
PYOMETRA MANAGEMENT PRACTICES IN THE HIGH QUALITY, HIGH VOLUME SPAY-NEUTER ENVIRONMENT

ASHLEE MCCALLIN

2ND YEAR VETERINARY STUDENT, MIDWESTERN UNIVERSITY

RACHAEL KREISLER, VMD, MSCE, DACVPM (EPIDEMIOLOGY)

ASSOCIATE PROFESSOR OF SHELTER MEDICINE AND EPIDEMIOLOGY

ABOUT THE AUTHOR

- Ashlee McCallin
 - 2nd year veterinary student, Midwestern University
 - Interests include shelter medicine, public health, and access to care for underserved communities
 - Continuing research focused on HQHVSN and private practice partnership to improve access to care
- Rachael Kreisler, VMD, MSCE, DACVPM
 - Associate professor of shelter medicine and epidemiology, Midwestern University
 - Research mentor

STUDY BACKGROUND AND OBJECTIVE

- Summer research project sponsored Boehringer Ingelheim Veterinary Scholars Program 2020
- The purpose of this study was to identify pyometra management practices in the HQHVSN environment, particularly with regard to clinics' availability and suitability as a potential referral resource



METHODS

- A **35-question survey** was created to identify the current management practices for pyometra in the HQHVSN environment
- Survey questions were distributed via Survey Monkey after being piloted to select shelter/HQHVSN veterinarians and private practice veterinarians contacted via social media
- The survey targeted **clinics that perform HQHVSN surgery** of shelter and/or publicly owned animals, **regardless of whether they performed treatment of pyometra**
- Respondents were instructed to use **data from 2019** and to assume normal operating conditions rather than operations as modified due to the COVID-19 pandemic

STATISTICAL METHODS

- Survey responses were summarized using **descriptive statistics**
- **Median values for the cost of pyometra surgery between the type of clinic** (private practice, emergency, and HQHVSN) and **estimated percent survival between presentations** were compared using a Kruskal-Wallis test for stochastic dominance followed by a Dunn's test for stochastic dominance among multiple pairwise comparisons
- **Free response answers** were reviewed using **qualitative analysis** that categorized responses based on predominant themes using conventional content analysis

RESULTS - DEMOGRAPHICS

- There were **118** online survey responses between **June and July 2020**
- The **majority** (75%, n=88) of HQHVSN clinics were **associated with a shelter**
- Clinics tended to be **fixed** (86%, n=101) or a combination of fixed and mobile (13%, n=15), with only 2 clinics completely mobile (1%)

RESULTS - DEMOGRAPHICS

Regions

- Far West (23%, n=20)
- Southeast (24%, n=21)
- Great Lakes (14%, n=12)
- Southwest (13%, n=11)
- Mideast (11%, n=10)
- Few were from New England (8%, n=7) and the Rocky Mountains (5%, n=4)
- No clinics were from the Plains

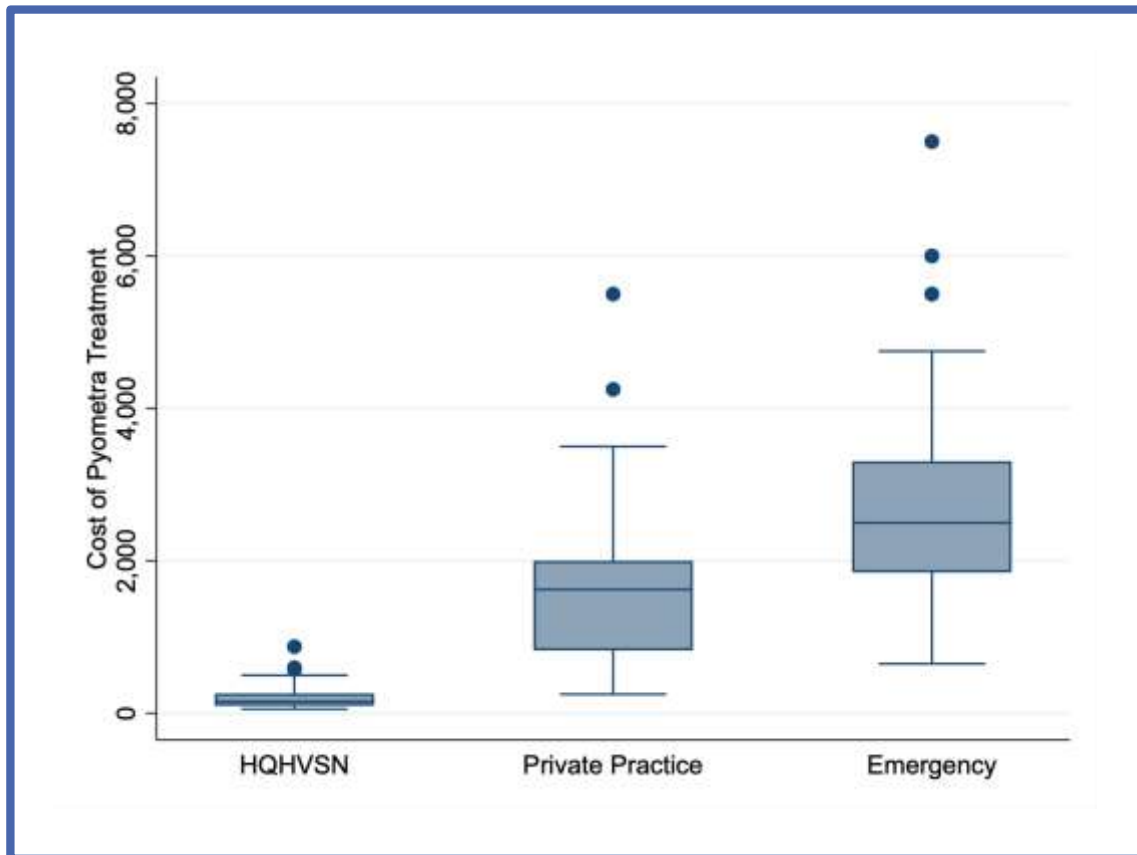
Metropolitan areas

- More than a million people (37%, n=32)
- 250,000 to 1 million people (37%, n=32)
- Less than 250,000 people (26%, n=23)

RESULTS

- **Eighty-six percent** (n=75) of HQHVSN clinics reported that **they chose to treat non-incident pyometras**
 - **Nearly all** of these clinics (97%) were **willing to accept pyometra referrals**
- The **majority** of patients that HQHVSN clinics accepted for treatment were **seen the same day (50%) or next day (42%)**

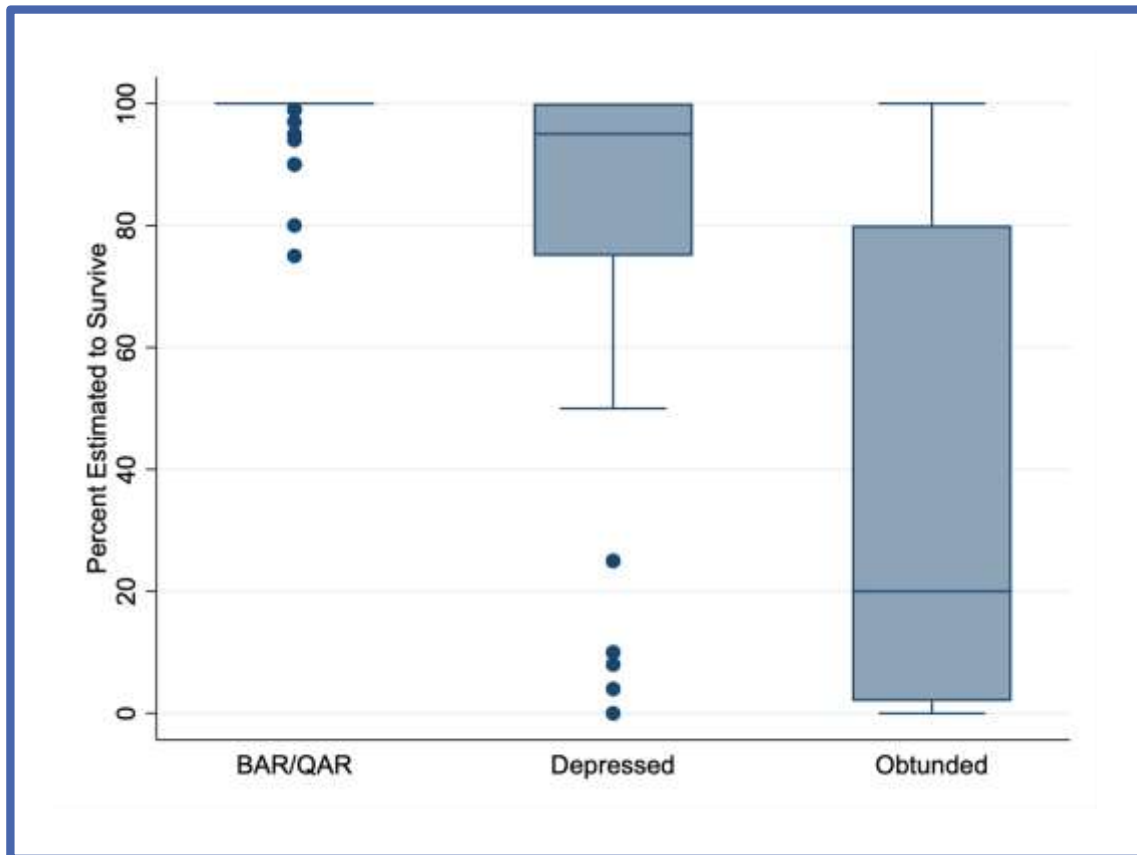
RESULTS



- **Most clinics (70%) charged a fee for treatment, charging a median of \$200 for dogs and \$125 for cats**
 - Mean of dogs and cats shown in figure
- This was lower ($P=0.0001$) as compared to the estimated ranges for private practice (\$600-\$2,500) and emergency hospitals (\$1,500-\$3,579) in their community

Box plot of the cost of pyometra treatment in HQHVSN, private practice and emergency hospitals, in dollars. The horizontal line is at the median, the boxes span from the 25th to 75th percentile, and whiskers extend from each quartile to minimum or maximum. The dots represent data points beyond 1.5 IQR.

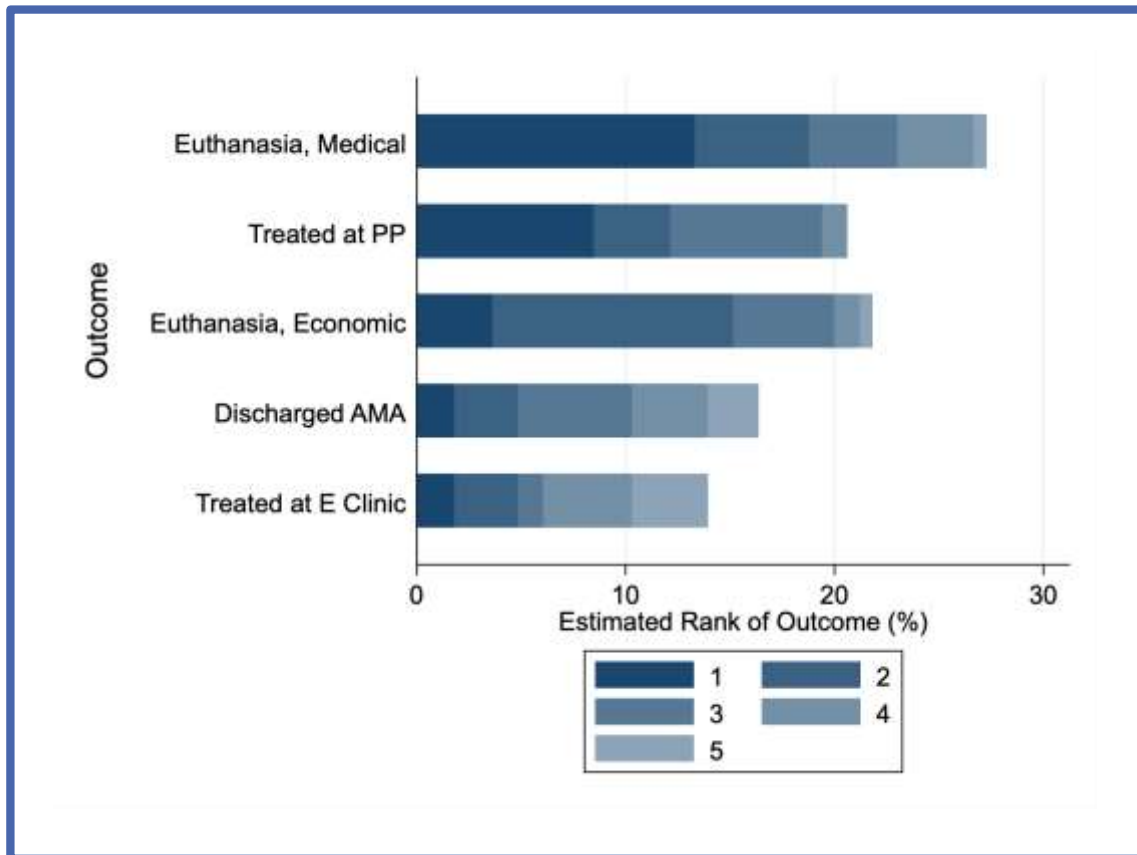
RESULTS – ESTIMATED SURVIVAL



- **Survival for those treated** was estimated at
 - 100% of the 76% presenting BAR or QAR and ambulatory
 - 95% of the 20% presenting depressed or non-ambulatory
 - 20% of the 4% presenting obtunded or lateral

Box plot of the percent estimated to survive treatment in the HQHVSN environment, by presentation. The horizontal line is at the median, the boxes span from the 25th to 75th percentile, and whiskers extend from each quartile to minimum or maximum. The dots represent data points beyond 1.5 IQR.

RESULTS – OUTCOMES FOR PYOMETRA NOT TREATED

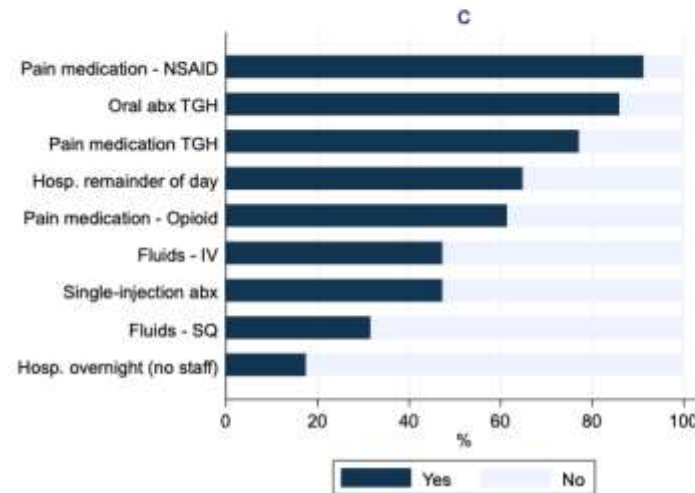
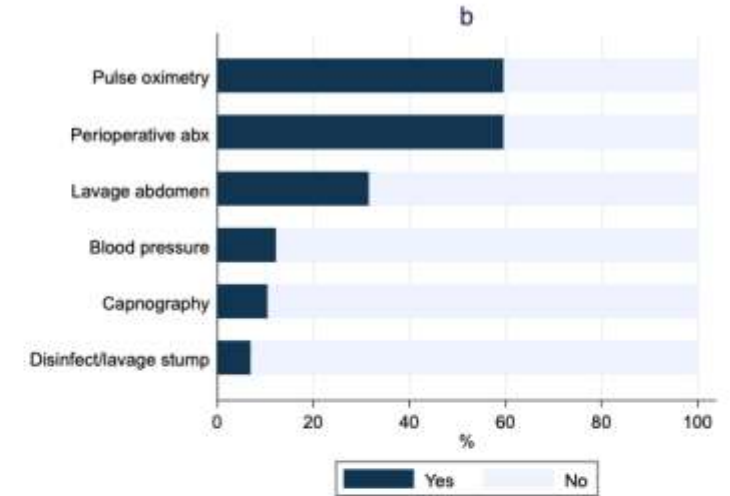
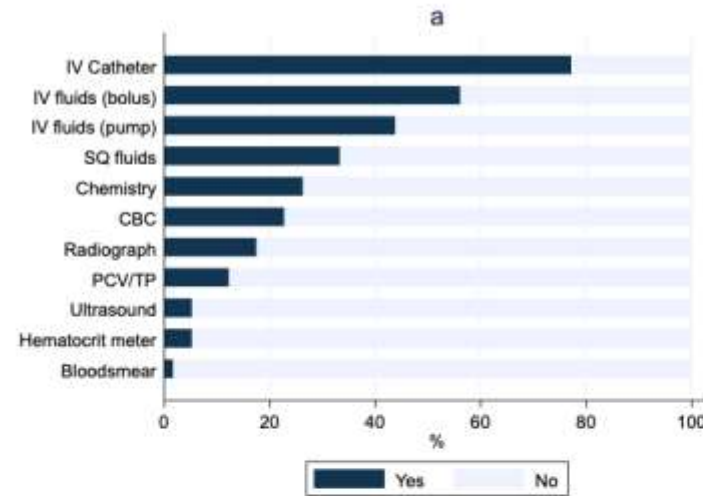


- **Five potential outcomes for patients that were declined** by the HQHVSN clinic for treatment were ranked in order of likely outcome
- **Appropriate euthanasia due to poor prognosis was the outcome most frequently ranked first**, with 40% (n=22) ranking it 1 out of 5 (median=2, IQR 1-4)
- **Treatment at a private practice and euthanasia due to economic constraints were both commonly ranked**, with 25% (median 3, IQR 5-6) and 11% (median=3, IQR 2-6) ranking 1, respectively
- **Discharge against medical advice (AMA) without treatment and treatment at an emergency hospital were both relatively uncommon outcomes** with only 5% ranking either option first, and 51% (median, IQR 3-6) and 55% (median, IQR 4-6) of respondents choosing never or almost never, respectively

Category plot of the estimated rank of outcomes for pyometras not treated by the HQHVSN clinic. Respondents could decline to rank outcomes if they were estimated to occur “Never or almost never”.

RESULTS - PROTOCOL

- Respondents were asked to indicate which common procedures they performed as part of their typical protocol for treating a “textbook” pyometra case
- Defined as a QAR intact 10-year-old female dog with malodorous vaginal discharge, 5% dehydration, elevated temperature, no previous diagnostic or treatments before presentation, removal of the intact uterus en bloc and uneventful recovery



Category plots of percent of HQHVSN clinics reporting performing various procedures for a “textbook” pyometra, ordered from greatest to least frequency. Plot a represents preoperative procedures, plot b intraoperative procedures, and plot c postoperative procedures.

RESULTS

- Most clinics found **“routine” pyometras to be minimally disruptive** to their surgical day
 - Not at all disruptive (33%, n=31)
 - Mildly disruptive (54%, n=31)
 - Moderately disruptive (12%, n=7)
 - Majorly disruptive (0)
- **Ninety-five percent** (n=54) of clinics believed **they have the resources needed to treat most pyometras** presented to them

RESULTS - REFERRALS

- Main sources of cases
 - Diagnosed and referred by another clinic (31%)
 - Incidental findings during a routine spay (30%)
 - Client self-referral after diagnosis at another clinic (16%)
- **Seventy-two percent (n=41) of HQHVSN clinics always or almost always accept pyometra cases if referred while only 4% (n=2) would never accept referral pyometras**
- The **majority** of HQHVSN clinics estimate that they **generally accept referrals on the same day (50%) or the next day (42%)**
- The majority of **declined cases were due to poor prognosis, defined as unstable, lateral, obtunded, or too ill due to sepsis**
 - Time (n=15) and staffing (n=10) were also common free-text responses for reasons to decline pyometras

QUALITATIVE RESPONSES

- “HQHVSU surgeons are uniquely trained and experienced to efficiently and safely perform pyometra surgeries. Our pyometra surgeries are not significantly longer than a routine spay, and our patient population (subclinical or incidental pyometra) has excellent outcomes using minimal medical interventions with HQHVSU techniques,”

QUALITATIVE RESPONSES

- “[Pyometra treatment] is such a necessary service. Access to veterinary care for underprivileged folks is a real problem in the US. Providing low-cost emergency services (at least for some basic procedures) is the right thing to do!”

CONCLUSIONS

- Many HGHVSN environments were **willing and able to treat non-incidental pyometras** and **accept referrals** from the community
- Most clinics were able **to treat most patients the same day or next day** after diagnosis and/or referral
- Of those willing to treat, **nearly all thought their clinic had the resources** to handle most of the pyometras that presented
- Clinics estimated **survival rates of nearly 100% for patients presenting BAR or QAR**, which were the vast majority of patients presented for treatment

CONCLUSION

- There were **significant differences in cost** between treatment at HQHVSN clinics and treatment at a private practice or emergency hospital
- HQHVSN clinics found the **surgical treatment of pyometra to be at worst only moderately disruptive** to the flow of their surgical day and **may serve as a resource for referral for private practice** where treatment would be disruptive to the day's schedule or for clients with financial challenges
- **Multiple respondents reported partnering with private practices** to take advantage of the strengths of both models to provide accessible high-quality care to pets
- From qualitative answers, HQHVSN clinics provided pyometra treatment because it **fit well into their workflow** and was consistent with their **goal of providing lifesaving and accessible care**

THANK YOU TO EVERYONE
WHO FILLS OUT SURVEYS!

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AMCCALLIN19@MIDWESTERN.EDU

RKREIS@MIDWESTERN.EDU

