified in the Project) in accordance with the terms and conditions of this Agreement and will provide supplies and support normally associated with such Project.
5. The University and the Researcher specifically agree that:
 - a. THE PROJECT WILL NOT RESULT IN PAIN OR SUFFERING OF ANY PARTICIPATING ANIMALS;
 - b. NO ANIMALS WILL BE EUTHANIZED AS A RESULT OF OR IN CONNECTION WITH THE RESEARCH; AND
 - c. THE UNIVERSITY AND THE RESEARCHER WILL AT ALL TIMES DURING THE PROJECT COMPLY WITH MARS' ANIMAL TESTING POLICY.

6. The Researcher and the University will return a fully executed, original copy of this Agreement no later than 30 days from receipt of this Agreement. In the event that the fully executed, original copy of this Agreement is not received by WF within the 30 day period, WF may withdraw the funding in its sole discretion
7. The payment of **USD\$19,608** ("Grant") will be the complete obligation of WF under this Agreement and will be made within 30 days of receiving a fully executed, original copy of this Agreement and the University's electronic invoice.

8. A detailed electronic invoice (including a unique invoice number) must be emailed to Excluded personal information [@effem.com](mailto: @effem.com) (with a copy to Dr. Karyl Hurley at Excluded personal information [@effem.com](mailto: @effem.com)) on letter headed paper from the University for USD\$19,608 addressed as follows:

The Waltham Foundation
Attn: Karyl Hurley
6885 Elm Street
McLean, Virginia 22101 USA

9. The University will hold the Grant and distribute it solely for use by the Researcher in conducting the Project in accordance with the terms of this Agreement.
10. In the event that the Project is not completed within the time period stated above, WF may request, in its sole discretion, the return of the proportion of the Grant in connection with the uncompleted work. If WF makes a request pursuant to this Section 10, the University must return the unused proportion of the Grant to WF within 10 days of the request.
11. The Researcher will maintain complete and accurate records of all the results of the Project ("Results") and will provide WF with brief written summaries of the progress of the Project and the Results at least semi-annually and will submit a written Final Report ("Final Report") of the Project and the Results within 90 days of the completion of the Project.
12. The Researcher will be free to publicly communicate (written or orally) the Results and is encouraged to publish the Results in scientific journals so that companion animals around the world benefit from the Project. The Researcher must provide a copy of any communication or publication regarding the Results to the WF contact listed in Section 17 not less than 30 days in advance of any communication, publication or dissemination. Upon request by WF, the Researcher and/or the University will retract any scientific communication that has not previously been provided to WF in advance of its communication, dissemination or publication.
13. The purpose of WF funding is to support research that will be published and freely available for use by the public in order to promote the long, healthy lives of companion animals worldwide. The Researcher and University (and any third parties) will not generate any proprietary technology or intellectual property that will prevent or limit the use of the Results by the general public. Consistent with this, Mars, Incorporated, and its divisions, subsidiaries and affiliates will be free to use the Results in any manner. The Researcher and University agree to grant and hereby grant to Mars, Incorporated, and its divisions, subsidiaries and affiliates, a non-exclusive, paid-up, royalty free, perpetual, irrevocable, worldwide license to use, reproduce, distribute, display, prepare derivative works, modify and develop the Results and Final Report in any manner without any additional compensation or accounting to the Researcher or the University.

14. The Researcher and the University undertake, represent and warrant the following:
- a. they have full legal capacity and authority to enter into and perform their obligations under this Agreement;
 - b. their signing and performance of this Agreement will not violate, breach, conflict with or constitute a default under any of their agreements or obligations;
 - c. to ensure that all personnel work diligently, conscientiously and professionally in carrying out the Project;
 - d. to perform the Project in strict compliance with all specifications, standards, requirements, descriptions and protocols contained in this Agreement;
 - e. to obtain any and all permits, licenses, governmental, third party and participant consents, approvals, assignments or waivers in a timely manner which are required in connection with the performance of the Project and this Agreement;
 - f. all Project performed under this Agreement will comply with all applicable laws, rules and regulations including, but not limited to, all applicable privacy and data protection laws and regulations; and
 - g. all Results will be made freely available for use by the general public in order to promote the long, healthy lives of companion animals worldwide.
15. The Researcher and the University will not use the name(s), trade name(s) or trademark(s) (whether registered or not) of The Waltham Foundation or Mars, Incorporated, and its divisions, subsidiaries and affiliates, in any communication, publicity or advertising without WF's prior written approval, except that it is expected that the WF funding of this Project only is acknowledged in scientific communications. The Researcher and the University may include the WF name only in listings of sponsored research projects. All other terms and conditions of this Agreement will be considered WF Confidential Information and will not be disclosed by the Researcher or the University without WF's prior written consent.
16. This Agreement is not intended to establish a relationship of principal and agent or employee and employer between the parties and the Researcher and the University will be, and will be deemed to be, independent contractors. Nor will this Agreement be construed as creating any form of legal association or arrangement, which would impose liability upon one party for the act or failure to act of any other party. No party to this Agreement will have the authority to make any statements, representations or commitments of any kind or to take any action which will be binding on the other party.
17. All Notices under this Agreement will be in writing and sent as follows:

For WF:

The Waltham Foundation
Attn: Karyl Hurley
6885 Elm Street
McLean, Virginia 22101 USA

For Researcher and University:

Mr Ian Harris
Director, Strategic Partnerships
The University of Queensland
Brisbane, Queensland, Australia, 4072
Telephone: +61 7 3365 3559
Fax: +61 7 3365 8383
Email: contracts@research.uq.edu.au

All Notices will be deemed to be effective upon actual receipt.

18. No party to this Agreement will have the right to assign or otherwise transfer any of its rights or obligations under this Agreement without the prior written consent of the other parties; provided that WF will have the right to assign any of its rights or obligations under this Agreement to any division, subsidiary or affiliate of Mars, Incorporated. Any purported assignment contrary to this provision is void *ab initio*.
19. The Researcher and the University will not use any subcontractor to perform any work under this Agreement without the prior written consent of WF.
20. This Agreement will be binding upon, and inure to the benefit of, and be enforceable by the parties and their respective successors and assigns.
21. No provision of this Agreement will be waived unless in writing and signed by all parties to this Agreement. The waiver of any provision of this Agreement will not be deemed to be a continuing waiver or the waiver of any other provision of this Agreement.
22. This Agreement and the Project, including, but not limited to, the scope of work and timings, will be modified only by written agreement of the authorized representatives of each of the parties.
23. Mars, Incorporated and its divisions, subsidiaries and affiliates will incur no liability or responsibility to any person or entity as a consequence of the Grant or this Agreement. Notwithstanding any other provision of this Agreement, WF will not be liable to the Researcher or the University for any consequential, indirect, incidental or special damages of any kind.
24. This Agreement will be governed by the internal laws of the State of Delaware, United States of America, without regard to any conflict of law principles, and, to the extent applicable, the laws of the United States of America.
25. This Agreement embodies the entire understanding among and between the parties relating to the subject matter hereof and supersedes all prior understandings and agreements whether written or oral, implied or explicit.
26. This Agreement may be executed in any number of counterparts, all of which together constitute a single agreement. In proving this Agreement, it will not be necessary to produce or account for more than one counterpart signed by the party with respect to which proof is sought. Executed agreement documents transmitted by electronic means are considered original documents.

IN WITNESS, the duly authorized representatives of the parties hereby execute this Agreement.

Dr. Jacquie Rand

Excluded personal information
By: _____
Name: Jacquie Rand
Title: Professor
Date: 26/07/12

Waltham Foundation, through Mars, Incorporated

Excluded personal information
By: _____
Name: ANDREW MAMINSKY
Title: ASSOCIATE GENERAL COUNSEL - CIP
Date: August 21, 2012

University of Queensland

Excluded personal information
By: _____
Name: Ian G Harris
Director, Research Partnerships
UQ Research and Innovation
The University of Queensland
Title: _____
Date: 10/8/12

Sar Excluded personal information

By: _____
Name: Sarah Zito
Title: MS
Date: 27/7/12

RTI RELEASED

**Attachment A:
SCHEDULE OF RESEARCH TO BE CONDUCTED**

WALTHAM FOUNDATION APPLICATION 2012

1.	Study title	Equipping veterinary students to address pet overpopulation
2.	Title, first name, surname and job title of principal applicant	Professor Jacquie Rand Professor of Companion Animal Health & Director, Centre for Companion Animal Health, School of Veterinary Science, University of Queensland, Australia
3.	Title, first name, surname and job title of all other applicants	Ms Sarah Zito Shelter Medicine Rotation Coordinator, Centre for Companion Animal Health, School of Veterinary Science, University of Queensland, Australia
4.	Contact details for principal applicant (include address, country, telephone, fax, e-mail)	Mailing Address: School of Veterinary Science, University of Queensland, St Lucia, Queensland, Australia, 4072 Telephone: +61 7 3365 2122 Fax: +61 7 3346 9822 Email: jrand@uq.edu.au
5.	Address(es) at which study will be conducted (if different from above)	As above
6.	Summary of relevant experience of principal applicant	
<p>Jacquie Rand BVSc (Hons), MACVS, DVSc (DACVIM)</p>		
<p>Career Overview & Core Competencies Professor Jacquie Rand graduated from Melbourne University (Australia) in 1975 and worked in private practice for 8 years before completing a residency and doctorate at the University of Guelph (Canada). She then worked as a senior clinician at the University of Zurich (Switzerland) for 3 years. Prof Rand is a registered specialist in Australia and a Diplomate of the American College of Veterinary Internal Medicine. She is currently Professor of Companion Animal Health at the University of Queensland (Australia).</p> <p>Prof Rand is recognized internationally as a leader in feline and canine diabetes and nutrition research, authoring approximately 70 journal articles, 115 abstracts, and 11 invited book chapters in international texts. She is the editor and major author of a 1400 page textbook "Problem-Based Feline Medicine" published by Elsevier in 2006, which is an international bestseller. Prof Rand's research has attracted extensive and ongoing support from industry groups in the US and Europe. Professor Rand is Director of the Centre for Companion Animal Health, which is committed to improving the health and welfare of companion animals, and increasing the contribution they make to our lives. Through the Centre's research (non-terminal & non-invasive), Prof Rand has become an expert in the area of companion animal health.</p> <p>In more recent years, Professor Rand has applied her knowledge of changing the management of disease in companion animals to another key area of the Centre's research, which is aimed at preventing unwanted pets. Areas of focus include: 1) increasing the knowledge of factors that are associated with dog and cat surrender into shelters, 2) improving the knowledge of factors that impact on outcomes for companion animals within shelters, 3) improving the delivery of socialization, re-training, re-homing and neutering for companion animals, and 4) improving community education. Within this research area, studies conducted by the Centre include investigating the reasons that lead to the breakdown of the human-animal bond and to the relinquishment of dogs and cats, and investigating shelter practices that lead to improved outcomes for</p>		

shelter animals.

Key Achievements

Professor Rand is utilizing her experience in changing the management of companion animal health around the world to address the issue of unwanted and problem pets. She has been involved with the following initiatives:

Animal Management Act for Dogs and Cats: Professor Rand helped shape the Queensland Government's new Animal Management Act for Dogs and Cats by contributing to government reports and discussion papers dealing with the unwanted pet issue. In 2007, as Director of the Centre for Companion Animal Health, she submitted a 28-page response to the government's discussion paper on the management of unwanted dogs and cats.

Queensland State Government Report: In 2008, Professor Rand was invited by the Queensland State Government to write a "Report on the Validity and Usefulness of Early Age Desexing in Dogs and Cats" to inform legislation for the Animal Management Act for Dogs and Cats. Her report was the basis for the Government allocating \$500,000 to the development and evaluation of innovative strategies to reduce the number of unwanted dogs and cats euthanized in animal shelters and municipal pounds.

Local and State Government advice on registration, identification, traceability and responsible dog ownership: Since 2008, Professor Rand has been involved in advising Local and State Government bodies on the implementation of legislation for dogs and cats (including compulsory registration and microchipping) aimed at reducing the unwanted pet population.

Dog Welfare/population management: In 2010, as an invited member of the Queensland State Government Stakeholder Advisory Committee on Puppy Farms, Professor Rand has been involved in advising on legislation to standardize policy and procedures for puppy farms. The legislation addresses the welfare issues associated with puppy farms, and reduces the number of puppies being bred with poor socialization and toilet training, as these factors increase the risk of relinquishment to an animal shelter. Professor Rand was invited by the Queensland Government's health department to review and make recommendations regarding the management of dog populations within Queensland indigenous communities, with the aim of reducing dog bite injuries and the spread of zoonotic diseases.

Communication, awareness building, educational methods: Undergraduate and postgraduate education in Urban Animal Management: In 2007, Professor Rand introduced a series of 6 lectures on Urban Animal Management into the fifth year (final year) of the University of Queensland's Bachelor of Veterinary Science program.

In 2007, the first PhD candidate in the Centre's area of pet overpopulation research began investigating factors associated with cat entry into RSPCA shelters around Australia. This research included investigating how shelter characteristics and cat characteristics affected the outcomes (e.g. euthanasia or re-homing) for cats within shelters. The results of the first study were presented at the Congress of the International Society of Applied Ethology, and accepted for publication in the Australian Veterinary Journal.

In 2011, led by Professor Rand, the School of Veterinary Science introduced Australia's first comprehensive Shelter Program. Now, all final year veterinary students have 18 hours of face-to-face teaching by Professor Rand and other staff funded by the Centre's fundraising activities. These initiatives are aimed at producing veterinarians who are informed of, and sensitive to, the complex issues involved in unwanted dogs and cats.

Acknowledgments - A recent international web-based survey of 817 owners of diabetic cats showed that, just 4 years after first publication, the most common diabetic management protocol being used in veterinary practice was that developed by Prof Rand's team, with her as lead researcher.

Prizes - American College of Veterinary Internal Medicine Society for Comparative Endocrinology first prize for "Excellence in the advancement of knowledge concerning small animal endocrinology", 2006. Distinguished Scientific Contribution Award, Australian Small Animal Veterinary Association, 1999.

Research Industry Funding and Fundraising - Prof Rand has an ability to deliver results on time and within budget. This is evidenced by numerous industry-funded research projects totalling in excess of \$2.5 million, which have been successfully completed. Prof Rand has been instrumental in establishing fundraising as the basis for financing companion animal research at the Centre and has raised over \$1 million in the last 5 years.

International Invited Presentations - Prof Rand's research is highly regarded, as evidenced by invitations to speak at the British Small Animal Veterinary Association (2002, 2004), American College of Veterinary Internal Medicine (2002, 2006, 2009) and World Small Animal Veterinary Association (2000, 2005, 2007), Cornell University Feline Medicine (2009) conferences, among others internationally. She was the Keynote

Speaker for Waltham at their Symposium in 2003. She was also an invited speaker in the "Hot Topics" section of the Nutrition Society of Australia Meeting in 2002, and in the Plenary Symposium for the Nutrition Society of Australia.

Professor Rand is the invited author for the chapters on feline and canine diabetes in prestigious international texts including *Veterinary Clinics of North America*, *Current Veterinary Therapy*, *Consultations in Feline Medicine* and for the feline diabetes section in *Feline Medicine and Therapeutics* published by the British Small Animal Veterinary Association. Other industry invitations include speaker tours for Hills (Amsterdam, London, New Zealand, Australia), Intervet (Amsterdam, UK,) and Abbott Animal Health (USA). She also delivered one of the most successful Webinars produced by the American Animal Hospital Association (2009). In 2011, she delivered a talk at the Maddie's Shelter Medicine conference on "What can \$191,000 Aussie cats tell us about saving lives."

Memberships and Journal reviewer - Prof Rand is a member of the American College of Veterinary Internal Medicine, The Society of Comparative Endocrinology (USA) and the Australian College of Veterinary Scientists. Prof Rand has reviewed numerous articles for various journals including the Journal of Veterinary Internal Medicine, the Journal of Feline Medicine and Surgery, the Canadian Veterinary Journal, the Journal of Domestic Animal Endocrinology, the Journal of Endocrinology, the British Journal of Nutrition and the Australian Veterinary Journal.

7. **Relevant references of principal applicant or research group**
1. Korbelik J, Rand JS, Morton J (2011). Socialisation practices of small-scale registered dog breeders compared with non-registered breeders. *Journal of the American Veterinary Medical Association*, 239(8);1090-7.
 2. Rand JS, Hanlon C. What can 191,000 Aussie cats tell us about saving lives? *Maddie's shelter medicine conference*, October 2011, Florida, United States.
 3. Hanlon C, Rand JS. Australia's 'Excess' Pet Problem: Centre for Companion Animal Health Research. *Australian College of Veterinary Scientists Conference*, July 2011, Queensland, Australia.

8. Study duration	1 year
9. Total amount requested (US \$)	\$19,608

10. **Budget breakdown – please be as specific and accurate as possible**

Item	Justification	Cost
Consultant Epidemiologist	Statistical design and complex analysis for project	\$3,500
Research Assistant	Assistance with recruitment of participants and conducting survey sessions. Data management. Communication associated with the project, including write up of research papers. Accounting for the project. Administrative support.	0.2 FTE at \$38.29/hr = \$13,325
Office Consumables	Including paper, photocopying, phone calls, postage, Stata software for analysis of data.	\$1000
Professor Jacque Rand	0.1 FTE. PhD supervisor. Involvement in study design and planning, reviewing protocols, management of budgets, overseeing data collection and analysis, overseeing interpretation of results, editing papers for publication, presentation of results at conferences, ultimate responsibility of overseeing project management.	Funding by Waltham not requested
University Overheads	Capped at 10% as per Waltham grant requirements	\$1,783
Total Waltham funding request		\$19,608

11. Project proposal (do not exceed four sides of A4 paper)

Equipping veterinary students to address pet overpopulation

The Centre for Companion Animal Health is dedicated to producing shelter-practice education that has demonstrated, evidence-based efficacy at improving the knowledge, attitudes and skills of veterinarians to address pet overpopulation. To achieve this, the Centre aims to evaluate changes in the knowledge, attitudes and skills of veterinary students following participation in shelter practice education. Necessary modifications to the educational content can be made based on the evidence to ensure that veterinarians are well-equipped to prevent the euthanasia of thousands of unwanted pets in shelters. This project can inform the development of similar programs around the world, ultimately leading to a decrease in unwanted cats globally.

In an Australian first, last year the Centre for Companion Animal Health implemented a shelter practice rotation for final-year veterinary students at The University of Queensland. This shelter rotation program is designed to increase veterinary students' awareness of the enormity and complexity of the unwanted companion animal problem, both in Australia and globally. It equips veterinary students with real-world strategies to apply in clinical practice that will reduce pet relinquishment and the euthanasia of thousands of unwanted pets in shelters.

The project for which funding is sought aims to evaluate changes in the knowledge, attitudes and skills of veterinary students following participation in shelter practice education, to inform further development of this program, and other similar programs in other veterinary schools around the world.

Unwanted companion animals – A significant community concern

Increasingly, there is a demand for animal-friendly solutions to the worldwide problem of unwanted companion animals. Internationally, animal control models that involve large numbers of animals being processed through shelters and high euthanasia rates are being replaced with proactive measures. These more socially-acceptable alternatives include programs to reduce the number of unwanted animals and improve the health and welfare of animals in shelters.

High euthanasia rates in shelters are of significant community concern, not only for ethical and moral reasons, but also for social and economic reasons. There are significant human health implications associated with euthanasia. Traumatic stress symptoms have been reported in 50% of people whose occupations involve animal euthanasia (Rohlf & Bennett, 2005). The adverse mental health effects can include sleeplessness, relationship stress, depression, substance abuse, emotional numbing, difficulty concentrating and increased irritability.

The annual expenditure to manage unwanted pets is substantial. In 2006, it was reported that local councils around Australia spent \$AU82 million on animal management (Australian Companion Animal Council, 2006). Euthanasia as a strategy to control unwanted pets has not been effective in decreasing the number of pets entering and being euthanized in shelters in subsequent years (RSPCA, 2010). Although shelters may need to euthanize very sick, injured or extremely fractious pets that are unable to undergo rehabilitation, the use of euthanasia as a population management strategy is ineffective.

New strategies need to be developed to address the problem of unwanted pets. The Centre for Companion Animal Health, through its shelter practice rotation for final-year veterinary students, is dedicated to engaging veterinarians in tackling the problem of pet relinquishment and euthanasia to create effective solutions.

Shelter practice education for veterinary students – The key to change

Behavioural problems are a major cause of relinquishment of pets to shelters and subsequent euthanasia. In 2009-2010, 53% of dogs and 47% of cats were euthanized in RSPCA shelters for behavioural reasons

(RSPCA, 2010). Another study showed that 70% of people relinquishing dogs and 50% of people relinquishing cats had been to a veterinarian in the preceding year (Salman et al., 1998). This demonstrates that there is a window of opportunity for veterinarians to address pet owner concerns and prevent relinquishment.

Yet, in a study of veterinarian's attitudes to behavioural problems in pets, only 11.1% of veterinarians strongly agreed that it was the veterinarian's responsibility rather than the client's to initiate discussion about behavioural problems (Scarlett, Salman, New, & Kass, 2002). Raising veterinary student's awareness of the unwanted pet problem through shelter practice education will ensure that, as practicing veterinarians, they will understand the importance of identifying potential behavioural problems and educating clients on animal behaviour, training and behaviour modification techniques as needed.

Research has shown that spay delay—allowing a cat to have at least one litter prior to sterilization—contributes to unwanted kittens being surrendered to shelters. An Australian study showed that only 35% of female cats under 12 months were spayed, but 90% of female cats over 12 months were sterilized (Reark Research Pty Ltd, 1994). Another study revealed that around 81% of pet owners believed or were not sure whether female dogs and cats were better off if they had at least one litter before spaying (Scarlett, Salman, New, & Kass, 1999). Veterinarians have an important role to play in addressing this misconception and ensuring pets are sterilized before producing an unplanned litter. The shelter practice rotation will equip future veterinarians with the knowledge and skills, such as the ability to perform early age sterilization, to meet this role.

In veterinary education, population health management is mostly taught in relation to production animals, not companion animals. Veterinarians working with shelters need to be familiar with infectious disease management for companion animals from a population perspective. Veterinarians in private practice can not only apply similar principles of infection control in their workplace, but also they can consult with local shelters to ensure high standards of population health are achieved in the shelters. In forming strong relationships with shelters, local vets can recommend with confidence the adoption of healthy shelter animals to their clients.

Effective shelter practice education will save the lives of thousands of pets each year by showing veterinarians the importance of addressing behavioural problems, performing early age sterilization and promoting adoption of pets from reputable shelters.

The shelter practice rotation at the University of Queensland – A successful start

The shelter practice rotation offered by the Centre for Companion Animal Health consists of six full days. Two of the days involve tutorials and interactive sessions in which the students learn about the unwanted pet problem, think about small animal medicine and surgery from a population perspective and in a shelter setting, learn about the relevance and applications of shelter practice principles in both shelters and private practice, and develop ideas which they can use to positively influence the unwanted pet problem as private practitioners or shelter veterinarians.

Four days are spent hands-on in shelters. Students do two days work at each of two different local shelters. Using two different shelters allows the students to compare and contrast the differences in animal welfare organisations and their approaches to shelter management. The days spent within the shelters affords students the opportunity to observe the practical application of concepts they have learned during the interactive learning sessions.

The first year of the shelter practice rotation received positive feedback, which indicated that the objectives of increasing students' knowledge of, and interest in, shelter practice and the unwanted pet problem were achieved. Comments from official student teaching appraisals include:

"Excellent rotation – it has opened my eyes to the magnitude of the homeless companion animal issue and made me want to positively contribute."

"The Shelter Medicine Rotation was certainly a life-altering experience for me, and I am eager to integrate

many of the concepts I learned into my future career."

"I now better comprehend the enormous workload facing animal shelters, and I am passionate about helping to make a difference once I am practicing as a veterinarian."

Aims and Hypotheses

While the student feedback following the first year of the shelter practice rotation has been positive, the Centre is dedicated to producing shelter practice education that has demonstrated, evidence-based efficacy in improving the knowledge, attitudes and skills of veterinarians to address pet overpopulation. To achieve this, the Centre is conducting a study which aims to evaluate changes in the knowledge, attitudes and skills of veterinary students following participation in the shelter practice rotation. Necessary modifications to the educational content can be made based on the evidence to ensure that veterinarians are well-equipped to prevent the euthanasia of thousands of unwanted pets in shelters.

It is hypothesized that the knowledge veterinary students possess regarding the pet overpopulation problem will improve. In particular, it is hypothesized that students will have an increased understanding of the magnitude of the pet overpopulation problem (both in Australia and internationally), the factors that increase the chances of pet relinquishment, the factors that influence outcomes for companion animals in shelters, and the strengths and weaknesses of strategies used to address pet overpopulation.

It is also hypothesized that the skills veterinary students will possess to address pet overpopulation issues in practice will improve. In particular, students will report improved skills in early age sterilisation and an increased intention to perform this procedure in practice. Students will also report an increased ability to apply population health principles to companion animal management.

Finally, it is hypothesized that the attitudes veterinary students possess regarding pet overpopulation issues will improve. In particular, veterinary students will report increased concern for the pet overpopulation problem, and an increased desire and confidence to implement strategies as professional veterinarians that will reduce relinquishment of pets to shelters.

The Centre is dedicated to designing and delivering effective shelter practice education that has a demonstrated ability to improve the knowledge, attitudes and skills of veterinarians to address pet overpopulation.

Experimental design (Including materials and methods)

Participants

Participants will be consenting students enrolled in the fifth year of the Bachelor of Veterinary Science program at the University of Queensland.

Materials

The questionnaire consists of four different sections: 1) demographic questions such as age and gender, 2) questions relating to the general attitudes of students towards dogs and cats, 3) questions relating to the knowledge and attitudes of student towards dog and cat behaviour and handling, 4) questions relating to the knowledge, attitudes and skills of students regarding pet overpopulation issues, including early age desexing. Questions are in multiple formats, including Likert scale items, forced-choice items and open-ended questions.

Method

Students will be required to complete consent forms prior to participation. Students will be informed that the purpose of the study is to examine knowledge and attitudes of veterinary students to pets and pet overpopulation. Students will be informed that participation is voluntary, and their responses will be anonymous.

A repeated measures design will be used. Students will complete the questionnaire before participating in

the shelter practice rotation as part of their final-year studies in veterinary science. The students will complete the questionnaire again following participation in the shelter practice rotation.

Students will be asked to complete the questionnaire during the first class of the rotation. Questionnaires will be delivered using SurveyMonkey. Data will be analysed using Stata.

12. Summary of key outcomes, possible applications and benefits of this study to companion animals

Expected outcomes

Your contribution will directly assist us to:

Develop and deliver to future veterinarians strategies to decrease the number of cats and kittens surrendered to council pounds and animal shelters each year.

This will have long-term effects and has the potential to:

- a) Improve the welfare of, and outcomes for, more than 170,000 cats nationally which are euthanized annually in Australia, most of which are young and healthy
- b) Increase effective and responsible ownership of cats
- c) Reduce the cost to government, the community and animal welfare agencies of managing unwanted cats
- d) Reduce the adverse mental health impacts on shelter staff involved with euthanasia.

Effective shelter practice education is required to address the pet overpopulation problem internationally. According to the ASPCA (2011), around 5 to 7 million companion animals enter shelters across the United States each year, and around 3 to 4 million of these animals are euthanized. Of the cats surrendered to shelters across the U.S., approximately 70% are euthanized.

In the United Kingdom, according to the Royal Society for the Prevention of Cruelty to Animals (RSPCA UK), the number of healthy animals taken in to shelters has remained relatively constant from 2005 to 2009 at between 70,000 to 75,000 animals (RSPCA UK, 2010). Similarly, the number of healthy animals euthanized each year has remained constant from 2005 to 2009 at around 8,000 animals.

Effective shelter practice education designed by the Centre for Companion Animal Health can guide the development of similar programs around the world, ultimately leading to a decrease in unwanted cats globally. The shelter practice education must be evidence-based, with demonstrated effectiveness in changing how veterinarians address pet overpopulation in clinical practice.

13. I confirm that every effort will be made to ensure that studies will not result in pain or suffering of participating animals and that no animals will be euthanized as a result of this study.

Excluded personal information

30/1/2012

Signature of principal applicant

Date

References

- American Society for the Prevention of Cruelty to Animals. (2011). ASPCA Pet statistics. Retrieved 15th September 2011 from: <http://www.aspc.org/about-us/faq/pet-statistics.aspx>
- Australian Companion Animal Council Inc. (2006). *Contribution of the Pet Care Industry to the Australian Economy*. Sydney: BIS Shrapnel.
- Reark Research Pty Ltd. (1994). *The metropolitan domestic cat research report: a survey of the population characteristics and hunting behaviour of the domestic cat in Australia*. Melbourne: Pet Information and Advisory Service Australia Pty Ltd.
- Rohlf, V., & Bennett, P. (2005). Perpetration-induced Traumatic Stress in Persons Who Euthanize Nonhuman Animals in Surgeries, Animal Shelters, and Laboratories. *Society and Animals*, 13(3), 201-228.
- RSPCA. (2010). *RSPCA National Statistics 2009-2010*. Retrieved 15th September 2011 from <http://www.rspca.org.au/assets/files/Resources/RSPCAAnnualStats2009-2010.pdf>
- RSPCA UK. (2010). Five years measuring animal welfare in the UK. Retrieved 15th September 2011 from <http://content.www.rspca.org.uk/omsprd/5atellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobnocache=false&blobtable=MungoBlobs&blobwhere=1232997399246&blobbinary=true>
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- Scarlett, J. M., Salman, M. D., New, J. J. G., & Kass, P. H. (1999). Reasons for Relinquishment of Companion Animals in U.S. Animal Shelters: Selected Health and Personal Issues. *Journal of Applied Animal Welfare Science*, 2(1), 41-57. doi: 10.1207/s15327604jaws0201_4

RTI RELEASED

From: Maccarone, Susan <Excluded personal information@effem.com>
Sent: Thursday, 15 November 2012 6:46 AM
To: Jacquie Rand
Cc: Hurley, Karyl
Subject: RE: Waiting On Invoice

Sure. Thank you for your continued support! Have a great evening.

Kind Regards,

Susan Maccarone
Global Scientific & Regulatory Affairs
Operations Specialist

Office: Excluded personal information
Mobile: Excluded personal information
Email: Excluded personal information @effem.com



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From: Jacquie Rand [mailto:j.rand@uq.edu.au]
Sent: Wednesday, November 14, 2012 3:33 PM
To: Maccarone, Susan
Cc: Hurley, Karyl
Subject: RE: Waiting On Invoice

Hi Susan,
Thank you for letting me know. I have followed up with an urgent message to find out where hold-up has been. Can you let me know in 2 weeks if it has not been received.
Thanks,

Jacquie

Jacquie Rand
Professor of Companion Animal Health
Director, Centre for Companion Animal Health
School of Veterinary Science
The University of Queensland
St. Lucia, QLD 4072
Australia
CRICOS Provider Number 00025B
Ph: (61) 07 3365 2122
Fax: (61)07 3346 9822
Email: j.rand@uq.edu.au
Website: www.uq.edu.au/ccah

From: Maccarone, Susan [mailto:Excluded personal information@effem.com]
Sent: Thursday, 15 November 2012 12:40 AM
To: Jacquie Rand
Cc: Hurley, Karyl
Subject: Waiting On Invoice

Hello,

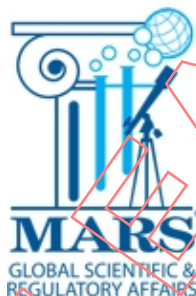
I'm sorry to inform you that we still have not yet received the invoice for the Waltham Foundation Grant. We must have this invoice asap as year-end is coming quickly. If we do not use the grants in 2012 we may lose the opportunity to assist your University.

I recognize that you have already followed up in the past with no success, but if you can follow up again, I would appreciate it.

Kind Regards,

Susan Maccarone
Global Scientific & Regulatory Affairs
Operations Specialist

Office: Excluded personal information
Mobile: Excluded personal information
Email: Excluded personal information @effem.com



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From: Jacquie Rand [mailto:j.rand@uq.edu.au]
Sent: Thursday, October 18, 2012 5:13 PM
To: Maccarone, Susan
Subject: RE: Invoice Preparation

Dear Susan,
I am puzzled why the University hasn't actioned this but have asked that it be actioned ASAP.
Thank you for your follow up.
Kind regards,

Jacquie

Jacquie Rand
Professor of Companion Animal Health
Director, Centre for Companion Animal Health
School of Veterinary Science
The University of Queensland
St. Lucia, QLD 4072
Australia
CRICOS Provider Number 00025B
Ph: (61) 07 3365 2122

Fax: (61)07 3346 9822
Email: j.rand@uq.edu.au
Website: www.uq.edu.au/ccah

From: Maccarone, Susan [<mailto:Excluded personal information@effem.com>]
Sent: Thursday, 18 October 2012 11:37 PM
To: Jacquie Rand
Cc: Hurley, Karyl
Subject: RE: Invoice Preparation

Dr. Rand, good morning.

I apologize for contacting you again, however we have not yet received your invoice for the Waltham Foundation Grant. Can you please have the invoice submitted as soon as possible to my attention.

Kind Regards,

Susan Maccarone
Global Scientific & Regulatory Affairs
Operations Specialist

Office: Excluded personal information
Mobile: Excluded personal information
Email: Excluded personal information [@effem.com](mailto:Excluded personal information@effem.com)



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From: Maccarone, Susan
Sent: Thursday, August 23, 2012 1:17 PM
To: 'j.rand@uq.edu.au'
Cc: Hurley, Karyl
Subject: Invoice Preparation

Hello Dr. Rand!

I'm pleased to inform you that all of the necessary documentation and agreements have been now been finalized. When you are ready, please prepare an invoice and address it as follows:

Mars, Incorporated
Attn: Dr. Steven W. Rizk, Ph.D.
6885 Elm Street
McLean VA 22101 USA

PON # 000674

Once completed, please forward an electronic version of the invoice to Excluded personal information@effem.com, and copy both myself and Karyl Hurley.

If in the meantime you have any questions, or need further assistance, please do not hesitate to let me know as I'm more than happy to assist you.

Enjoy your day!

Kind Regards,

Susan Maccarone
Global Scientific & Regulatory Affairs
Operations Specialist

Work: Excluded personal information
Mobile: Excluded personal information
Email: Excluded personal information @effem.com



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RTI RELEASE

From: Maccarone, Susan <Excluded personal information@effem.com>
Sent: Thursday, 15 November 2012 9:35 PM
To: Jacquie Rand
Cc: Hurley, Karyl
Subject: Received Invoice

Dr. Rand,

I wanted to let you know that I have received the invoice finally! I'm not sure what you had to do, but I'm grateful that we are now able to support the University with this Grant.

Have a wonderful day, and thank you again.

Kind Regards,

Susan Maccarone
Global Scientific & Regulatory Affairs
Operations Specialist

Office: Excluded personal information
Mobile: Excluded personal information
Email: Excluded personal information @effem.com



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From: Maccarone, Susan
Sent: Wednesday, November 14, 2012 9:40 AM
To: 'Jacquie Rand'
Cc: Hurley, Karyl
Subject: Waiting On Invoice

Hello,

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I recognize that you have already followed up in the past with no success, but if you can follow up again, I would appreciate it.

Kind Regards,

Susan Maccarone
Global Scientific & Regulatory Affairs
Operations Specialist

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To: Maccarone, Susan
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Thank you for your follow up.
Kind regards,

Jacquie

Jacquie Rand
Professor of Companion Animal Health
Director, Centre for Companion Animal Health
School of Veterinary Science
The University of Queensland
St. Lucia, QLD 4072
Australia
CRICOS Provider Number 00025B
Ph: (61) 07 3365 2122
Fax: (61)07 3346 9822
Email: j.rand@uq.edu.au
Website: www.uq.edu.au/ccah

From: Maccarone, Susan [<mailto:Excluded personal information@effem.com>]
Sent: Thursday, 18 October 2012 11:37 PM
To: Jacquie Rand
Cc: Hurley, Karyl
Subject: RE: Invoice Preparation

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Kind Regards,

Susan Maccarone
Global Scientific & Regulatory Affairs
Operations Specialist

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From: Maccarone, Susan
Sent: Thursday, August 23, 2012 1:17 PM
To: 'j.rand@uq.edu.au'
Cc: Hurley, Karyl
Subject: Invoice Preparation

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Mars, Incorporated
Attn: Dr. Steven W. Rizk, Ph.D.
6885 Elm Street
McLean VA 22101 USA

PON # 000674

Once completed, please forward an electronic version of the invoice to Excluded personal information @effem.com, and copy both myself and Karyl Hurley.

If in the meantime you have any questions, or need further assistance, please do not hesitate to let me know as I'm more than happy to assist you.

Enjoy your day!

Kind Regards,

Susan Maccarone
Global Scientific & Regulatory Affairs
Operations Specialist

Work: Excluded personal information
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RTI RELEASE