

## Introduction

**Background:** Pyometra is an important welfare condition in bitches, with neutering offering definitive prevention.

**Aim:** This study reports clinical management options and outcomes for 1,040 pyometra cases in bitches under the primary veterinary in the UK care during 2019.

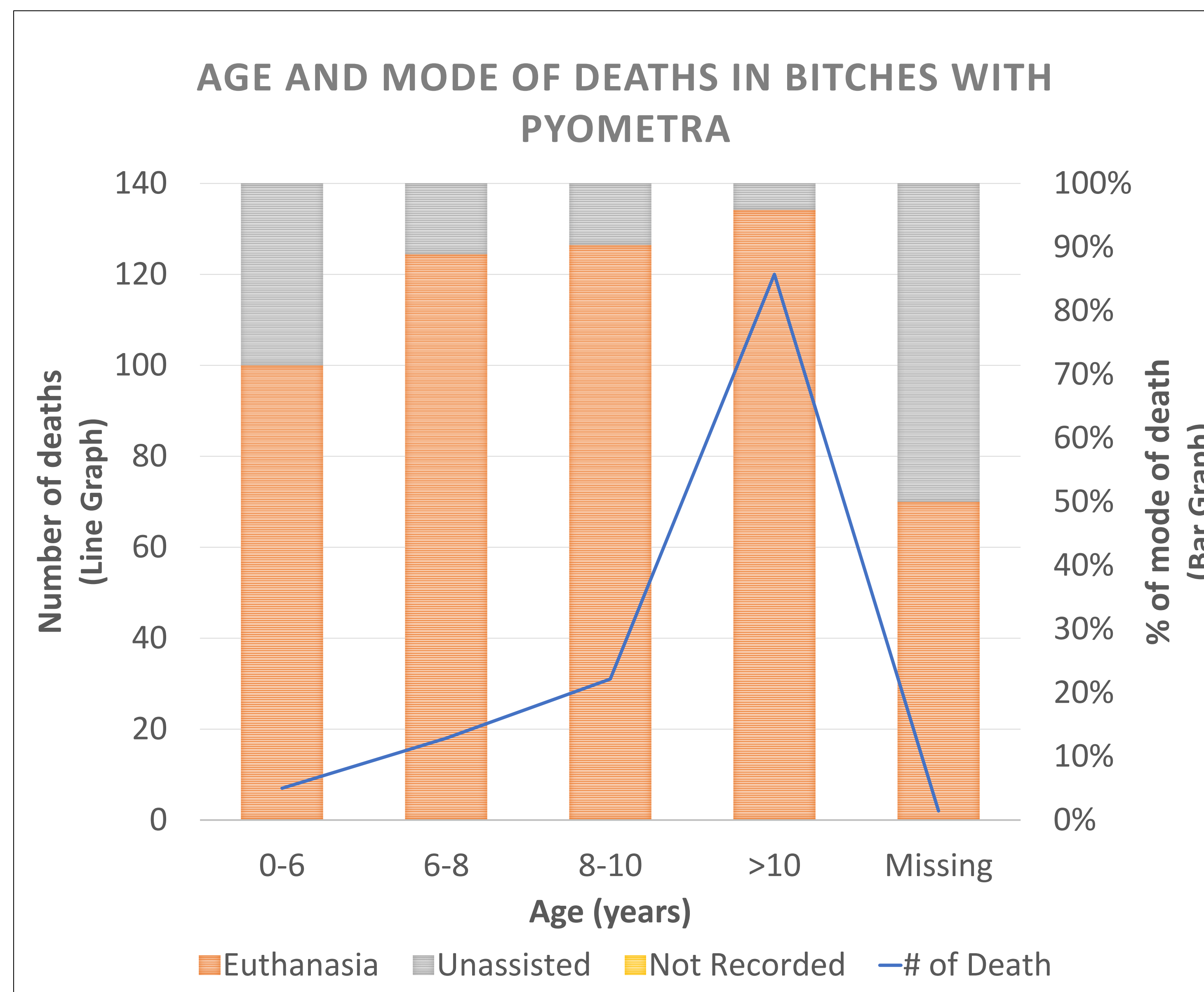
### Questions asked:

1. What are the outcomes from different clinical management of pyometra?
2. For those bitches that died of pyometra, how did they die?
3. What are the risk factors for death in pyometra cases?

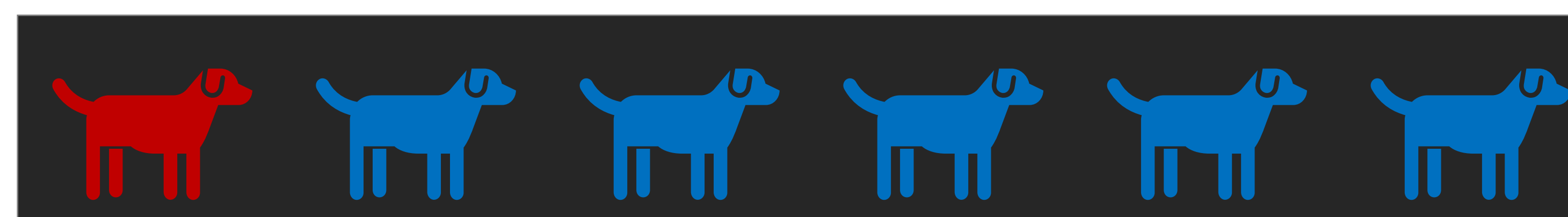
## Methods

The **VetCompass** study identified a random sample of 1,040 confirmed pyometra cases, from the study population of 1,067,552 bitches.


- **Clinical Management** was categorised as medical management only, surgical management, euthanised without treatment, referred, or unrecorded.
- **Mechanism of death** was classified as euthanasia, unassisted death or unrecorded.
- Binary logistic regression was used to evaluate multivariable associations of **risk factors** (*purebred status, breed, bodyweight, and age*) with pyometra-associated deaths.



Variable	Category	Died, n (%)	Not died, n (%)	Odds Ratio	95% CI*	Category p-value	Variable p-value
Age (years)	< 6	7 (3.93%)	216 (28.13%)	Base			<0.001
	6 to <8	18 (10.11%)	179 (23.28%)	3.10	1.27-7.60	0.013	
	8 to <10	31 (17.42%)	190 (24.74%)	5.04	2.17-11.70	<0.001	
	≥10	120 (67.42%)	181 (23.57%)	20.46	9.31-44.95	<0.001	
	Not recorded	2 (1.12%)	2 (0.26%)	30.86	3.78-251.87	0.001	



**One in six bitches with pyometra died as a result.** Bitches were 3 times more likely to die from pyometra if they were over six years old.



Almost half of the pyometra-associated deaths in bitches were euthanised without **any** formal recorded treatment.

## Results

### Management and outcomes:

- From 1,040 pyometra cases, 63.4% (659/1,040) of pyometra cases were surgically-managed, 11.4% (119/1,040) were medically-managed cases, 13.5% (140/1040) were euthanised within 5 days, 9.7% (101/1,040) were referred, and 2.0% (21/1,040) had no record of management received.
- 3.3% (22/659) of surgically managed cases reported death as a post-operative complication, and 12.6% (16/119) of medically managed cases reported death.

### Pyometra-associated deaths and mechanisms:

Overall 17.1% (178/1,040) bitches died associated with pyometra and 82.88% (862/1040) survived pyometra.

- 92.7% (165/178) involved euthanasia.
- 7.3% (13/178) were unassisted deaths.
- 45.5% of cases (81/178) were euthanised without any recorded medical or surgical treatment.
- 67.4% of deaths (120/178) occurred in bitches above 10 years old.

### Multivariable analysis:

- Bitches older than 6 years of age had at least 3 times the risk of death from pyometra, compared to bitches younger than 6 years old.
- Compared to bitches younger than 6, bitches older than 10 showed the highest odds for risk of death with pyometra.
- Purebred-designer-crossbreed status, breed, and bodyweight were not associated with odds of death.

## Conclusion

Despite low post-operative fatality following surgical management, more than **one in six bitches** with pyometra died overall, with almost half of those dying not receiving any formally recorded treatment. A higher risk of death in older bitches may reflect financial constraints or beliefs about poor expected prognosis. These findings suggest there is substantial room for improvement in how pyometra is clinically managed in bitches.