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Evaluating veterinary practitioner perceptions of communication skills and training

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1 **Abstract**

2 A survey was conducted among veterinary practitioners in the United
3 Kingdom (UK) and United States (US) in 2012/2013. Thematic analysis
4 was used to identify underlying reasons behind answers to questions
5 about the importance of communication skills and the desire to
6 participate in postgraduate communication skills training. Lack of training
7 among more experienced veterinary surgeons, incomplete preparation of
8 younger practitioners, and differences in ability to communicate all
9 contribute to gaps in communication competency. Barriers to
10 participating in further communication training include time, cost, and
11 doubts in the ability of training to provide value. To help enhance
12 communication ability, communication skills should be assessed in
13 veterinary school applicants, and communication skills training should be
14 more thoroughly integrated into veterinary curricula. Continuing
15 education/professional development in communication should be part of
16 all postgraduate education, and should be targeted to learning style
17 preferences and communication needs and challenges through an entire
18 career in practice.

19 **Introduction**

20 Communication is believed to be a core skill for veterinary practitioners
21 (Cornell and Kopcha 2007; Royal College of Veterinary Surgeons 2014;
22 Shaw and others 2004). Effective communication contributes positively
23 to client experience, understanding and trust (Grand and others 2013;

1 Mellanby and others 2011; Shaw and others 2012). It also impacts
2 compliance with recommended treatments and enhances patient
3 outcomes (Abood 2007; Gates and Nolan 2010; Kurtz 2006). In a recent
4 article (Coke and others 2016), communication skills were the
5 professional, non-technical competency best supported by evidence in
6 the literature as contributing to practitioner success.

7 As a result of the increased appreciation of the importance of
8 communication ability for veterinary surgeons, there has been increased
9 attention to communication skills training in veterinary school curricula
10 and in continuing professional development (CPD)/continuing education
11 (CE) (Kogan and others 2004; Mossop and others 2015; Radford and
12 others 2003; Shaw and Ihle 2006), and recent evidence suggests this
13 emphasis has had a positive impact. (Kedrowicz 2016; Latham and
14 Morris 2007; Mossop and others 2015). CPD/CE in communication is
15 now widely available through veterinary associations (Gray 2006;
16 Veterinary Defence Society 2016), from industry (Institute for Healthcare
17 Communication 2016), and from independent consultants
18 (Communication Solutions for Veterinarians 2016).

19 Despite this increased emphasis and the positive impact it has made
20 (Kedrowicz 2016; Mossop and others 2015), the majority of participants
21 in a survey of practitioners in the United Kingdom (UK) and the United
22 States of America (US) (McDermott and others 2015) reported that, even
23 among recent graduates, communication skills training during veterinary

1 school and post-graduation did not prepare them sufficiently for
2 communicating with clients. Also, when asked whether they would be
3 interested in receiving further communication skills training, more than
4 half of the respondents replied that they would not be interested
5 (McDermott and others 2015). Furthermore, other studies have reported
6 that important elements of veterinary communication such as expressing
7 empathy and soliciting concerns were missing from veterinary
8 consultations (Dysart and others 2011; McArthur and Fitzgerald 2013).

9 In summary, this complex situation shows there is scope for
10 improvement in communication competence training and in the
11 performance of communication skills among veterinary practitioners.
12 With this complexity in mind, the aim of this study was to investigate
13 communication gaps and challenges as well as motivations for, and
14 barriers to, participating in further communication training.

15 **Materials and methods**

16 *Instrument*

17 A survey on veterinary communication skills and training was conducted
18 during 2012 and 2013. The cross-sectional study included a sample of
19 veterinary practitioners in the United Kingdom and the United States,
20 allowing for comparison between the two groups. The study gathered
21 information on communication training during and after veterinary
22 school, the degree to which training helped practitioners communicate
23 with clients, the need for additional training, the importance of

1 communication skills relative to clinical knowledge and in specific
2 practice scenarios, and the challenges encountered by veterinary
3 surgeons regarding communication with clients. A combination of closed,
4 open and Likert-Scale type questions were used. Further details on the
5 survey and previous data are reported elsewhere (McDermott and others
6 2015).

7 *Data analysis*

8 Thematic analysis was used to analyze the responses to the open
9 questions in the survey that related to veterinary communication gaps
10 and needs as well as the motivation (or lack thereof) for participating in
11 postgraduate communication skills training. Qualitative methods are
12 particularly well suited to analyzing open questions in surveys, facilitating
13 the exploration of perceptions and experiences, and understanding a
14 wide range of topics (Braun and Clarke 2006; Braun and Clarke 2013).
15 Thematic analysis is one of the most commonly employed qualitative
16 methods as it is useful for exploring and identifying patterns and themes
17 across a dataset. It can also be used to develop descriptions of
18 phenomena explored in the research (Braun and Clarke 2006; Braun
19 and Clarke 2013).

20 Data were collected from the survey responses and imported into a
21 spreadsheet and reviewed by the authors. The data were transferred to
22 nVivo® 10.0 and organised for thematic analysis. To help ensure
23 reliability of the data (Barbour 2001) the responses were co-coded by

1 two authors (MM and IR) using an iterative process to generate themes
2 (broad patterns that capture important elements of the data) and
3 subthemes (specific aspects of the themes) (Braun and Clarke 2006).
4 Collaboration in the coding process has been cited as a means to
5 promote clarity, transparency and integrity of the data interpretation
6 (Cornish and others 2013; Hall and others 2005).

7 **Results**

8 *Response rates and demographics*

9 A total of 1,190/3000 responses were received from the UK (39.7%
10 response rate), and 584/3000 responses were received from the US
11 (19.5% response rate). The overall response rate was 29.6%
12 (1,774/6000). Mix of respondents was 57.3% female (1,013/1,768) and
13 42.7% male (755/1,768), with similar gender mix in the UK and US.
14 Range in age was 23 years to 79 years (median age 41 years), with a
15 higher median age in the US (47 years) than in the UK (37 years).

16 *Themes and subthemes*

17 The themes identified from the free text responses and reported in this
18 study were: 1) Room for improvement, 2) Why the lack of interest in
19 further training? and 3) Implications for communication training. These
20 and emergent subthemes are presented in Figure 1, and details are
21 presented below. Two additional themes were identified around the
22 importance of communication skills and the hallmarks of effective

1 communication but they were not included in this study. They concurred
2 with a wealth of previous research but they did not add any significant
3 new insights. Nevertheless, the fact that our respondents supported the
4 importance and elements of effective communication adds value to the
5 learnings from the other three themes.

6 (Please add Figure 1 here or as nearby as is practical)

7 *Theme 1: Room for Improvement*

8 As mentioned in the previous study, (McDermott and others 2015) only
9 35% of respondents felt the communication training they received in
10 veterinary school prepared them “well” or “very well” for communicating
11 with clients. Results from the current study suggest this is may be due to
12 a combination of the amount and type of training received, experience in
13 practice (which can be summarized by the comment “it’s difficult to know
14 what one needs to do until one has had to do it”), and individual ability.

15
16 Training gap for senior practitioners

17
18 Many veterinary surgeons who graduated before 2000 described
19 communication training as being primarily “on the job,” and very limited
20 as part of the veterinary curriculum:

21 “Some communication [related] helpful tips were passed along
22 by individual teachers. No formal separate class was given as I
23 recall.” (Female practitioner, age 52, US)

1 “I learned [communication] by observing vets speaking to
2 clients...” (Male practitioner, age 54, UK)

3 “The only real communication skills training I had at college was
4 obtained during time I spent during vacations at RVC field
5 station on a one-to-one basis with staff seeing referral cases.”
6 (Male practitioner, age 71, UK)

7 Skills gap for junior practitioners

8 Several respondents felt that recent graduates, despite being more likely
9 to have had communication training in veterinary school, were deficient
10 in communication skills.

11 “We have had 12-15 vets in our practice over the last 30 years.
12 We have hired veterinarians from most of the US universities
13 and the biggest problem all new graduates have is
14 communicating with the clients and building their trust.” (Male
15 practitioner, age 69, US)

16 “I’m always surprised at the variation in communication skills in
17 young graduates – from excellent to woeful.” (Male practitioner,
18 age 68, UK)

19 “I am concerned that the Y Generation [is] too technological, not
20 able to communicate face to face.” (Male practitioner, age 60, US)

21 Influence of individual ability

1 Other respondents suggested that communication is a skill that may be
2 developed more easily in some than others, depending on individual
3 ability:

4 “Communication skills can be learned to some degree, but it's
5 been my experience through the years that certain people are
6 naturally better with communication than others and with some,
7 training doesn't improve skills that much.” (Female practitioner,
8 age 68, US)

9 “[Communication is] a learned skill, one difficult to actually teach.
10 You must inherently ENJOY talking with people.” (Female
11 practitioner, age 61, US; [emphasis in the original].)

12 *Theme 2: Why the lack of interest in further training?*

13 While no specific question asked why a respondent was not interested in
14 further postgraduate communication training, free text comments
15 revealed some of the possible reasons.

16 Time and money

17 Among the factors standing in the way of participation in postgraduate
18 communication training are time– and financial limitations and support of
19 employers.

1 “[My] boss is unlikely to see need for communication skills
2 training and therefore unlikely to pay for it or allow time off.”
3 (Female practitioner, age 45, UK)

4 “Communication training takes time, which is very limited.” (Male
5 practitioner, age 56, UK)

6 Experience is a better teacher

7 Many suggested that communication skills training was not a substitute
8 for the practical experience gained in practice.

9 “In my opinion the best way of improving communication skills is
10 by experience.” (Female practitioner, age 25, UK)

11 “Training is not as effective as actually talking to clients and
12 dealing with problems.” (Male practitioner, age 26, US)

13 Too late for me

14 Several of the more senior and experienced respondents supported the
15 concept of training students and younger practitioners, but felt the
16 opportunity to learn themselves may have passed.

17 “At my age communication skills training is probably too little too
18 late! It is essential for new graduates. I learnt my own style from
19 my own mistakes.” (Male practitioner, age 61, UK)

20 “It is certainly important for new graduates but too late for me
21 now.” (Female practitioner, age 61, UK)

1 “I think you learn a lot on the job and for someone who like me
2 [who has] been working for 25 years; we probably wouldn’t gain
3 much from it.” (Female practitioner, age 49, UK)

4 Does not prepare for real world

5 Some comments suggested that communication training does not
6 prepare veterinary surgeons for “real life” practice.

7 “There needs to be more about how to deal with different types
8 of clients and less emphasis on situation...” (Female practitioner,
9 age 30, UK)

10 “Training doesn’t prepare you for the angry/offensive client,
11 those who you have to have difficult money conversations with,
12 and those who will not control their children - these are the more
13 common problems in our area.” (Male practitioner, age 28, UK)

14 *Theme 3: Implications for communication training*

15 Respondents shared recommendations for undergraduate and
16 postgraduate curriculum planning and delivery.

17 Prioritise communication in veterinary school

18 Many respondents suggested that greater effort be devoted to
19 communication training during veterinary school, beginning with the
20 screening of applicants:

1 “[Introduce] preselection for communication skills when
2 considering vet school applicants.” (Male practitioner, age 65,
3 US)

4 “Communication skills should be incorporated into clinical years
5 at university.” (Male practitioner, age 62, UK)

6 “I wish that we had such training when at university – I have had
7 to learn the hard way and have felt very unprepared for many
8 situations especially early in my career.” (Male practitioner, age
9 52, UK)

10 Make CPD/CE more accessible

11 In order to make training more beneficial to all practitioners (and perhaps
12 address the contention that some can be taught better than others),
13 some suggested it should be tailored to participants’ personalities and
14 inherent communication ability, as well as to the most significant needs
15 and challenges:

16 “It has been said that 75% of veterinarians are introverts.
17 Learning how we process information and what our strengths
18 are, helps more to develop communication needs than anything
19 else.” (Male practitioner, age 68, US)

20 “As it doesn't come naturally to me, ongoing effort and training is
21 necessary to maintain and improve communication skills.” (Male
22 practitioner, age 42, UK)

1 Offer different formats

2 People learn in different ways, and there was variety in preference for
3 training format. Some preferred lectures, both because of the familiarity
4 of the format and the benefit of hearing from and seeing experts:

5 “You see what the speaker is talking about, as body language is
6 as important as the words themselves.” (Male practitioner, age
7 60, US)

8 Online training was preferred for its convenience and flexibility:

9 “Very hard to fit CPD around current family/work commitments;
10 [I] find that online training allows me to fit it around the rest of my
11 life.” (Female practitioner, age 34, UK)

12 Simulated consultations were felt to be most similar to actual practice:

13 “It is the most effective way of identifying pitfalls in
14 communication which occur in real-life situations and analysing
15 how to avoid them/deal with them.” (Female practitioner, age
16 25, UK)

17 The majority of respondents indicated a preference for a combination of
18 communication formats, as one noted:

19 “[You] need a combination of theory of how to deal with clients
20 and practical to see how you perform.” (Male practitioner, age
21 35, UK)

1 **Discussion**

2 In pursuing the study aims of investigating communication training gaps
3 and challenges, motivations for further training, and barriers to further
4 training we were able to identify a need for improvement in
5 communication ability among practitioners at all levels of experience.

6 This room for improvement has been referenced by others (Bachynsky
7 and others 2013; McArthur and Fitzgerald 2013; Severidt 2010) and this
8 is despite the increased emphasis on communication training in
9 veterinary medicine. In our study, likely reasons for this result include the
10 lack of formal training in senior practitioners, the relative inexperience in
11 practice for more junior veterinary surgeons, and individual ability in
12 communicating.

13 The training gap for senior practitioners could be addressed in part by
14 making CPD/CE more relevant to veterinary surgeons of all levels of
15 experience.

16 The results of our study demonstrate how the perceived value of
17 communication skills training, and participation in this training, could be
18 improved by developing and promoting program content that addresses
19 “real-world” communication challenges, such as cost discussions,
20 dealing with distractions in the exam room, and responding to difficult
21 clients. The skills gap for junior practitioners could be addressed through
22 a combination of increased emphasis on communication during
23 veterinary school and increasing the appeal of, and support for, CPD/CE

1 for younger practitioners. Each of these is covered in further detail in the
2 discussion of Theme 3.

3 Our findings indicate that the lack of interest in further training (Theme 2)
4 was due in part to lack of time and money. Since some practitioners
5 would apparently welcome further communication training but feel their
6 employers do not support it, we need to find ways to demonstrate and
7 convince practice owners that time and money invested in building this
8 crucial skill are well spent. One way to do this would be conducting
9 studies to demonstrate the financial benefits of effective communication
10 to a practice (e.g. in client retention and improved compliance).
11 Encouraging practices to include communication in client satisfaction
12 surveys and promoting the benefits of effective communication to client
13 relationships as well as to personal and job satisfaction for veterinary
14 team members are additional ways to illuminate the value of
15 communication training.

16 Bringing the training to the practice is an alternative to off-site courses
17 that might facilitate the provision of communication skills for practice
18 owners. After twelve months of one/day per month training sessions
19 onsite in one practice, client-centredness of consultations improved
20 significantly for veterinary surgeons who went through the training (Shaw
21 and others 2010).

22 Another barrier to participation in training was the feeling that experience
23 was a better teacher. Though it is likely that the best communication

1 training cannot prepare a practitioner for every communication
2 experience she or he will encounter, it is also likely that learning by
3 experience alone will not support the most complete development of
4 communication competence (Kurtz 2006). An improved approach would
5 be to combine experience with training during and after veterinary school
6 which encompasses as many of the communication situations
7 encountered in practice as possible (Hamood and others 2014); this also
8 addresses another source of reluctance; a feeling that training does not
9 adequately prepare one for the “real world” of client communication.

10 Communication in veterinary practice is closely intertwined with clinical
11 activities such as diagnostic procedures, physical examinations, and
12 treatments (Everitt and others 2013). Conversations also include topics
13 that are unique to veterinary medicine with different topics (e.g.
14 euthanasia and cost) presenting particular challenges (Hamood and
15 others 2014; Shaw and Lagoni 2007). Communicating with a dog or cat
16 owner is also different from communicating with a horse owner or dairy
17 farmer (Kleen and others 2011; Moreau 2012). Educators should ensure
18 that training considers the various topics and audiences likely to be
19 encountered by practitioners and the variety of challenges they
20 represent.

21 The third theme identified was “Implications for communication training.”
22 The results of this study suggest that communication skills development
23 be addressed in a comprehensive manner. This should begin with the

1 selection of students for veterinary school and the prioritisation of
2 communication throughout the undergraduate curriculum. It should
3 continue with accessible and relevant CPD/CE offerings, so that every
4 practitioner, regardless of personality, learning preference, level of
5 experience, or specific communication need is equipped to communicate
6 with clients through a career in practice (see Figure 2). This could also
7 be achieved by incorporating communication skills content into
8 traditional CPD/CE courses, e.g., a course on heart failure, to make sure
9 the veterinary surgeon is properly equipped to deliver important
10 messages the owner needs to hear.

11 (Please place Figure 2 here or as nearby as is practical)

12 During the veterinary school recruitment process, interviews could
13 include questions designed to gauge the communication ability of the
14 applicant. Role-plays or other exploration of communication skills in the
15 interview might be employed. This is already done in some veterinary
16 and medical schools (Conlon and others 2012; Hecker and others 2009;
17 Hudson and others 2009).

18 Once accepted into veterinary school, students should receive early
19 reinforcement of the importance of communication skills. (Burns and
20 others 2015; Chun and others 2009). This emphasis should be
21 maintained throughout the undergraduate curriculum, and our study
22 suggests some specific ways in which this could be done.

1 Communication training should be interwoven with the teaching of
2 clinical skills in the veterinary curriculum. This was done recently at
3 Texas A&M University, by combining physiologic concepts, clinical
4 application, and communication with clients about the concepts in a
5 physiology course assignment (Washburn and others 2016).
6 Communication skills assessment might also be incorporated more
7 completely with Objective Structured Clinical Examination (OSCE)
8 stations (Bark and Shahar 2006; Davis and others 2006), including
9 stations designed to test clinical skills. An online module about
10 conducting a surgical procedure could include instruction on how to
11 communicate with the client about the procedure and post-surgical
12 follow-up (Mossop and others 2015), Implementing or expanding the use
13 of simulated consultations (Adams and Ladner 2004; Chun and others
14 2009; Radford and others 2003), and peer-assisted learning (PAL)
15 including peer- and/or instructor assessment could also improve
16 preparation for communication situations students will encounter in
17 practice (Epstein 2007; Strand and others 2013).

18 Our findings and recommendations are consistent with and build on
19 those of other researchers who have studied learning preferences and
20 motivations and barriers to participating in CPD/CE (Dale and others
21 2010; Moore and others 2000; Neel and Grindem 2010). CPD/CE may
22 be made more accessible in part by accommodating the learning styles
23 and preferences of practitioners (e.g. by offering training in varied

1 formats or by incorporating it into other more traditional courses), and by
2 addressing the most pertinent topics at each stage in a veterinary
3 surgeon's career (Dale and others 2013; Lloyd and Walsh 2002).

4 Digital technologies have greatly expanded the number of ways in which
5 to receive information. Broadening the range of training formats available
6 to practitioners, including, in addition to live offsite and practice-based
7 training, web-accessed training modules (de Almeida and Agnoletti
8 2015), online professional communities (Baillie 2011), digital games and
9 simulators (de Bie and Lipman 2012), training apps (Frankel 2014) and
10 recorded programming (e.g. podcasts) (Sandars 2009) could also make
11 communication CPD/CE more practical, affordable, and relevant.

12 *Limitations of the study*

13 While this study helped further define what good communication can
14 offer the practice of veterinary medicine and how it may be more
15 completely incorporated into veterinary learning, there were some
16 limitations. The lower response rate from US compared to UK
17 practitioners makes drawing conclusions from this audience less reliable
18 as a representation of the practitioner community in the US. There are
19 also limitations in using surveys for research of this nature. Survey data
20 usually provide less detail than interviews, which are the most common
21 data collection method for qualitative research (Braun and Clarke 2006;
22 Braun and Clarke 2013). Unlike interviews, surveys do not permit the
23 research to develop rapport and to ask follow-up questions, which can

1 enhance the understanding of a topic and questions may be
2 misunderstood or misinterpreted (Braun and Clarke 2006; Braun and
3 Clarke 2013). Finally, though we used a collaborative coding method to
4 increase rigor in interpreting the themes from the data,
5 intercoder/interrater reliability calculation is being employed increasingly
6 to ensure the reliability of qualitative analysis (Vaismoradi and others
7 2013).

8 In this study, most free-text comments were made by more senior
9 practitioners. This might have skewed the overall results, particularly
10 regarding the state of communication skills and communication
11 challenges faced by younger practitioners. Finally, in the words of some
12 respondents, asking about the importance of communication in
13 communication situations could be viewed as somewhat circular. It may
14 be that asking the questions in other ways (e.g. by asking practitioners
15 what specific communication skills were most important when dealing
16 with difficult topics rather than whether communication is important)
17 could have better identified and illuminated some of the key issues and
18 topics in the study.

19 *Conclusions*

20 Communication training is a valuable pursuit that should begin from the
21 earliest days of veterinary school and continue through a lifetime in
22 practice. While this is widely recognised, it has not been fully reflected by
23 the emphasis on communication in undergraduate curricula or the

1 willingness of practitioners to participate in postgraduate communication
2 training. Our findings indicate that further work should be done to align
3 communication training with individual needs and abilities, and to build
4 on the communication training framework that has been developed in
5 recent years. Making communication an integral part of all
6 undergraduate and postgraduate training will help ensure that more
7 practitioners have the opportunity to improve this essential clinical skill.
8 Future studies should address equipping veterinary practitioners for the
9 variety of communication situations and challenges they face. Ongoing
10 dedication to this aspect of veterinary decision making/practice however
11 will yield significant and lasting benefits to the veterinary profession and
12 the clients and patients it serves.

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3 (Figure Legends)

4 Figure 1: Themes and Subthemes

5 Figure 2: Communication Training as a Lifelong Learning Pursuit

6 **References**

- 7 ABOOD, S. K. (2007) Increasing adherence in practice: making your
8 clients partners in care. *Veterinary Clinics of North America: Small*
9 *Animal Practice* 37, 151-164
- 10 ADAMS, C. & LADNER, L. (2004) Implementing a simulated client
11 program: Bridging the gap between theory and practice. *Journal of*
12 *Veterinary Medical Education* 31, 138-145
- 13 BACHYNSKY, E. A., DALE, V. H. M., KINNISON, T., GAZZARD, J.
14 & BAILLIE, S. (2013) A survey of the opinions of recent veterinary
15 graduates and employers regarding early career business skills. In
16 *Veterinary Record*. p 64
- 17 BAILLIE, S. K., T., FORREST, N. ET AL. (2011) Developing an
18 online professional network for veterinary education: The NOVICE
19 project. *Journal of Veterinary Medical Education* 38, 395-403
- 20 BARBOUR, R. S. (2001) Checklists for improving rigour in
21 qualitative research: a case of the tail wagging the dog? *The BMJ*
22 322, 1115-1117
- 23 BARK, H. & SHAHAR, R. (2006) The Use of the Objective
24 Structured Clinical Examination (OSCE) in Small-Animal Internal
25 Medicine and Surgery. *Journal of Veterinary Medical Education* 33,
26 558-592
- 27 BRAUN, V. & CLARKE, V. (2006) Using thematic analysis in
28 psychology. *Qualitative Research in Psychology* 3, 77-101
- 29 BRAUN, V. & CLARKE, V. (2013) *Successful Qualitative Research:*
30 *A Practical Guide for Beginners*. London, Sage
- 31 BURNS, G. A., RUBY, K. L., DEBOWES, R. M., SEAMANGLULIA,
32 S. J. & BRANNAN, J. K. (2015) Teaching Non-Technical
33 (Professional) Competence in a Veterinary School Curriculum.
34 *Journal of Veterinary Medical Education* 33, 301-308
- 35 CAKE, M. A., BELL, M. A., WILLIAMS, J. C., BROWN, F. J. L.,
36 DOZIER, M., RHIND, S. M. & BAILLE, S. (2016) Which professional
37 (non-technical) competencies are most important to the success of

1 graduate veterinarians? A Best Evidence Medical Education (BEME)
2 systematic review: BEME Guide No. 38. *Medical Teacher* 38, 550-
3 563
4 CHUN, R., SCHAEFER, S., LOTTA, C. C., BANNING, J. A. &
5 SKOCHELAK, S. E. (2009) Didactic and experiential training to
6 teach communication skills: The University of Wisconsin-Madison
7 School of Veterinary Medicine collaborative experience. *Journal of*
8 *Veterinary Medical Education* 36, 196-200
9 COMMUNICATION SOLUTIONS FOR VETERINARIANS, I. (2016)
10 Communication Solutions for Veterinarians Web Page.
11 <http://www.csvets.com>. Accessed 30 October 2016
12 CONLON, P., HECKER, K. & SABATINI, S. (2012) What should we
13 be selecting for? A systematic approach for determining which
14 personal characteristics to assess for during admissions. *BMC*
15 *Medical Education* 12, 105
16 CORNELL, K. K. & KOPCHA, M. (2007) Client-Veterinarian
17 communication: Skills for client centered dialogue and shared
18 decision making. *Veterinary Clinics of North America: Small Animal*
19 *Practice* 37, 37-47
20 CORNISH, F., GILLESPIE, A. & ZITTOUN, T. (2013) Collaborative
21 Analysis of Qualitative Data. In *The Sage Handbook of Qualitative*
22 *Data Analysis*. Ed U. FLICK. London, UK, Sage Publications Ltd. pp
23 79-93
24 DALE, V. H. M., PIERCE, S. E. & MAY, S. A. (2010) The
25 importance of cultivating a preference for complexity in veterinarians
26 for effective lifelong learning. *Journal of Veterinary Medical*
27 *Education* 37, 165-171
28 DALE, V. H. M., PIERCE, S. E. & MAY, S. A. (2013) Motivating
29 factors and perceived barriers to participating in continuing
30 professional development: A national survey of veterinary surgeons.
31 *Vet Rec.* 173, 247
32 DAVIS, M. H., PONNAMPERUMAG, G. G., MCALLERG, S. &
33 DALE, V. H. M. (2006) The Objective Structured Clinical
34 Examination (OSCE) as a Determinant of Veterinary Clinical Skills.
35 *Journal of Veterinary Medical Education* 33, 578-587
36 DE ALMEIDA, V. S.-D. & AGNOLETTI, M. F. (2015) Impact of
37 online training on delivering a difficult medical diagnosis: Acquiring
38 communication skills. *Applied Ergonomics* 50, 242-250
39 DE BIE, M. J. & LIPMAN, L. J. A. (2012) The use of games and
40 simulators in veterinary education: An overview with examples.
41 *Journal of Veterinary Medical Education* 39, 13-20
42 DYSART, L. M. A., COE, J. B. & ADAMS, C. L. (2011) Analysis of
43 solicitation of client concerns in companion animal practice. *Journal*
44 *of the American Veterinary Medical Association* 28, 1609-1615
45 EPSTEIN, R. M. (2007) Assessment in Medical Education. *New*
46 *England Journal of Medicine* 356, 387-396

1 EVERITT, S., PILNICK, A., WARING, J. & COBB, M. (2013) *The*
2 *structure of the small animal consultation*. J Small Anim Pract. 54,
3 453-458
4 FRANKEL, C. (2014) Web apps that will wow your team. In
5 Veterinary Team Brief. pp 10-12
6 GATES, M. C. & NOLAN, T. J. (2010) Factors influencing
7 heartworm, flea, and tick preventative use in patients presenting to a
8 veterinary teaching hospital. Preventive Veterinary Medicine 93,
9 193-200
10 GRAND, J. A., LLOYD, J. W., ILGEN, D. R., ABOOD, S. & SONEA,
11 I. M. (2013) A measure of and predictors for veterinarian trust
12 developed with veterinary students in a simulated companion animal
13 practice. Journal of the American Veterinary Medical Association
14 242, 322-333
15 GRAY, C. A., BLAXTER, A.C., JOHNSTON, P.A., LATHAM, ET AL.
16 (2006) Communication education in veterinary education in the
17 United Kingdom and Ireland: The NUVACS project coupled to
18 progressive individual school endeavors. Journal of Veterinary
19 Medical Education 33, 85-92
20 HALL, W. A., LONG, B., BERMBACH, N., JORDAN, S. &
21 PATTERSON, K. (2005) Qualitative teamwork issues and strategies:
22 Coordination through mutual adjustment. Qualitative Health
23 Research 15, 394-410
24 HAMOOD, W. J., CHUR-HANSEN, A. & MCARTHUR, M. L. (2014)
25 A qualitative study to explore communication skills in veterinary
26 medical education. International Journal of Medical Education 5,
27 193-198
28 HECKER, K., DONNON, T., FUENTEALBA, C., HALL, D., ILLANES,
29 O., MORCK, D. & MUELLING, C. (2009) Assessment of Applicants
30 to the Veterinary Curriculum Using a Multiple Mini-Interview Method.
31 Journal of Veterinary Medical Education 36, 166-173
32 HUDSON, N. P. H., RHIND, S. M., MOORE, L. J., DAWSON, S.,
33 KILYON, M., BRAITHWAITE, K., WASON, J. & MELLANBY, R. J.
34 (2009) Admissions processes at the seven United Kingdom
35 veterinary schools: a review. Veterinary Record 164, 583-587
36 INSTITUTE FOR HEALTHCARE COMMUNICATION (2016) Bayer
37 Animal Health Communication Project Home Page.
38 <https://www.veterinarycommunication.org/homepage.php>.
39 Accessed 30 October, 2016
40 KEDROWICZ, A. A. (2016) The Impact of a Group Communication
41 Course on Veterinary Medical Students' Perceptions of
42 Communication Competence and Communication Apprehension.
43 Journal of Veterinary Medical Education 43, 135-142
44 KLEEN, J. L., ATKINSON, O. & NOORDHUIZEN, J. P. (2011)
45 Communication in production animal medicine: modelling a complex
46 interaction with the example of dairy herd health medicine. Irish
47 Veterinary Journal 64, 8

1 KOGAN, L. R., BUTLER, C. L., LAGONI, L. K., BRANNAN, J. K.,
2 MCCONNELL, S. M. & HARVEY, A. M. (2004) Training in client
3 relations and communication skills in veterinary medical curricula
4 and usage after graduation. *Journal of the American Veterinary*
5 *Medical Association* 224, 504-507

6 KURTZ, S. (2006) Teaching and Learning Communication in
7 Veterinary Medicine. *Journal of Veterinary Medical Education* 33,
8 11-19

9 LATHAM, C. E. & MORRIS, A. (2007) Effects of formal training in
10 communication skills on the ability of veterinary students to
11 communicate with clients. *Veterinary Record* 160, 181-186

12 LLOYD, J. W. & WALSH, D. A. (2002) Template for a
13 Recommended Curriculum in "Veterinary Professional Development
14 and Career Success". *Journal of Veterinary Medical Education* 29,
15 84-93

16 MCARTHUR, M. L. & FITZGERALD, J. R. (2013) Companion
17 animal veterinarians' use of clinical communication skills. *Australian*
18 *Veterinary Journal* 91, 374-380

19 MCDERMOTT, M., TISCHLER, V., ROBBE, I. & DEAN, R. S.
20 (2015) Veterinarian–client communication skills: Current state,
21 relevance, and opportunities for improvement. *Journal of Veterinary*
22 *Medical Education* 42, 305-314

23 MELLANBY, R. J., RHIND, S. M., BELL, C., SHAW, D. J.,
24 GIFFORD, J., FENNELL, D., MANSER, C., SPRATT, D. P.,
25 WRIGHT, M. J. H., ZAGO, S. & HUDSON, N. P. H. (2011)
26 Perceptions of clients and veterinarians on what attributes constitute
27 'a good vet'. *Veterinary Record* 168, 616

28 MOORE, D. A., KLINGBORG, D. J., BRENNER, J. S. & GOTZ, A.
29 A. (2000) Motivations for and barriers to engaging in continuing
30 veterinary medical education. *Journal of the American Veterinary*
31 *Medical Association* 217, 1001-1006

32 MOREAU, P. (2012) Do You Know Your Equine Practice Clients?
33 *Veterinary Clinics of North America: Equine Practice* 28, 39-49

34 MOSSOP, L., GRAY, C., BLAXTER, A., GARDINER, K.,
35 MACEACHERN, P., WATSON, P., WHITTLESTONE, K. & ROBBE,
36 I. (2015) Communication skills training: What the vet schools are
37 doing. *Veterinary Record* 176, 114-117

38 NEEL, J. A. & GRINDEM, C. B. (2010) Learning-style profiles of
39 150 veterinary medical students. *Journal of Veterinary Medical*
40 *Education* 37, 347-352

41 RADFORD, A., STOCKLEY, P., I.R., T., TURNER, R., GASKELL, C.
42 J., KANEY, S., HUMPHRIS, G. & MAGRATH, C. (2003) Use of
43 simulated clients in training veterinary undergraduates in
44 communication skills. *Veterinary Record* 152, 422-427

45 ROYAL COLLEGE OF VETERINARY SURGEONS (2014) RCVS
46 Day One Competencies. [http://www.rcvs.org.uk/document-](http://www.rcvs.org.uk/document-library/day-one-competences/)
47 [library/day-one-competences/](http://www.rcvs.org.uk/document-library/day-one-competences/). Accessed 31 October, 2016

1 SANDARS, J. (2009) Twelve tips for using podcasts in medical
2 education. *Medical Teacher* 31, 387-389

3 SEVERIDT, D. (2010) Young veterinarians don't know how to talk to
4 clients. [http://veterinarybusiness.dvm360.com/young-veterinarians-](http://veterinarybusiness.dvm360.com/young-veterinarians-dont-know-how-talk-clients)
5 [dont-know-how-talk-clients](http://veterinarybusiness.dvm360.com/young-veterinarians-dont-know-how-talk-clients). Accessed 30 October, 2016

6 SHAW, D. H. & IHLE, S. L. (2006) Communication skills training at
7 the Atlantic Veterinary College, University of Prince Edward Island.
8 *Journal of Veterinary Medical Education* 33, 100-104

9 SHAW, J. R., ADAMS, C. L. & BONNET, B. (2004) What can
10 veterinarians learn from studies of physician-patient communication
11 about veterinarian-client-patient communication? *Journal of the*
12 *American Veterinary Medical Association* 224, 676-684

13 SHAW, J. R., ADAMS, C. L., BONNETT, B. N., LARSON, S. &
14 ROTER, D. L. (2012) Veterinarian satisfaction with companion
15 animal visits. *Journal of the American Veterinary Medical*
16 *Association* 240, 832-841

17 SHAW, J. R., BARLEY, G. E., HILL, A. E., LARSON, S. & ROTER,
18 D. L. (2010) Communication skills education onsite in a veterinary
19 practice. *Patient Education and Counseling* 80, 337-344

20 SHAW, J. R. & LAGONI, L. (2007) End-of-life communication in
21 veterinary medicine: delivering bad news and euthanasia decision
22 making. *Veterinary Clinics of North America: Small Animal Practice*
23 37, 95-108; abstract viii-ix

24 STRAND, E. B., JOHNSON, B. & THOMPSON, J. (2013) Peer-
25 Assisted Communication Training: Veterinary Students as Simulated
26 Clients and Communication Skills Trainers. *Journal of Veterinary*
27 *Medical Education* 40, 233-241

28 VAISMORADI, M., TURUNEN, H. & BONDAS, T. (2013) Content
29 analysis and thematic analysis: Implications for conducting a
30 qualitative descriptive study. *Nursing and Health Sciences* 15, 398-
31 405

32 VETERINARY DEFENCE SOCIETY (2016) Veterinary Defence
33 Society Web Site, Training. <http://www.thevds.co.uk/training/>.
34 Accessed 28 October, 2016

35 WASHBURN, S. E., POSEY, D., STEWART, R. H. & ROGERS, K.
36 S. (2016) Merging Clinical Cases, Client Communication, and
37 Physiology to Enhance Student Engagement, Learning, and Skills.
38 *Journal of Veterinary Medical Education* 43, 170-175

39