Pet owners' awareness of animal blood banks and their motivations towards animal blood donation

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Abstract

The general public's awareness of, and attitude to, canine and feline blood donation is poorly understood. Increasing understanding of pet owners' thoughts about donation may allow more effective blood donor recruitment. The aims of this study were to investigate pet owners' awareness of small animal blood donation and their attitude and motivations regarding their pet being a blood donor. A mixed methods approach was used, with data collected from 158 pet owners attending a first-opinion veterinary clinic using a written questionnaire of closed and open questions. Most owners were unaware that dogs and cats could donate blood (70%). However, 89% stated they would be willing to let their pet donate blood if they were suitable. This was more likely if the owner did not work full time and less likely if they were over 71 years old. Thematic analysis of owners' motivations and deterrents towards pet blood donation resulted in four key themes: 'Beneficence' the desire to help others, 'Necessity of service' a recognition of the requirement for blood products, 'Reciprocity' a hope that if they participated this would result in blood products being available for their pet and 'Reservations and concerns'.

Introduction

Small animal blood product use is growing in veterinary practice, requiring increasing numbers of canine and feline blood donors.[1–3] The proportion of pets that donate blood is unknown but is likely to be very small and the demand for blood products is likely to be greater than the supply available, with veterinary volunteer donor programmes reporting donor shortages.[10] It can be difficult for animal blood donation schemes to find suitable donors and their recruitment can be costly, with feline blood donors noted to be particularly difficult to recruit.[19-21]

Understanding the motivations of human blood donors is considered fundamental to improving the effectiveness of donor recruitment and retention programmes.[29-31] The most common motivating factors for human blood donors are convenience, prosocial and personal values, altruism, reciprocity and kinship.[32-35] Sociodemographic factors have also been shown to affect willingness and motivations to donate in human blood donors. Women have been shown to have greater sensitivity to altruistic aspects of blood donation than men and to possess stronger beliefs of the humanitarian gesture of donating.[36,37] People aged 31-50 years donate most readily, with 18-25 year olds and those over 56 years being the most underrepresented age groups.[5,31,38]

While there are many studies exploring the demographics and motivations of human blood donors, research into owner motivations to volunteer their pet as a blood donor is limited and there are no studies looking at donor owner demographics. A recent study looked at the motivations of owners whose dogs were blood donors and found that they included altruism and mutuality, human-animal kinship and 'doing good by proxy'.[39] In pet owners, it has been suggested that awareness of the need for blood products is thought to promote altruistic motivations towards their pet donating blood, though this has not been tested.[40] There are no studies examining why pet owners may not want to register their pets as blood donors.

The aims of this study therefore, were to investigate pet owners' awareness of small animal blood donation and their attitude and motivations regarding their pet being a blood donor. We hypothesized that owner awareness would be low. We also hypothesized that, as with human blood donors, sociodemographic factors would influence the likelihood that pet owners would be happy for their pets to donate blood, chiefly that female owners, those in single occupancy households, those not in full time employment and those over the age of 51 years would be more likely to let their pets donate blood. We also hypothesized that people would have ethical concerns about animal blood donation and that cat owners would be less likely than dog owners to allow their pets to donate blood.

Materials and Methods

This study had ethical approval from the RVC Ethics Committee (URN 2016 1595). The study was conducted in the waiting room of a small animal first opinion practice over a 10-day period (Monday to Friday, between 08.30 and 18.30). All owners attending the veterinary clinic for an appointment were approached to ask if they would be happy to fill out a written questionnaire. A station was set up in the clinic's waiting room, where people were able to fill out their answers individually and anonymously. Completed questionnaires were deposited into a box by the respondents, maintaining anonymity. Participants could only complete the questionnaire once. Participants were eligible if they owned a pet and were over the age of 18 years. Individuals who appeared to be upset or distressed on arrival to the practice were not asked to participate.

The questionnaire was made up of 9 questions, 8 of which were closed questions. Five questions asked about the owner (age, gender, employment status, number of people in the household and species of pet) and 3 asked about the owner's awareness of pet blood donation, pet blood banking and whether the owner would be happy for their pet to donate blood if they were presumed to be eligible. The final question was open and asked about motivations and concerns regarding their pet participating in blood donation.

Descriptive statistics (percentages of categorical data) were calculated and chi-squared tests were used to compare these proportions between sociodemographic categories. Statistically significant differences were considered if $p < 0.05$.

Thematic analysis was performed on the qualitative data obtained from the final question. The data was coded and analysed for themes and subthemes.

Results

The questionnaire was answered by 158 people, with 4 people declining to take part and 7 people not approached as they appeared distressed. The demographics of the study population are displayed in Figure 1.

110 people (70%) were not aware that pets could donate blood and 118 (75%) were unaware that pet blood banks existed. 140 (89%) people stated they would be willing to let their pets donate blood, whilst 18 (11%) stated that they would not.

There was no significant difference between the proportion of female (88% n=104) and male (90% n=36) owners or owners living in differing household size (varied between 87 -100%) in reported willingness to let their pets donate blood. Participants aged 71 years or more were significantly less willing to report being happy for their pets donate blood when compared to 18-30 and 51-70 year olds ($p < 0.05$). A significantly lower proportion of cat owners reported being willing for their pets to donate blood (69% n=29) than dog owners (96% n=71) ($p < 0.05$). Full-time workers also reported being significantly less willing to let their pets donate blood (82% n=51), when compared with other employment statuses (93% n=89) ($p < 0.05$).

Thematic analysis of the written responses given by owners regarding animal blood donation, resulted in four key themes: (1) Beneficence noted by 49% (78/158) owners, (2) Necessity of service noted by 28/158 (18%) owners, (3) Reciprocity noted by 19% (33/158) owners and (4) Reservations and concerns noted by 12% (19/158) owners. Each of these themes were associated with several sub- themes.

Beneficence was the most frequent motivation noted by owners willing to let their pets donate blood, for both male and female pet owners. Three subthemes emerged for beneficence that all included altruistic motives: a) a desire to help

others, b) it being seen as 'the right thing to do' and c) saving a life. Examples of responses in this theme are seen in Table 1.

The theme 'Necessity of service' had 2 major sub-themes, awareness of the importance of the service and anthropomorphism. Many participants were aware of the constant requirements for blood products in human medicine and extrapolated this need to animals. Others recognised the importance of donating, some noting this had been stimulated by sources such as an advertisement or by family and friends. This theme was encountered in 25% males and 15% females. Examples of responses in this theme are seen in Table 2.

The 'Reciprocity' theme was made up of 2 sub-themes; having animal blood banks available for their own pet if ever required and previous experience of the blood transfusion service in pets. Participants suggested that by their pet donating blood, a feeling of reciprocity is created and if one day their own pet needed a life-saving transfusion, they hoped that this service would then be available to them. Owning a pet who was previously a blood transfusion recipient appeared to be associated with owners being willing for their pets to donate blood. After beneficence, this was the most common theme. Examples of responses in this theme are seen in Table 3.

The theme of 'Reservations and Concerns' contained the sub-themes accessibility to service, animal welfare concerns and the need for further information. Animal welfare concerns were predominantly from cat owners who anticipated their pet would experience procedure-related anxiety. Accessibility to service included transportation and time limitations. This theme featured least frequently for respondents. Examples of responses in this theme are seen in Table 4.

Discussion

This study found that, consistent with our hypothesis, most pet owners are not aware of pet blood donation and animal blood banks. Previous studies show that being aware of the need for blood products, makes people more inclined to become human blood donors.[41,42] This suggests therefore, that increasing both awareness of animal blood donation and also the use of animal blood products could increase blood donor numbers and thereby blood product availability. The majority of the owners in this study reported being happy for their pets to act as blood donors in contrast to a previous study suggesting that families may be reluctant for their pets to be blood donors.[10] Owners aged 71 years of age or over were more likely to report that they were not willing for their pets to be blood donors than participants aged 18-30 years or 51-70 years. This is consistent with studies of human blood donors, which demonstrate that willingness to donate blood decreases with age,[42,43] although in humans this could be attributed to the fact that as age increases, inability to donate due to health reasons also increases.[44]

Consistent with our hypothesis, full-time workers were statistically significantly less likely to report that they would allow their pets to be donors than part-time workers, people not in paid work and people in full time education. Studies of human blood donors have shown that time-constraints, such as those felt by full-time employees, are crucially important deterrents to blood donation.[33, 51] This was reflected in the comments contained within the 'Reservations and concerns' theme, where owners discussed time constraints decreasing their likelihood to allow their pet to be a blood donor. Additionally, our data revealed that cat owners are statistically significantly less likely than dog owners to report they would be willing to let their pets donate blood. This may be because cats are generally perceived as more prone to veterinarian-induced stress than dogs[52] or because sedation is often required for feline blood donation, which could potentially be a deterrent for owners,[21] though given the poor awareness of pet blood donation it is unlikely this was actually known by owners. Concerns about feline stress were mentioned in the qualitative data collected

We had hypothesised that single person households may be more likely to let their pets donate blood as human blood donors without children, have a greater donor return rate than those with children.[48] However, our data demonstrated no difference in the proportion of people reporting willingness to let their pet donate blood between single and multiple occupancy. This may be a difference between human blood donors and pet blood donor owners, or it may be that the low proportion of single occupancy householders in this study (7%) led to a type II statistical error. There was also no difference between the proportions of female and male owners reporting they would allow their pet to donate although there are differences in reported motivations for male and female blood donors, which was noted in this study with more male owners mentioning 'Necessity of service' theme motivations .

Consistent with multiple reports of motivations in human blood donors, pro-social motives were most frequently observed in this study.[30,35,55,56,57] This study suggested most motives were altruistic (helping others or saving lives) or empathic (towards other owners and sick animals). This is unsurprising, considering many owners regard their pet with an importance similar to that of their closest friends and that pets provide positive psychological and physical benefits to owners.[46,58,59] Reciprocity was another motivator in this study, with owners imagining that their own pet may need a blood product at some point, meaning they would be happy to help someone else in this situation. This is consistent with human studies that demonstrate reciprocity as a key motivator for blood donors and suggest targeting recruitment towards this.[60] Awareness of the necessity of blood banks was another motivation for owners, consistent with human blood donor studies.[54] Many anthropomorphised as justification; if they donated blood themselves, then so should their animals, consistent with research showing many owners perceive their animals as equivalents to friends and family[59] and it has also been suggested that some owners believe their pets would like to help other animals via blood donation.[61] The motivations of registered canine blood donor owners revealed similar themes of altruism and

mutality and human animal kinship,[39] showing motivations in these owners do not differ greatly from prospective donor owners.

As this study questioned all pet owners rather than those who were already donor owners, it allowed concerns preventing donor recruitment to be explored. Reasons for people not being blood donors or for being lapsing donors are generally classified as personal, medical or donation procedure related.[66,67] Most concerns in this study involved welfare implications for donors. This was expected, since in animals, a more complex ethical situation arises by the act of blood donation as they cannot truly consent to the procedure.[39,61] The "benevolence hypothesis" (whereby the donor benefits as well as the recipient due to feeling that they have performed a positive act) which is thought to be an important motivation in human blood donors[51,70] is not relevant here; the recipient will benefit from the transfusion, however the donor will not. Animals do not have capacity to consent to blood donation, therefore, the "benevolence hypothesis" effect and altruistic feelings are likely to occur by proxy, whereby the owner receives the gratification, rather than the animal itself.[39,71] However, by animal blood banks being available, the donor animal itself might benefit from them in the future, which was a motivating factor for many owners.

Those declaring 'lack of information' as a deterrent to enrolling their pet as a blood donor could be potential donor owners if they felt more informed about the process. Some suggest that educating owners is crucial to establishing a veterinary donor pool,[19,72] and this is a recurrent theme in human blood donor recruitment.[4,73]

This is a novel study looking at qualitative and quantitative data from pet owners regarding their awareness and views of pet blood donation. The anonymised responses increased the likelihood of honest answers, but what the respondents said and what their actions would be regarding pet blood donation may differ, particularly if they had more time to consider the proposal, or weren't in a situation where they felt concurrently concerned about their pet's health (the veterinary practice) potentially meaning they would be more likely to consider the plight of another pet more favourably. The reason for the veterinary visit may also have influenced the owners' response to the questionnaire but this was not investigated in this study.

The sample size was fairly large, but there was a bias to female recipients meaning that differences between genders may not have been detected as the power of a Chi square test is decreased if there is a large discrepancy in population sizes. Given the high proportion of owners stating that they would enroll their pet as a blood donor (89%), it was possible that differences in opinion between demographic groups was not detected due to small numbers in subgroups. As data was gathered between the hours of 08.30 and 18.30 on weekdays, it is possible that the pet owners involved may have been those with fewer commitments. These owners may also have had greater commitment to their pet as they had bought their pets to a veterinary practice and so may not

represent the larger pet owning public. Indeed, the results and conclusions of this study can only be considered to be truly representative of the local population of this individual practice at this time point. The opinions of the respondents will almost certainly differ from people in other countries and likely in other geographical areas within the UK. However, this is an important starting point in understanding the opinions and awareness of the pet owning population regarding pet blood donation and as recurrent themes are found world wide regarding human blood donation,[5,12,29,62,65,66] the information gained will hopefully have relevance for many veterinary practitioners involved in transfusion medicine.

This study suggests that donor recruitment could be markedly increased by improving the awareness of pet owners about pet blood donation. When designing donor recruitment strategies, the demographic categories reporting increased likelihood for allowing pet blood donation could be targeted. Success in increasing awareness could be monitored now that a baseline for has been established. This information from this study could also be used to explore how awareness of animal blood donation and animal blood banks varies between countries.

Transfusion medicine is becoming increasingly important in the treatment of critically-ill animals and this requires canine and feline blood donors. An important aim of this study was to investigate the motivations of owners in allowing their pets to donate blood, in the hope this would enhance the future animal donor population and aid more successful recruitment strategies for donor schemes. We found most owners showed willingness for their pets to donate blood. Their motivations were mostly beneficent, which is encouraging as human blood donors with such motivations, have greater retention rates.[92,93] Deterrents, including welfare concerns, could be overcome to some degree, if appropriate, by giving owners thorough explanations of protocols. Certain socio-demographic factors could provide donor schemes with new recruitment targets. This novel study revealed a lack of awareness of pet blood donation and animal blood banks in pet owners; therefore, rectifying this may be fundamental to recruiting animal donors, to provide potentially life-saving treatments.

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References

1. GODINHO-CUNHA, L.F., FERREIRA, R.M.R.F. & SILVESTRE-FERREIRA, A.C. (2011) Whole blood transfusion in small animals: indications and effects. Anais da Academia Brasileira de Ciencias 83, 611–7

2. KISIELEWICZ, C. & SELF, I.A. (2014) Canine and feline blood transfusions: controversies and recent advances in administration practices. Veterinary Anaesthesia and Analgesia 41, 233–42

3. WEINGART, C., GIGER, U. & KOHN, B. (2004) Whole blood transfusions in 91 cats: a clinical evaluation. Journal of Feline Medicine and Surgery 6,139–48

4. NHSBT (2016) Global call for blood donors of the future https://www.blood.co.uk/news-and-campaigns/news-and-statements/news-global-call-for-blood-donors-of-the-future/. Accessed May 22, 2018

5. BASUKALA, S. MEHROTRA, S., YADAV, P. & SHAHBEZ HASNAIN, S. (2015) A Qualitative Study of Attitudes, Motivation and Perception of Blood Donors towards Blood Donation in a Tertiary Care Hospital. International Journal of Indian Psychology 2, 2348–5396

6. CUSTER, B., JOHNSON, E.S., SULLIVAN, S.D., HAZLET, T.K., RAMSEY, S.D., HIRSCHLER, N.V., MURPHY, E.L. & BUSCH, M.P. (2004) Quantifying losses to the donated blood supply due to donor deferral and miscollection. Transfusion 44,1417–26

7. LOBELO, F., DUPERLY, J. & FRANK, E. (2009) Physical activity habits of doctors and medical students influence their counselling practices. British Journal of Sports Medicine 43, 89–92

8. MULLAH, F., ANTANI, D. & KUMAR, D. (2014) Study of Knowledge, Perceptions and Practices Related to Blood Donation Among the Healthcare Support Staff of a Tertiary Care Hospital in Gujarat, India. Online Journal of Health and Allied Sciences 12

9. RILEY, W., SCHWEI, M. & MCCULLOUGH, J. (2007) The United States' potential blood donor pool: estimating the prevalence of donor-exclusion factors on the pool of potential donors. Transfusion 47,1180–8.

10. DELUCA, L.A., GLASS, S.G., JOHNSON, R.E. & BURGER, M. (2006) Description and evaluation of a canine volunteer blood donor program. Journal of Applied Animal Welfare Science 9,129–41.

11. AL-DREES, A.M. (2008) Attitude, belief and knowledge about blood donation and transfusion in Saudi population. Pakistan Journal of Medical Sciences Quarterly 24, 74-9

12. BAIG, M., HABIB, H.H., HAJI, A.T., ALSHARIEF, F.M., NOOR, A.G. & MAKI, R. (2013) Knowledge, Misconceptions and Motivations Towards Blood Donation Among University Students in KSA. Pakistan Journal of Medical Sciences Quarterly 29, 1295-9

19. NUSBAUM, R. (2016) Chapter 19: Donor program management. In Manual of Veterinary Transfusion Medicine and Blood Banking. Eds Yagi and Hollowaychuk. John Wiley & Sons, 271-83

20. SCHUMACHER, D. (2012) Idiosyncrasies in feline blood transfusions. Veterinary Technician 33 E1–4

21. DOOLIN, K.S., CHAN, D.L., ADAMANTOS, S. & HUMM, K. (2017) Retrospective evaluation of unexpected events during collection of blood donations performed with and without sedation in cats (2010-2013). Journal of Veterinary Emergency and Critical Care 27, 555-60

29. BUCIUNIENE, I., STONIENE, L., BLAZEVICIENE, A., KAZALAUSKAITE, R. & SKUDIENE, V. (2006) Blood donors' motivation and attitude to non-remunerated blood donation in Lithuania. BMC Public Health 22, 166

30. GLYNN, S.A., KLEINMAN, S.H., SCHREIBER, G.B., ZUCK, T., MCCOMBS, S., BETHEL, J., GARRATTY, G. & WILLIAMS, A.E. (2002) Motivations to donate blood: demographic comparisons. Transfusion 42, 216–25

31. MISIE, A.H., BOSNES, V., GASDAL, O. & HEIER, H.E. (2005) Motivation, recruitment and retention of voluntary non-remunerated blood donors: a survey-based questionnaire study. Vox Sang 89, 236–44

32. BELDA SUAREZ, I.M., FERNANDEZ-MONTOYA, A., RODRIGUEZ FERNANDEZ, A., LOPEZ-BERRIO, A. & CILLERO-PENUELA, M. (2004) How regular blood donors explain their behavior. Transfusion 44, 1441–6

33. BOULWARE, L.E., RATNER, L.E., NESS, P.M., COOPER, L.A., CAMPBELL-LEE, S., LAVEIST, T.A. & POWE, N.R. (2002) The contribution of sociodemographic, medical, and attitudinal factors to blood donation among the general public. Transfusion 42, 669–78

34. KASRAIAN, L. & MAGHSUDLU M. (2012) Blood donors' attitudes towards incentives: influence on motivation to donate. Blood Transfusion 10, 186–

35. SCHOLZ, C. (2010) Generation Y and Blood Donation: The Impact of Altruistic Help in a Darwiportunistic Scenario. Transfusion Medicine and Hemotherapy 37, 195– 202

36. BANI, M., GIUSSANI, B. (2010) Gender differences in giving blood: a review of the literature. Blood Transfusion 8, 278–87

37. STEELE, W.R., SCHREIBER, G.B., GUILITNAN, A., NASS, C., GLYNN, S.A., WRIGHT, D.J., KESSLER, D., SCHLUMPF, K.S., TU, Y., SMITH, J.W. & GARRATY, G. (2008) The role of altruistic behavior, empathetic concern, and social responsibility motivation in blood donation behavior. Transfusion 48, 43–54

38. SHAZ, B.H., JAMES, A.B., HILLYER, K.L, SCHREIBER, G.B.& HILLYER, C.D. (2011) Demographic patterns of blood donors and donations in a large metropolitan area. Journal of the National Medical Association 103, 351–7

39. ASHALL, V. & HOBSON-WEST, P. (2017) Doing good by proxy': human-animal kinship and the 'donation' of canine blood. Sociology of Health and Illness 39, 908-22

40. YAGI, K. (2015) Chapter 5 Transfusion Medicine. In Small Animal Emergency and Critical Care for Veterinary Technicians. Eds Battaglia and Steele. Elsevier Health Sciences

41. MOORE, R.J. (1991) Promoting blood donation: a study of the social profile, attitudes, motivation and experience of donors. Transfusion Medicine 1, 201–7.

42. SAREEN, R.J., GUPTA, G.N. & DUTT, A. (2012) Donor awareness: key to successful voluntary blood donation. F1000Research 1-29

43. HAMID, N.Z.A., BASIRUDDIN, R. & HASSAN, N. (2013) The Intention to Donate Blood: An Analysis of Socio-Demographic Determinants. International Journal of Social Science and Humanity 6, 503-7

44. ZEILER, T., LANDER-KOX, J. & ALT, T. (2010) Blood Donation by Elderly Repeat Blood Donors. Blood Transfusion 8, 278-87

45. OTTERSTEDT, C. & ROSENBERGER, M. (2009) Gefährten – Konkurrenten – Verwandte, Die Mensch-Tier-Beziehung im wissenschaftlichen Diskurs. Vandenhoeck & Ruprecht-Verlag, Göttingen

46. SCHEIBECK, R., PALLAUF, M., STELLWAG, C. & SEEBERGER, B. (2011) Elderly people in many respects benefit from interaction with dogs. European Journal of Medical Research 16, 557–63

47. CHARBONNEAU, J., CLOUTHIER, M.S. & CARRIER, E. (2016) Why Do Blood Donors Lapse or Reduce Their Donation's Frequency? Transfusion Medicine Reviews 30,1–5

48. HILLGROVE, T.L., DOHERTY, K.V. & MOORE, V.M. (2012) Understanding non-return after a temporary deferral from giving blood: a qualitative study. BMC Public Health 10, 1063.

49. LUE, T.W., PANTENBURG, D.P. & CRAWFORD, P.M. (2008) Impact of the owner-pet and client- veterinarian bond on the care that pets receive. Journal of the American Veterinary Medical Association 232, 531–40

50. LIANG, W., SHEDIAC-RIZKALLAH, M.C., CELENTANO, D.D. & ROHDE, C. (1999) A population-based study of age and gender differences in patterns of health-related behaviors. American Journal of Preventative Medicine 17, 8–17.

51. ALESSANDRINI, M., CARR, A. & COGHLAN, P. (2007) Building social capital through blood donation: the social futures project. ISBT Science Series 2, 46–52

52. MARITI, C., BOWEN, J., CAMPA, S., GREBE, G. & SIGHIERI, C., A. (2016) Guardians' Perceptions of Cats' Welfare and Behavior Regarding Visiting Veterinary Clinics. Journal of Applied Animal Welfare Science 19, 375-84

53. GOSLING, S.D., SANDY, C.J. & POTTER, J. (2010) Personalities of Self-Identified "Dog People" and "Cat People." Anthrozoös 23, 213–22

54. SOJKA, B.N. & SOJKA, P. (2008) The blood donation experience: self-reported motives and obstacles for donating blood. Vox Sang 94, 56–63

55. BEDNALL, T.C. & BOVE, L.L. (2011) Donating blood: a meta-analytic review of self-reported motivators and deterrents. Transfusion Medicine Reviews 25, 317–34

56. FINCK, R., SIMAN, A., HOFFMAN, M., PHAN-TANG, M. & YAUN, S. (2016) Motivating Factors and Potential Deterrents to Blood Donation in High School Aged Blood Donors. Journal of Blood Transfusion 15

57. EVANS, R. & FERGUSON, E. Defining and measuring blood donor

altruism: a theoretical approach from biology, economics and psychology. Vox Sang 106, 118–26

58. MCCONNELL, A.R., BROWN, C.M., SHODA, T.M., STAYTON, L.E. & MARTIN, C.E. (2011) Friends with benefits: on the positive consequences of pet ownership. Journal of Personality and Social Psychology 101, 1239–52

59. DOTSON, M.J. & HYATT, E.M. (2008) Understanding dog–human companionship. Journal of Business Research 61, 457–66

60. SMITH, A., MATTHEWS, R. & FIDDLER, J. (2013) Recruitment and retention of blood donors in four Canadian cities: an analysis of the role of community and social networks. Transfusion 53 Suppl 5:180S–4S

61. ASHALL, V. (2009) Canine blood donor. In Practice 31, 527

62. MARANTIDOU, O., LOUKOPOULOU, L., ZERVOU, E., MARTINIS, G., EGGLEZOU, A., FOUNTOULI, P., DIMOXENOUS, P., PARARA, M., GAVALAKI, M. & MAIATIS, A. (2007) Factors that motivate and hinder blood donation in Greece. Transfusion Medicine 17, 443–50

63. KASRAIAN, L. & MAGHSUDLU, M. (2012) Blood donors' attitudes towards incentives: influence on motivation to donate. Blood Transfusion 10,186– 90

64. EASTLAND, T (1988) Monetary blood donation incentives and the risk of transfusion- transmitted infection. Transfusion 38, 874–82.

65. GLYNN, S.A., SCHREIBER, G.B., MURPHY, E.L., KESSLER, D., HIGGINS, M., WRIGHT, D.J., MATHEW, S., TU, Y., KING, M. & SMITH, J.W. (2006) Factors influencing the decision to donate: racial and ethnic comparisons. Transfusion 46, 980–90.

66. JONES, R.P.O., PRASAD, V., KURUVATTI, J., TAHIR, N., WHITAKER, P., DAWSON, A.S.J., HARRISON, M.A. & WILLIAMS, R. (2003) Remuneration for blood donation and attitudes towards blood donation and receipt in Leeds. Transfusion Medicine 13,131–40

67. SCHREIBER, G.B., SCHLUMPF, K.S., GLYNN, S.A., WRIGHT, D.J., TU, Y., KING, M.R., HIGGINS, M.J., KESSLER, D., GILCHER, R., NASS, C.C. & GUILTINAN, A.M. (2006) Convenience, the bane of our existence, and other barriers to donating. Transfusion 46, 545–53

68. FERNANDEZ MONTOYA, A., DE LUNA DEL CASTILLO, J., LOPEZ

BERRIO, A & RODRIGUEZ FERNANDEZ, A. (1996) Attitudes, beliefs, and motivations in blood donors and non- donors. Sangre 41,427–40.

69. YUAN, S., HOFFMAN, M., LU, Q., GOLDFINGER, D. & ZIMAN, A. (2011) Motivating factors and deterrents for blood donation among donors at a university campus-based collection center. Transfusion 51, 2438–44

70. FERGUSON, E., FARRELL, K. & LAWRENCE, C. (2008) Blood donation is an act of benevolence rather than altruism. Health Psychology 27,327–36

71. MULLAN, S. (2010) Canine blood donor. In Practice 2010 32, 39–39

72. SINK, C. (2017) Chapter 1 The blood donor. In Practical Transfusion Medicine for the Small Animal Practitioner, 2nd edition. Ed C Sink. Wiley Blackwell

73. NHSBT (2016) Don't Just Give Up – Give Blood https://www.blood.co.uk/news-and-campaigns/news-and-statements/don-t-just-give-up-give-blood/. Accessed May 25, 2018

74. YAGI, K & BEAN, B.L. (2016) Chapter 13: Canine Donor Selection. In Manual of Veterinary Transfusion Medicine and Blood Banking. Eds Yagi and Hollowaychuk. John Wiley & Sons, 271-83

TABLE 1: Examples of participants' responses of 'Beneficence' theme

"I would agree to let my dog give blood, to save another animal's life".
"It would make a huge difference to another owner, by letting my animal give blood for theirs".
"It feels like the right thing to do"
"You have to do the best thing for your pets and for other people".
"It is great that a healthy dog/cat could help other animals and potentially save a life"
"Although our pet is the wrong species (Rabbit) and too old (9 years). This seems like an excellent way to help other animals in need, so would certainly help if we had an eligible pet".

TABLE 2: Examples of participants' responses of 'Reciprocity' theme

"One of my cats needed a blood transfusion, but had a really rare blood type and there was no donor or stored blood available. He sadly did not survive. Therefore, I would always now let my pet donate blood."
"If anything ever happened to my pets, I would appreciate blood donations if it was the other way round, so I would let my pet give blood"
"I would want my own dog to get blood if he needed it, so would let mine donate and think all owners should"
"I would consider letting my pet donate blood, as they could be the recipient one day"
"Due to having pets that required the blood transfusion service already, we would be happy to take part, to return the favour".

TABLE 3: Examples of participants' responses of 'Necessity of service' theme

"This is a wonderful idea, I am a blood donor myself so think it is a good idea for pets to be too".
"Having spent over 40 years in general animal rescue services, I have seen during this period a need for this 'supply' and the remarkably important results and research this procedure could and does achieve"
"This is quite a surprise survey. I am an organ and blood donor (registered). How fantastic animals can benefit from such a service. In view of the fact that my cat leads such a pampered life, it is the least she could do to 'pay' something back to such an important cause".
"I have seen advertisements before for this service and realise it is very important".

TABLE 4: Examples of participants' responses of 'Reservations and concerns' theme.

"I would not let my timid cats participate in blood donation, as they would be too stressed (at even just the journey!)"
"My only concern would be that my cat did not like needles and was over stressed"
"I have a full-time job and have such a busy schedule, that I'm not sure I would be able to fit time in to take my pet to blood donation appointments".
"I do not drive, so it makes it very complicated for transportation to blood banks".
"We like the idea of this service, but would like more information on the procedures involved in animal blood donation first"