

ONLINE SURVEY

Dear responder,

I am a final year veterinary student at the Department of Veterinary Sciences of the University of Turin (Italy) and am currently starting a study in small animal clinical pharmacology as part of my graduation thesis project.

The purpose of this canine and feline obstetric project is to analyse and compare different anaesthetic protocols commonly used in small animal veterinary medicine for caesarean section delivery in bitches and queens. We like to explore whether differences in anaesthetic management exist between countries or regions and between different veterinary care groups (e.g., tertiary (teaching hospitals) versus secondary (small animal hospitals) versus primary (small animal practices) care providers). In addition, we like to find out whether veterinary professionals with different anaesthesia training backgrounds manage bitches and queens undergoing a C-section differently and whether different anaesthetic regimens lead to different outcomes regarding the well-being of bitch or queen and the litter post C-section delivery.

In cooperation with the Section of Anesthesia at the University of Pennsylvania's School of Veterinary Medicine (USA) we have created this online survey in an attempt to address a large group of veterinary professionals worldwide.

We greatly appreciate your participation in this survey, which will take up no more than 20 minutes of your precious time. The document is in pdf format for the easiness of filling in the information. The data collected serve no other than the stated study purposes and post-hoc statistical analyses without revealing any personal data of the responders.

Your assistance will be a very valuable contribution to the success of our research project.

Ilaria Bellino, University of Torino

ANAESTHETIC PROTOCOLS IN CAESAREAN SECTIONS IN BITCHES AND QUEENS

GENERAL PART

1) Country in which responder is currently working: Please circle what applies to you.

- a) Argentina
- b) Australia
- c) Austria
- d) Benelux countries (Belgium, The Netherlands, Luxemburg)
- e) Brazil
- f) Canada
- g) Chile
- h) Denmark
- i) France
- j) Finland
- k) Germany
- l) Italy
- m) Japan
- n) Mexico
- o) New Zealand
- p) Norway
- q) South Africa
- r) Spain
- s) Sweden
- t) Switzerland
- u) United Kingdom (UK)
- v) United States of America (USA)
- w) Other (please specify).....

2) Responder's veterinary educational/training background: Please circle what applies to you.

- a) DVM/DMV
- b) DVSc/BVSc or equivalent
- c) MS, MSci or equivalent
- d) PhD or equivalent
- e) Board-certified anaesthesiologist (Dipl. ACVAA or ECVAA)
- f) AVA diploma or otherwise certified veterinary anaesthetist
- g) Veterinary technician/nurse
- h) Veterinary technician/nurse with anaesthesia certificate from Improve International, ECVAA, VASTA, or equivalent organisation
- i) Veterinary technician/nurse specialist (VTS) in anaesthesia and analgesia (AVTAA board-certified)
- j) Licensed veterinary technician/nurse (RVT, RVN, CVT, LAT, TFA, TPA, etc.)
- k) Other (please specify).....

3) Responder's years of experience in veterinary anaesthesia: Please circle what applies to you.

- a) <1 year
- b) 1-3 years
- c) 3-5 years
- d) 5-10 years
- e) > 10 years

4) Institution in which responder is currently working: Please check what applies to you.

- a) Academic (University) teaching hospital
 - ☐ with or ☐ without Dipl. ACVAA or ECVAA
 - ☐ with or ☐ without AVA or otherwise (e.g. Fachtierarzt für Anästhesie) certified veterinary anaesthetist(s)
 - ☐ with or ☐ without veterinary technician(s)/nurse(s) with anaesthesia certificate
 - ☐ with or ☐ without veterinary technician/nurse specialist(s) (VTS) in anaesthesia and analgesia (AVTAA board-certified)
 - ☐ with or ☐ without licensed veterinary technician(s)/nurse(s) administering anaesthesia
- b) Private Small Animal Hospital
 - ☐ with or ☐ without Dipl. ACVAA or ECVAA
 - ☐ with or ☐ without AVA or otherwise (e.g. Fachtierarzt für Anästhesie) certified veterinary anaesthetist(s)
 - ☐ with or ☐ without veterinary technician(s)/nurse(s) with anaesthesia certificate
 - ☐ with or ☐ without veterinary technician/nurse specialist(s) (VTS) in anaesthesia and analgesia (AVTAA board-certified)
 - ☐ with or ☐ without licensed veterinary technician(s)/nurse(s) administering anaesthesia
- c) Private Small Animal Practice
 - ☐ with or without ☐ Dipl. ACVAA or ECVAA
 - ☐ with or ☐ without AVA or otherwise (e.g. Fachtierarzt für Anästhesie) certified veterinary anaesthetist
 - ☐ with or ☐ without veterinary technician/nurse with anaesthesia certificate
 - ☐ with or ☐ without veterinary technician/nurse specialist (VTS) in anaesthesia and analgesia (AVTAA board-certified)
 - ☐ with or ☐ without licensed veterinary technician(s)/nurse(s) administering anaesthesia
- d) Mixed small/large animal Practice
 - ☐ with or ☐ without Dipl. ACVAA or ECVAA
 - ☐ with or ☐ without AVA or otherwise (e.g. Fachtierarzt für Anästhesie) certified veterinary anaesthetist
 - ☐ with or ☐ without veterinary technician/nurse with anaesthesia certificate
 - ☐ with or ☐ without veterinary technician/nurse specialist (VTS) in anaesthesia and analgesia (AVTAA board-certified)
 - ☐ with or ☐ without licensed veterinary technician(s)/nurse(s) administering anaesthesia

5) Are there any standard protocols for caesarean section anaesthesia in the institution in which responder is currently working? Please check what applies to you.

- ☐ Yes
☐ No

6) In the responder's experience, what is the most common reason for delivery by caesarean section in bitches and queens? **Please check what applies to you.**

BITCHES:

- a) Emergency/Dystocia with estimated 51-60 % ☐ , 61-75 % ☐ , >75 % ☐ of all cases
b) Scheduled/elective caesarean section with 51-60 % ☐ , 61-75 % ☐ , >75 % ☐ of all cases
c) Other (please specify).....

QUEENS:

- a) Emergency/Dystocia with estimated 51-60 % ☐ , 61-75 % ☐ , >75 % ☐ of all cases
b) Scheduled/elective caesarean section with 51-60 % ☐ , 61-75 % ☐ , >75 % ☐ of all cases
c) Other (please specify).....

7) Do you normally preoxygenate **bitches and queens** undergoing caesarean section during premedication and prior to induction of anaesthesia? **Please check what applies.**

- ☐ Yes
☐ No

PREMEDICATION

8) Do you commonly premedicate/sedate **BITCHES AND QUEENS** undergoing caesarean section? **Please check what applies to you.**

a) **BITCHES**

- ☐ Yes (*If Yes, continue*)
☐ No (*If No, go to question 13*)

b) **QUEENS**

- ☐ Yes (*If Yes, continue*)
☐ No (*If No, go to question 13*)

9) Which drug, route of administration and dose do you most commonly use to premedicate **BITCHES** undergoing caesarean section? **Please check all that applies.**

- a) Acepromazine (ACP)
☐ No. (go to next drug)
☐ IV dose in mg/kg:
☐ IM dose in mg/kg:
☐ SQ dose in mg/kg:

b) Buprenorphine
☐ No. (go to next drug)
☐ IV dose in mg/kg:
☐ IM dose in mg/kg:

☐ SQ dose in mg/kg:

c) Butorphanol

☐ No. (go to next drug)

☐ IV dose in mg/kg:

☐ IM dose in mg/kg:

☐ SQ dose in mg/kg:

d) Dexmedetomidine

☐ No. (go to next drug)

☐ IV dose in mg/kg:

☐ IM dose in mg/kg:

☐ SQ dose in mg/kg:

e) Diazepam

☐ No. (go to next drug)

☐ IV dose in mg/kg:

☐ IM dose in mg/kg:

☐ SQ dose in mg/kg:

f) Fentanyl

☐ No. (go to next drug)

☐ IV dose in mg/kg:

☐ IM dose in mg/kg:

☐ SQ dose in mg/kg:

g) Hydromorphone

☐ No. (go to next drug)

☐ IV dose in mg/kg:

☐ IM dose in mg/kg:

☐ SQ dose in mg/kg:

h) L-Methadone (Polamivet®)

☐ No. (go to next drug)

☐ IV dose in mg/kg:

☐ IM dose in mg/kg:

☐ SQ dose in mg/kg:

i) Medetomidine

☐ No. (go to next drug)

☐ IV dose in mg/kg:

☐ IM dose in mg/kg:

☐ SQ dose in mg/kg:

- j) Meperidine (Pethidine)
- ☐ No. (go to next drug)
 - ☐ IV dose in mg/kg:
 - ☐ IM dose in mg/kg:
 - ☐ SQ dose in mg/kg:
- k) Methadone
- ☐ No. (go to next drug)
 - ☐ IV dose in mg/kg:
 - ☐ IM dose in mg/kg:
 - ☐ SQ dose in mg/kg:
- l) Midazolam
- ☐ No. (go to next drug)
 - ☐ IV dose in mg/kg:
 - ☐ IM dose in mg/kg:
 - ☐ SQ dose in mg/kg:
- m) Morphine
- ☐ No. (go to next drug)
 - ☐ IV dose in mg/kg:
 - ☐ IM dose in mg/kg:
 - ☐ SQ dose in mg/kg:
- n) Oxymorphone
- ☐ No. (go to next drug)
 - ☐ IV dose in mg/kg:
 - ☐ IM dose in mg/kg:
 - ☐ SQ dose in mg/kg:
- o) Romifidine
- ☐ No. (go to next drug)
 - ☐ IV dose in mg/kg:
 - ☐ IM dose in mg/kg:
 - ☐ SQ dose in mg/kg:
- p) Xylazine
- ☐ No. (go to next drug)
 - ☐ IV dose in mg/kg:
 - ☐ IM dose in mg/kg:
 - ☐ SQ dose in mg/kg:
- q) Other
- ☐ No. (go to next question)

- ☐ List drug name:
☐ IV dose in mg/kg:
☐ IM dose in mg/kg:
☐ SQ dose in mg/kg:

10) Which of the drugs do you most commonly combine to premedicate BITCHES undergoing caesarean section? (for every drug drop down list of all drugs a-q from question 9 with multiple answers possible)

Please list letters (for example: k plus l from list below).

- I. _____ plus _____ plus _____
II. _____ plus _____ plus _____
III. _____ plus _____ plus _____

Drug list

- a) Acepromazine (ACP)
- b) Buprenorphine
- c) Butorphanol
- d) Dexmedetomidine
- e) Diazepam
- f) Fentanyl
- g) Hydromorphone
- h) L-Methadone (Polamivet®)
- i) Medetomidine
- j) Meperidine (Pethidine)
- k) Methadone
- l) Midazolam
- m) Morphine
- n) Oxymorphone
- o) Romifidine
- p) Xylazine
- q) Other (specified in Q 9)

Which drug, route of administration and dose do you most commonly use to premedicate QUEENS undergoing caesarean section? Please check all that applies to you.

- a) Acepromazine (ACP)
☐ No. (go to next drug)
☐ IV dose in mg/kg:
☐ IM dose in mg/kg:
☐ SQ dose in mg/kg:

b) Buprenorphine

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

c) Butorphanol

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

d) Dexmedetomidine

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

e) Diazepam

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

f) Fentanyl

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

g) Hydromorphone

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

h) L-Methadone (Polamivet®)

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

i) Medetomidine

- ☐ No. (go to next drug)

- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

j) Meperidine (Pethidine)

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

k) Methadone

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

l) Midazolam

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

m) Morphine

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

n) Oxymorphone

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

o) Romifidine

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:
- ☐ SQ dose in mg/kg:

p) Xylazine

- ☐ No. (go to next drug)
- ☐ IV dose in mg/kg:
- ☐ IM dose in mg/kg:

☐ SQ dose in mg/kg:

q) Other

☐ No. (go to next question)

☐ List drug name:

☐ IV dose in mg/kg:

☐ IM dose in mg/kg:

☐ SQ dose in mg/kg:

11) Which of the drugs do you most commonly combine to premedicate **QUEENS** undergoing caesarean section? (**for every drug drop down list of all drugs a-q from question 9 with multiple answers possible**)

Please list letters (for example: k plus l from list below).

I. _____ plus _____ plus _____

II. _____ plus _____ plus _____

III. _____ plus _____ plus _____

Drug list

- a) Acepromazine (ACP)
- b) Buprenorphine
- c) Butorphanol
- d) Dexmedetomidine
- e) Diazepam
- f) Fentanyl
- g) Hydromorphone
- h) L-Methadone (Polamivet®)
- i) Medetomidine
- j) Meperidine (Pethidine)
- k) Methadone
- l) Midazolam
- m) Morphine
- n) Oxymorphone
- o) Romifidine
- p) Xylazine
- Other (specified in Q 9)

INDUCTION OF ANAESTHESIA

12) Do you normally anaesthetise **BITCHES AND QUEENS** undergoing caesarean section?

Please check what applies to you.

a) **BITCHES**

- ☐ Yes (*If Yes, continue*)
☐ No (*If No, go to question 20*)

b) **QUEENS**

- ☐ Yes (*If Yes, continue*)
☐ No (*If No, go to question 20*)

13) Which injectable agent do you most commonly use to induce anaesthesia in **BITCHES** undergoing caesarean section? **Please check what applies to you.**

a) Alfaxalone

- ☐ No. (go to next drug)
☐ Yes. (pop up next follow-up questions)
☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

- ☐ No. (go to next drug)
☐ Yes. (pop up next follow-up question)
☐ Diazepam. (pop up next follow-up question)
☐ No. (go to midazolam)
☐ IV dose of diazepam in mg/kg:
☐ Midazolam. (pop up next follow-up question)
☐ No. (go to b)
☐ IV dose of diazepam in mg/kg:

b) Etomidate

- ☐ No. (go to next drug)
☐ Yes. (pop up next follow-up questions)
☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

- ☐ No. (go to next drug)
☐ Yes. (pop up next follow-up question)

- ☐ Diazepam. (pop up next follow-up question)
 - ☐ No. (go to midazolam)
 - ☐ IV dose of diazepam in mg/kg:
- ☐ Midazolam. (pop up next follow-up question)
 - ☐ No. (go to b)
 - ☐ IV dose of diazepam in mg/kg:

c) Ketamine

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up question)
 - ☐ Diazepam. (pop up next follow-up question)
 - ☐ No. (go to midazolam)
 - ☐ IV dose of diazepam in mg/kg:
 - ☐ Midazolam. (pop up next follow-up question)
 - ☐ No. (go to b)
 - ☐ IV dose of diazepam in mg/kg:

d) Metomidate

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up question)
 - ☐ Diazepam. (pop up next follow-up question)
 - ☐ No. (go to midazolam)
 - ☐ IV dose of diazepam in mg/kg:

☐ Midazolam. (pop up next follow-up question)

☐ No. (go to b)

☐ IV dose of diazepam in mg/kg:

e) Propofol

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up questions)

☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up question)

☐ Diazepam. (pop up next follow-up question)

☐ No. (go to midazolam)

☐ IV dose of diazepam in mg/kg:

☐ Midazolam. (pop up next follow-up question)

☐ No. (go to b)

☐ IV dose of diazepam in mg/kg:

f) Tiletamine Zolazepam (Telazol®, Zoletil®)

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up questions)

☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up question)

☐ Diazepam. (pop up next follow-up question)

☐ No. (go to midazolam)

☐ IV dose of diazepam in mg/kg:

☐ Midazolam. (pop up next follow-up question)

☐ No. (go to b)

☐ IV dose of diazepam in mg/kg:

g) Thiopental

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up question)
 - ☐ Diazepam. (pop up next follow-up question)
 - ☐ No. (go to midazolam)
 - ☐ IV dose of diazepam in mg/kg:
 - ☐ Midazolam. (pop up next follow-up question)
 - ☐ No. (go to b)
 - ☐ IV dose of diazepam in mg/kg:

h) Other

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - Drug name:
 - ☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up question)
 - ☐ Diazepam. (pop up next follow-up question)
 - ☐ No. (go to midazolam)
 - ☐ IV dose of diazepam in mg/kg:
 - ☐ Midazolam. (pop up next follow-up question)
 - ☐ No. (go to b)
 - ☐ IV dose of diazepam in mg/kg:

14) Which injectable agent do you normally use to induce anaesthesia in **QUEENS** undergoing caesarean section? **Please check what applies to you.**

a) Alfaxalone

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up question)
 - ☐ Diazepam. (pop up next follow-up question)
 - ☐ No. (go to midazolam)
 - ☐ IV dose of diazepam in mg/kg:
 - ☐ Midazolam. (pop up next follow-up question)
 - ☐ No. (go to b)
 - ☐ IV dose of diazepam in mg/kg:

b) Etomidate

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up question)
 - ☐ Diazepam. (pop up next follow-up question)
 - ☐ No. (go to midazolam)
 - ☐ IV dose of diazepam in mg/kg:
 - ☐ Midazolam. (pop up next follow-up question)
 - ☐ No. (go to b)
 - ☐ IV dose of diazepam in mg/kg:

c) Ketamine

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)

☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up question)

☐ Diazepam. (pop up next follow-up question)

☐ No. (go to midazolam)

☐ IV dose of diazepam in mg/kg:

☐ Midazolam. (pop up next follow-up question)

☐ No. (go to b)

☐ IV dose of diazepam in mg/kg:

d) Metomidate

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up questions)

☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up question)

☐ Diazepam. (pop up next follow-up question)

☐ No. (go to midazolam)

☐ IV dose of diazepam in mg/kg:

☐ Midazolam. (pop up next follow-up question)

☐ No. (go to b)

☐ IV dose of diazepam in mg/kg:

e) Propofol

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up questions)

☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

☐ No. (go to next drug)

- ☐ Yes. (pop up next follow-up question)
 - ☐ Diazepam. (pop up next follow-up question)
 - ☐ No. (go to midazolam)
 - ☐ IV dose of diazepam in mg/kg:
 - ☐ Midazolam. (pop up next follow-up question)
 - ☐ No. (go to b)
 - ☐ IV dose of diazepam in mg/kg:

f) Tiletamine Zolazepam (Telazol®, Zoletil®)

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up question)
 - ☐ Diazepam. (pop up next follow-up question)
 - ☐ No. (go to midazolam)
 - ☐ IV dose of diazepam in mg/kg:
 - ☐ Midazolam. (pop up next follow-up question)
 - ☐ No. (go to b)
 - ☐ IV dose of diazepam in mg/kg:

g) Thiopental

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up question)
 - ☐ Diazepam. (pop up next follow-up question)
 - ☐ No. (go to midazolam)

☐ IV dose of diazepam in mg/kg:

☐ Midazolam. (pop up next follow-up question)

☐ No. (go to b)

☐ IV dose of diazepam in mg/kg:

h) Other

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up questions)

Drug name:

☐ IV dose in mg/kg:

Administered in combination with diazepam or midazolam?

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up question)

☐ Diazepam. (pop up next follow-up question)

☐ No. (go to midazolam)

☐ IV dose of diazepam in mg/kg:

☐ Midazolam. (pop up next follow-up question)

☐ No. (go to b)

☐ IV dose of diazepam in mg/kg:

MAINTENANCE OF GENERAL ANAESTHESIA

15) Do you most commonly maintain general anaesthesia in **BITCHES** undergoing caesarean section with inhalant anaesthetics? **Please check what applies to you.**

☐ No. (go to question 17)

☐ Yes.

Isoflurane

☐ No. (go to next drug)

☐ Yes. (pop up next follow-up questions)

☐ Estimated average end-tidal concentration of isoflurane in %:

☐ Estimated average isoflurane vaporizer setting in %:

☐ Average fresh gas (O₂) flow setting in L/min:

Sevoflurane

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ Estimated average end-tidal concentration of sevoflurane in %:
 - ☐ Estimated average sevoflurane vaporizer setting in %:
 - ☐ Average fresh gas (O₂) flow setting in L/min:

Desflurane

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ Estimated average end-tidal concentration of desflurane in %:
 - ☐ Estimated average desflurane vaporizer setting in %:
 - ☐ Average fresh gas (O₂) flow setting in L/min:

Other: (List name)

- ☐ No. (go to next question)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ Estimated average end-tidal concentration of other inhalant in %:
 - ☐ Estimated average other inhalant vaporizer setting in %:
 - ☐ Average fresh gas (O₂) flow setting in L/min:

16) Do you most commonly maintain general anaesthesia in **BITCHES** undergoing caesarean section with total intravenous anaesthesia (TIVA)? **Please check what applies to you.**

- ☐ No. (go to question 18)
- ☐ Yes. **Please check most commonly used drug.**

Alfaxalone

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
 - ☐ Estimated average infusion rate of alfaxalone in mg/kg/h:

Etomidate

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average infusion rate of etomidate in mg/kg/h:

Propofol

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average infusion rate of propofol in mg/kg/h:

Other: (List name)

- ☐ No. (go to next question)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average infusion rate of drug in mg/kg/h:

17) Do you most commonly maintain general anaesthesia in **QUEENS** undergoing caesarean section with inhalant anaesthetics?

- ☐ No. (go to question 19)
- ☐ Yes. **Please check what applies to you.**

Isoflurane

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average end-tidal concentration of isoflurane in %:
- ☐ Estimated average isoflurane vaporizer setting in %:
- ☐ Average fresh gas (O₂) flow setting in L/min:

Sevoflurane

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average end-tidal concentration of sevoflurane in %:

- ☐ Estimated average sevoflurane vaporizer setting in %:
- ☐ Average fresh gas (O₂) flow setting in L/min:

Desflurane

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average end-tidal concentration of desflurane in %:
- ☐ Estimated average desflurane vaporizer setting in %:
- ☐ Average fresh gas (O₂) flow setting in L/min:

Other: (List name)

- ☐ No. (go to next question)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average end-tidal concentration of other inhalant in %:
- ☐ Estimated average other inhalant vaporizer setting in %:
- ☐ Average fresh gas (O₂) flow setting in L/min:

18) Do you most commonly maintain general anaesthesia in **QUEENS** undergoing caesarean section with total intravenous anaesthesia (TIVA)?

- ☐ No. (go to question 20)
- ☐ Yes. (Drop down list opens: **check most commonly used drug**)

Alfaxalone

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average infusion rate of alfaxalone in mg/kg/h:

Etomidate

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average infusion rate of etomidate in mg/kg/h:

Propofol

- ☐ No. (go to next drug)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average infusion rate of propofol in mg/kg/h:

Other: (List name)

- ☐ No. (go to next question)
- ☐ Yes. (pop up next follow-up questions)
- ☐ Estimated average infusion rate of drug in mg/kg/h:

LOCO-REGIONAL ANAESTHESIA & ANALGESIA

19) Do you commonly apply loco-regional anaesthesia & analgesia techniques in caesarean sections?

Please check what applies to you.

a) BITCHES

- ☐ Yes (*If Yes, continue.*)
- ☐ No (*If No, go to question 26*)

b) QUEENS

- ☐ Yes (*If Yes, continue*)
- ☐ No (*If No, go to question 26*)

20) Which loco-regional anaesthesia & analgesia technique do you most commonly perform in

BITCHES? Please check what applies to you.

a) Epidural anesthesia & analgesia.

- ☐ Yes (*If Yes, continue.*)
- ☐ No (*If No, go to question 23*)

b) Infiltration of surgical sites.

- ☐ Yes (*If Yes, continue.*)
- ☐ No (*If No, go to question 26*)

21) Which epidural anaesthesia & analgesia technique do you most commonly perform in BITCHES?

Please check all that applies.

a) Epidural lidocaine

- ☐ No. (go to next drug)
- ☐ Concentration of the solution in %:

- ☐ Dose in mg/kg:
- ☐ Volume in mL/kg:
- b) Epidural bupivacaine
- ☐ No. (go to next drug)
- ☐ Concentration of the solution in %:
- ☐ Dose in mg/kg:
- ☐ Volume in mL/kg:
- c) Epidural ropivacaine
- ☐ No. (go to next drug)
- ☐ Concentration of the solution in %:
- ☐ Dose in mg/kg:
- ☐ Volume in mL/kg:
- d) Epidural morphine
- ☐ No. (go to next drug)
- ☐ Dose in mg/kg:
- ☐ Volume in mL/kg:
- e) Epidural methadone
- ☐ No. (go to next drug)
- ☐ Dose in mg/kg:
- ☐ Volume in mL/kg:
- f) Epidural buprenorphine
- ☐ No. (go to next drug)
- ☐ Dose in mg/kg:
- ☐ Volume in mL/kg:
- g) Other drug – list:
- ☐ No. (go to next question)
- ☐ Dose in mg/kg:
- ☐ Volume in mL/kg:

22) Which surgical site infiltration technique do you most commonly perform in BITCHES? Please check all that applies to you.

- a) Lidocaine
- ☐ No. (go to next drug)
- ☐ Concentration of the solution in %:
- ☐ Dose in mg/kg:

☐ Volume in mL/kg:

b) Bupivacaine

☐ No. (go to next drug)

☐ Concentration of the solution in %:

☐ Dose in mg/kg:

☐ Volume in mL/kg:

c) Ropivacaine

☐ No. (go to next drug)

☐ Concentration of the solution in %:

☐ Dose in mg/kg:

☐ Volume in mL/kg:

d) Other drug – list:

☐ No. (go to next question)

☐ Concentration of the solution in %:

☐ Dose in mg/kg:

☐ Volume in mL/kg:

23) Which epidural anaesthesia & analgesia technique do you most commonly perform in **QUEENS?**

Please check all that applies to you.

a) Epidural lidocaine

☐ No. (go to next drug)

☐ Concentration of the solution in %:

☐ Dose in mg/kg:

☐ Volume in mL/kg:

b) Epidural bupivacaine

☐ No. (go to next drug)

☐ Concentration of the solution in %:

☐ Dose in mg/kg:

☐ Volume in mL/kg:

c) Epidural ropivacaine

☐ No. (go to next drug)

☐ Concentration of the solution in %:

☐ Dose in mg/kg:

☐ Volume in mL/kg:

d) Epidural morphine

☐ No. (go to next drug)

☐ Dose in mg/kg:

☐ Volume in mL/kg:

e) Epidural methadone

☐ No. (go to next drug)

☐ Dose in mg/kg:

☐ Volume in mL/kg:

f) Epidural buprenorphine

☐ No. (go to next drug)

☐ Dose in mg/kg:

☐ Volume in mL/kg:

g) Other drug – list:

☐ No. (go to next question)

☐ Dose in mg/kg:

☐ Volume in mL/kg:

24) Which surgical site infiltration technique do you most commonly perform in QUEENS? Please check all that applies to you.

a) Lidocaine

☐ No. (go to next drug)

☐ Concentration of the solution in %:

☐ Dose in mg/kg:

☐ Volume in mL/kg:

b) Bupivacaine

☐ No. (go to next drug)

☐ Concentration of the solution in %:

☐ Dose in mg/kg:

☐ Volume in mL/kg:

c) Ropivacaine

☐ No. (go to next drug)

☐ Concentration of the solution in %:

☐ Dose in mg/kg:

☐ Volume in mL/kg:

d) Other drug – list:

☐ No. (go to next question)

☐ Concentration of the solution in %:

☐ Dose in mg/kg:

☐ Volume in mL/kg:

ANALGESIA

25) In which moment of the caesarean section delivery do you prefer to administer analgesics? **Please check all that applies to you.**

- ☐ Before surgery
- ☐ During surgery
- ☐ After surgery

26) Which analgesic do you prefer to administer in small animals undergoing caesarean sections? **Please check all that applies to you.**

- ☐ Morphine
- ☐ Meperidine (Pethidine)
- ☐ Methadone
- ☐ L-Methadone
- ☐ Fentanyl
- ☐ Buprenorphine
- ☐ Butorphanol
- ☐ Tramadol
- ☐ Meloxicam
- ☐ Carprofen
- ☐ Robenacoxib
- ☐ Other (please specify).....

ANAESTHESIA RECOVERY

27) With the anaesthesia protocol you commonly use, on a scale from 1 (dysphoric) to 5 (excellent) how good would you evaluate the recovery of the new mother?
1→2→3→4→5 (**Rating**)

PUPPIES and KITTENS

28) Do you normally use the APGAR score to evaluate the puppies' and kittens' vigour and vitality? **Please check what applies to you.**

a) **PUPPIES**

- ☐ Yes (*If Yes, continue*)
- ☐ No (*If No, go to question 34*)

b) **KITTENS**

- ☐ Yes (*If Yes, continue*)
- ☐ No (*If No, go to question 34*)

29) According to your experience how high is the PUPPIES' APGAR score most frequently immediately after birth?

- ☐ APGAR score < 3
- ☐ APGAR score between 4 and 6
- ☐ APGAR score > 7

30) According to your experience how high is the KITTENS' APGAR score most frequently immediately after birth?

- ☐ APGAR score < 3
- ☐ APGAR score between 4 and 6
- ☐ APGAR score > 7

31) According to your experience what is the percentage of PUPPIES with a poor APGAR score (<5) that need neonatal intensive care?

- ☐ < 30%
- ☐ 30 - 49%
- ☐ 50 - 70%
- ☐ > 70%

32) According to your experience what is the percentage of KITTENS with a poor APGAR score (<5) that need neonatal intensive care?

- ☐ < 30%
- ☐ 30 - 49%
- ☐ 50 - 70%
- ☐ > 70%

33) What are the most common complications in the new-born PUPPIES that you have encountered using your preferred anaesthetic regimen for caesarean sections?

Please check what applies to you.

- a) Sedation/somnolent
- b) Hypoventilation
- c) Apnea
- d) Hypoxemia/hypoxia
- e) Bradycardia
- f) Tachycardia
- g) Poor pulses (poor pulse amplitude) on palpation
- h) Pale mucous membranes
- i) Flaccid muscle tone
- j) Cardiac arrest
- k) Other (please specify).....

What are the most common complications in the new-born **KITTENS** that you have encountered using your preferred anaesthetic regimen for caesarean sections?

Please check what applies to you.

- a) Sedation/Somnolent
- b) Hypoventilation
- c) Apnea
- d) Hypoxemia/hypoxia
- e) Bradycardia
- f) Tachycardia
- g) Poor pulses (poor pulse amplitude) on palpation
- h) Pale mucous membranes
- i) Flaccid muscle tone
- j) Cardiac arrest
- k) Other (please specify).....

34) Do you normally administer any drug to new-born puppies and kittens?

a) PUPPIES

- ☐ Yes (*If Yes, continue*)
- ☐ No (*If No, go to question 39 for a Free Comments Section*)

b) KITTENS

- ☐ Yes (*If Yes, continue*)
- ☐ No (*If No, go to question 39 for a Free Comments Section*)

35) Which drug do you commonly administer to new-born PUPPIES?

Please check all that applies to you.

- ☐ Atropine
- ☐ Naloxone
- ☐ Atipamezol (Antisedan®)
- ☐ Doxapram
- ☐ Other (please specify).....

36) Which drug do you commonly administer to new-born KITTENS?

Please check all that applies to you.

- ☐ Atropine
- ☐ Naloxone
- ☐ Atipamezol (Antisedan®)
- ☐ Doxapram
- ☐ Other (please specify).....

37) If you have any further comments to share, please make those in the text field below.

Experimental Thesis in Veterinary Pharmacology - Department of Veterinary Science
University of Turin
Candidate: Ilaria Bellino
Supervisors: Prof. G. Re - Dr. C. Vercelli
Collaborator: Prof. B. Driessen (University of Pennsylvania)

NOTES/FREE COMMENTS:

PLEASE RETURN FILLED-IN SURVEY to:

Ilaria Bellino <ilaria.bellino@edu.unito.it>