

Application for funding for extraction models to enhance the teaching of complex veterinary dental skills

Applicants

- Miss Rachel Lumbis (Centre for Veterinary Nursing)
- Professor Sue Gregory (Centre for Veterinary Nursing and former winner of the Jim Bee Educator Award)
- Dr Karin Allenspach (Strand Leader for the BVetMed Alimentary Strand)
- Mr Peter Nunn (LIVE centre)

Introduction

In 2009, a successful LIVE team application was made to develop and evaluate a veterinary dental teaching and assessment model as it was recognised that the amount of dental education in the veterinary undergraduate curriculum was inadequate (BVA 2009). The model created allowed the teaching of a number of basic skills which included setting up a dental machine, dental scaling and polishing. It was shown that the model was a more effective method of facilitating the development of basic dental skills to veterinary students than use of video alone (Lumbis et al 2012). The model which is simple and inexpensive is highly valued by students (Lumbis et al 2012). The aim of this application is to enable the team to build on this success by developing a model suitable for teaching and assessing dental extraction techniques in the cat and dog.

Exodontia (tooth extraction) is generally performed to remove an infected and/or painful tooth and is a very common procedure in small animal general practice. Although commonly performed, exodontia can be technically challenging and time consuming (Niemic 2008). There are a number of complications which may be associated with exodontia with the more serious ones including; incomplete tooth removal, jaw fracture, oronasal fistula formation, ocular injury (DeBowes 2005, Niemic 2008) and even death (Gunew et al 2008).

Surgical extraction and sectioning of multi rooted teeth is now considered to be an essential part of properly performed exodontia in small animal practice (DeBowes 2005, Niemic 2008). Sectioning of teeth is performed using a high speed bur and, although veterinary students are taught basic surgical skills during their undergraduate training, many of them will not have handled or used a high speed bur before graduation. On graduation many new vets will enter general practice where dental procedures, including extractions, may be regarded as a chore by more senior vets and delegated to their junior colleagues (Putter 2011). It is therefore important that new graduates have the necessary skills and knowledge to be able to perform simple dental extractions competently.

Project aims and objectives

The aim of this project would be to facilitate the teaching, learning and assessment of skills in simple tooth extraction technique for veterinary students through the use of Veterinary Dentoform models. The opportunity to acquire basic knowledge, understanding and skills in a safe environment is anticipated to boost student's confidence whilst they are on EMS / placements and increase their clinical involvement with dental procedures prior to qualification.

Specific objectives would include:

- Creating a skill station with:
 - Veterinary Dentoform models to practice extraction of single and multi rooted teeth
 - A multifunctional dental machine incorporating a high speed handpiece
 - A range of basic hand held dental instruments for handling and identification
 - The ability to develop advanced dentistry skills including periodontic and prosthodontic techniques, cavity preparation and routine cleanings
- This station would be used to teach:
 - Simple dental extraction techniques
 - Subgingival cleaning techniques
 - Instrument use and handling
 - Safe practice (i.e. Health and safety and infection control precautions)
- Development of online teaching materials, which could be accessed off site as well as onsite, relating to basic practical veterinary dental skills
- Promotion of student assisted learning
- Development of assessment materials, in a variety of formative and summative formats, to test knowledge and understanding as well as basic practical dental skills
- Evaluate student opinion on the usefulness of the skill station and student assisted learning

Methodology

- Purchase of canine and feline dental extraction models to be used for teaching purposes
- Station set up in the Clinical Skills Centre (CSC)
- Training of CSC staff in machine use, model creation and replenishment
- Production of static, visual teaching materials for use in the station
- All learning materials would be subject to specialist external review and comment prior to and post production
- Trialling station with small groups of BVetMed (3rd – 5th year)
- Develop student led learning opportunities as per the Haptic cow to increase student accessibility and participation in the station (it is not envisaged that this station would be available without support and supervision of CSC staff or a responsible and trained student)
- Developing formative assessments (practical and academic) for the BVetMed course
- Design and distribute a questionnaire to collect student opinion on the usefulness of the skill station and student assisted learning
- Collate and analyse the information captured in the questionnaire, write a report and make recommendations for further development of the skill station

Anticipated time scale

Task	Month												
	1	2	3	4	5	6	7	8	9	10	11	12	12 - 24
Equipment purchase													
Production of training videos and static teaching materials													
Station set up in the CSC and staff training													
Trialling of station with small groups of students and developing student lead small group teaching methods													
Developing assessment material based on station													
Evaluation of skill station, developments and refinements													

Outline budget

<u>Item</u>	<u>Make, model</u>	<u>Cost</u>
Dental Station Equipment		
Catus Exemplar Dentoform Articulated Clear Feline model with natural root teeth and gingival facings x 12	Columbia Dentoform DGDG @ \$293 (£182) each	£2184
Canis Exemplar Dentoform Articulated Clear Canine model with natural root teeth and gingival facings x 12	Columbia Dentoform CTDG @ \$243 (£151) each	£1812
Replacement teeth, gingiva, and bone components plus dental equipment repair/replacement	Columbia Dentoform	£2000
Latex Powder Free Gloves (sml) x 5	Vet Direct BDG001 @ £3.99	£19.95
Latex Powder Free Gloves (med) x 5	Vet Direct BDG002 @ £3.99	£19.95
Latex Powder Free Gloves (lrg) x 5	Vet Direct BDG003 @ £3.99	£19.95
Latex Powder Free Gloves (Xlrg) x 5	Vet DirectBDG003X @ £3.99	£19.95
White standard aprons x 100 (x 5)	Vet Direct PREM06 @ £2.99	£14.95
Nurses Caps x 100 (x 5)	Vet Direct PREM2917 @ £8.99	£44.95
Premier Nuisance Facemask x 50 (x10)	Vet Direct PREM01 @ £3.45	£34.50
High speed veterinary dental burs (x1)	Vet Direct 633A @£68.85	£68.85
Recording and playback equipment		
Data Storage device - G-Tech 500GB G-DRIVE Q Quad Interface Hard Drive		£150.00
Personnel		
LIVE team member – Peter Nunn	4 days @ £200/day	£800.00
External expertise / consultancy – Simone Kirby or Paul Hobson		£1000.00
Conference attendance (1/2 members of team)		£1000.00
Total		£9,189.05

Benefits to learning and teaching in the college

Creation of a teaching resource in the clinical skills centre that would be:

1. Educationally valuable to BVetMed students
2. Original and fills a gap in the College's current provision that is relevant to BVetMed students
3. Fun and hence be popular with good engagement
4. Extend assessment opportunities
5. Not rely on cadaver material which is limited in supply and has H&S concerns
6. Be a realistic simulation which would improve student confidence and ability and we hope result in wider opportunities on EMS / placements
7. A realistic and achievable project which is deliverable within the time and budget constraints of the LIVE teaching and development funding

Other units / individuals in the college who would participate in the project

See applicant list on Page 1. Liaison with e-media and the Clinical Skills Centre staff would be required. Peter Nunn would liaise with e-media. Rachel Lumbis is involved in teaching clinical skills associated with small animal dentistry and would liaise with Clinical Skills Centre staff.

Disseminating the outcomes of the project

- Presentation of outcomes at national / international conference (e.g. AAVMC, AVTRW, VETNNET, BSAVA congress)
- Publication of outcomes in relevant literature (e.g. JVME, JSAP, Medev)
- Provision of information via other college-based streams (e.g. website, promotional literature)

References

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