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Special Report

Facebook use among early-career veterinarians in Ontario, Canada (March to May, 2010)

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Objective—To explore the nature and content of information publicly posted to Facebook by early-career veterinarians.

Design—Cross-sectional descriptive study.

Sample—352 early-career veterinarians.

Procedures—Publicly accessible Facebook profiles were searched online from March to May, 2010 from a list of early-career veterinarians (graduates from 2004 through 2009) registered with the College of Veterinarians of Ontario, Canada. The content of veterinarians' Facebook profiles was evaluated and then categorized as low, medium, or high exposure in terms of the information a veterinarian had publicly posted to Facebook. Using content analysis, high-exposure profiles were further analyzed for publicly posted information that may have posed risks to an individual's or the profession's public image.

Results—Facebook profiles for 352 of 494 (71%) registered early-career veterinarians were located. One-quarter (25%) of profiles were categorized as low exposure (ie, high privacy), over half (54%) as medium exposure (ie, medium privacy), and 21% as high exposure (ie, low privacy). Content analysis of the high-exposure profiles identified publicly posted information that may pose risks to an individual's or the profession's reputation, including breaches of client confidentiality, evidence of substance abuse, and demeaning comments toward others.

Conclusions and Clinical Relevance—Almost a quarter of veterinarians' Facebook profiles viewed in the present study contained publicly available content of questionable nature, posing reputation risks to the individual, their practice, or the veterinary profession. The increased use of Facebook and all types of social media points to the need for raised awareness by veterinarians of all ages of how to manage personal and professional identities online to minimize reputation risks to individuals and their practices and to protect the reputation and integrity of the veterinary profession. (*J Am Vet Med Assoc* 2013;242:1083–1090)

The widespread use of online social networks such as Facebook is partly responsible for the way communication is changing in society.[1] Facebook was created in 2004 and was originally intended for use by undergraduate students with a valid college e-mail address, a restriction that provided some privacy for students posting information. By 2008, Facebook had expanded to include anyone ≥ 13 years of age with a valid e-mail address and has grown since then to approximately 1 billion members worldwide, with approximately 18% of those active members being in Canada and the United States.[2] In March 2013, Facebook reported that over one half (618 million) of their active users accessed their Facebook profile daily.[2] Additionally, Facebook market penetration (ie, percentage of the population which was active users) had reached approximately 53% in the United States and Canada.[2]

There are many benefits to Facebook: it allows one to reconnect with old acquaintances; connect with new friends, peers, and colleagues; share information with others; and form groups with people who have common goals or interests.[3] For example, professional groups where colleagues discuss work issues have become popular, perhaps in helping professionals cope with the demands of their work, especially when they live in a remote location or are too busy to get together in person.[4] Many businesses are also realizing the benefits of Facebook as a marketing tool. Having a Facebook page allows customers and clients to access information on their own time and receive in-the-moment updates about events or products.[5]

Despite the many benefits, inherent risks for individuals using Facebook were identified early in the lay

literature including job loss, academic penalty, loss of reputation, and threats to personal security (eg, theft, fraud, and bullying).[6] For professionals and aspiring professionals, consequences are potentially compounded by posting content that risks the individual's and the profession's public image and reputation.[7,8] Specifically, society expects a higher standard of behavior from professionals (ie, those who are members of a regulatory body in their area of expertise) in return for the status and privileges they enjoy, including self-regulation and a monopoly over their area of service.[9] Professionals are governed by a code of ethics and practice standards. As a profession governed by a code of ethics and regulated by self-set standards of practice, veterinarians are likely to be a profession that is held to this higher standard of behavior.

Previous studies[7,8,10–12] have shown that although most professionals and aspiring professionals post more or less benign day-to-day comments on Facebook, a minority of posts may be considered inappropriate to share publicly and may be reputation damaging rather than enhancing. Personal and professional lives are likely to increasingly overlap for veterinarians as clinics use Facebook for marketing purposes and veterinarians use Facebook in their personal lives. In addition to the benefits, understanding the risks associated with Facebook will allow veterinarians to enjoy social networking and avoid potential pitfalls that could be harmful professionally.

The veterinary profession has historically enjoyed a good public image in Canada and the United States. Veterinarians have been rated as among the top 10 most trustworthy,[13] honest, and ethical[14] professionals by the general public and are rated much higher by pet owners specifically.[15] As veterinarians continue to expand their role in society with positions in public health, food safety, animal agriculture, policy development, education, research, and private practice,[16] it becomes even more important for the profession to build and maintain trust with both pet owners and the broader public.

The purpose of the study reported here was to evaluate the potential risks Facebook may pose to the veterinary profession. Specifically, our objectives were to explore publicly available content found on early-career veterinarians' Facebook profiles and to consider the reputation risks to the individual, their practice, and the veterinary profession. In addition, we sought to provide a professional development opportunity in the form of reflective questions to be used by veterinary personnel to self-monitor their communications on Facebook and other social media.

Materials and Methods

Study population—The study protocol was reviewed and approved by the University of Guelph Research Ethics Board. This study was conducted from March to May of 2010. A list of early-career veterinarians (graduates from 2004 through 2009) licensed in the province of Ontario was compiled from a publicly available database maintained by the College of Veterinarians of Ontario. The first author (CAW) pursued the Facebook profiles of identified veterinarians by replicating the possible actions of a client seeking information about their veterinarian on Facebook. The veterinarian's name, along with other demographic information provided by the regulatory body, was used to confirm the profiles. No attempt was made to join a Facebook group or befriend a veterinarian to gain access to information protected by an individual's privacy settings. Only publicly available information was sought to replicate the accessibility of information on Facebook to clients.

Data collection—Once a profile was identified, a research assistant was enlisted to go through the profile and record all publicly available content in a template established in previous research.[17] At the time of this study there were 4 areas of a Facebook profile where most of the communication took place: the information page, wall, photos page, and profile photo. The information page provided headings to tell people about the user, such as where they were from, what they did for work or school, and how many Facebook friends they had. The wall was somewhat akin to a diary in that the date and time was automatically posted by Facebook when the individual added a status update, which was a comment about what they were doing on a particular day, how things went that day, thoughts they were having, or comments about past and future events. The photos page was an online photo album. The profile photo was linked to the name of the profile owner and came up in searches as well as each page of the profile. Facebook had default privacy options that were set to encourage the sharing of information yet gave the profile owner control over what they shared by changing those defaults. Profile owners had to take the time to click through all pages and all pieces of information to designate who could see their information: friends, friends of friends, everyone, or custom. All of the publicly available information on each page was recorded for each veterinarian included in the study. Changes to the Facebook interface, features, and updates occur frequently, including since the time of the present study.

Privacy categories—Criteria were developed by the authors to categorize each Facebook profile into 3 levels of information exposure on the basis of the summative nature of publicly available content posted by an individual. Applied to this study and a similar study[18] of veterinarians-in-training, the low-exposure category (ie, high privacy) refers to a relatively private profile that included at most the name, gender, friends list, school affiliation, and a profile photo. This category was based on what was commonly the minimal amount of information found on profiles and on Facebook's own recommendations for a private or baseline profile.[19] Medium exposure (ie, medium privacy) described disclosures deemed to be beyond a traditional veterinarian-client relationship (eg, phone number, date of birth, family photos, political views, or sexual orientation). High exposure (ie, low privacy) represented disclosures of personal information that had the potential to reflect poorly on the person as a professional. Decisions about when to categorize profiles into the high-exposure category were based on descriptions of questionable behavior identified in previous social media studies[7,8,10–12,20] and on current practice standards and regulations of the veterinary licensing body in the region the study was conducted.[21] Each individual's Facebook profile was categorized into low, medium, or high exposure by the principal author (CAW).

Statistical analysis—Descriptive statistics (mean, median, and range) were calculated for the variable

number of friends. On a random subset of Facebook profiles, inter-rater agreement was assessed for the categorization of profiles into low, medium, or high exposure. Profiles were independently reviewed and categorized by the principal author (CAW) and the research assistant involved with the study. The research assistant belongs to the 18 to 32 age group, while the principal author is from the 45 to 55 age group. A Cohen κ test was used to test agreement. A Cochran-Armitage trend test was used to determine whether the number of profiles found by graduation year was significant. A Student t test was performed to compare employment demographics between those in the sample for whom we found a Facebook profile and those for whom we did not find one.

Using binary logistic regression, 7 variables (number of years since graduation, number of friends, number of page links, relationship status [single vs in a relationship], gender [male vs female], at least 1 employer listed [yes vs no], and presence of a wall [yes vs no]) were tested as potential determinants of a veterinarian's Facebook profile being in the high-exposure category (ie, low privacy). Initially, univariate analyses were performed to screen potential predictors for unconditional associations ($P < 0.20$) with a veterinarian's Facebook profile being placed in the high-exposure category. All predictor variables for which the P value was < 0.20 were retained.

Including only retained variables for which there were complete data, an initial model was developed including all possible interactions. Backward elimination was used to reduce terms in the model. Following this process, those variables that were retained (ie, $P < 0.20$ in the univariate analysis) but which contained missing data, were individually tested within the reduced model by independently adding each variable to the model via forward selection. All statistical analyses were performed with standard software.[a] Values of $P \le 0.05$ were considered significant.

Content analysis—Using standard software,[b] the first author (CAW) performed content analysis on all Facebook profiles in the high-exposure category. Content analysis is a qualitative research process that involves making clear decisions about information contained within nonnumeric data.[22,23] Several reviews of the profiles in the high-exposure category were made specifically for information that could reflect poorly on a professional. Identified trends and patterns were organized into categories and subcategories and described in a codebook. Any items that proved difficult to categorize were discussed between 2 of the authors (CAW and JBC) until consensus was achieved. Behaviors such as profanity; overindulgence in alcohol; sexually suggestive or overtly sexual, racist, or sexist comments; comments disrespectful of clients or coworkers; and work complaints have been established in the literature as being unprofessional.[7,8,10–12,24] These established criteria were used to support our decisions about information posted by veterinarians to Facebook that could reflect poorly on them.

Results

Demographics—This study involved Facebook profiles for 352 of 494 (71.2%) veterinarians who grad-uated between 2004 and 2009 and were registered with the College of Veterinarians of Ontario. The proportion of Facebook profiles found by year of graduation ranged from 49% to 91% (**Table 1**). A Cochran-Armitage test showed a significant ($P < 0.001$) upward trend across years since graduation ($\chi^2 = 36.28$), meaning that the proportion of profiles found gradually increased from 2004 to 2009. Veterinarians working in clinical practice represented 93.2% of the individuals in our study. Employment demographics showed that most veterinarians worked in private practice (82.1%), followed by university positions (6.8%) and locums (5.1%). The remaining 6% were distributed across the categories other, inactive, federal government, and industry. With respect to employment function (eg, clinical practice) and type of employment (eg, private practice), those veterinarians who had a Facebook profile were not significantly different from those in the study sample who had no Facebook profile or whose profile we were unable to find ($t = 0.718$ and $t = 0.944$, respectively). Employment demographics for the general population from which our study sample was taken (ie, the general membership of the College of Veterinarians of Ontario) are as follows: clinical practice (82%), private practice (78%), university (5.8%), and others, inactive, government, and industry (11.6%).[c] On the whole, individuals posted information such as current city (46.1%), hometown (13.3%), relationship status (19.0%), school network (51.5%), sexual orientation (11.7%), and employer (9.4%). The mean number of friends veterinarians had on Facebook was 225 (median, 195 [range, 40 to 984]). Of the veterinarians studied, 21% had a wall that could be seen by anyone on the Internet (a publicly visible wall).

Privacy—Of the 352 profiles, 88 (25%) were categorized as low exposure, 189 (54%) were categorized as medium exposure, and 75 (21%) were categorized as high exposure, indicating they displayed some content that could be perceived as reflecting poorly on a professional. Thirty-six profiles (10% of the sample to make best use of time and resources) were used to establish inter-rater agreement between the primary author (CAW) and research assistant. The κ statistic calculated for the categorization of veterinarian Facebook profiles into low, medium, or high exposure was 0.94, demonstrating high inter-rater agreement. For 11 of the 75 (15%) profiles categorized as high exposure, inappropriate content was posted on the wall and info pages: 13 (17%) posted this information only on their

Table 1—Number of Facebook profiles found by year of graduation among early-career veterinarians (n = 352) in Ontario, Canada in 2010.

Year of graduation	No. (%) of profiles found	No. of graduates
2004	42 (49)	86
2005	52 (64)	81
2006	56 (73)	77
2007	67 (75)	89
2008	68 (78)	87
2009	67 (95)	74
Total	**352 (71)**	**494**

Cochran-Armitage trend test was significant; $P < 0.001$.

wall, and 51 (68%) posted it only on their info page. Inappropriate content on the info page was most frequently the picture linked to the name and Facebook profile (profile photo).

Factors associated with a veterinarian's Facebook profile being in the high-exposure category—Including only retained variables following the univariate analysis for which there were complete data, an initial 2-term model including all possible interactions was developed. Following backward selection, the reduced model contained only the 2 main effects: presence of a wall and years since graduation. The model suggests that when controlling for the number of years since graduation, individuals who have a publicly visible wall had 6.1 times the odds ($P < 0.001$; 95% confidence interval, 3.4 to 10.8) of possessing a high-exposure profile than those who did not have a publicly visible wall. Further, when controlling for the presence of a wall, as the number of years since graduation increased, the probability of possessing a high-exposure profile decreased (OR, 0.80; $P = 0.02$; 95% confidence interval, 0.67 to 0.96; **Figure 1**).

Four additional variables (employer, number of friends, relationship status, and gender) were also retained following the univariate analysis. Each contained a high level of missing data ($\geq 30\%$) excluding them from the original 2-term model. Following the independent addition of each variable to the model containing a wall and years since graduation, none of the 4 variables were retained.

Content analysis—Early-career veterinarians used Facebook to post photos and comments about weddings, babies, pets, and holidays. In addition, a number of early-career veterinarians posted content that could
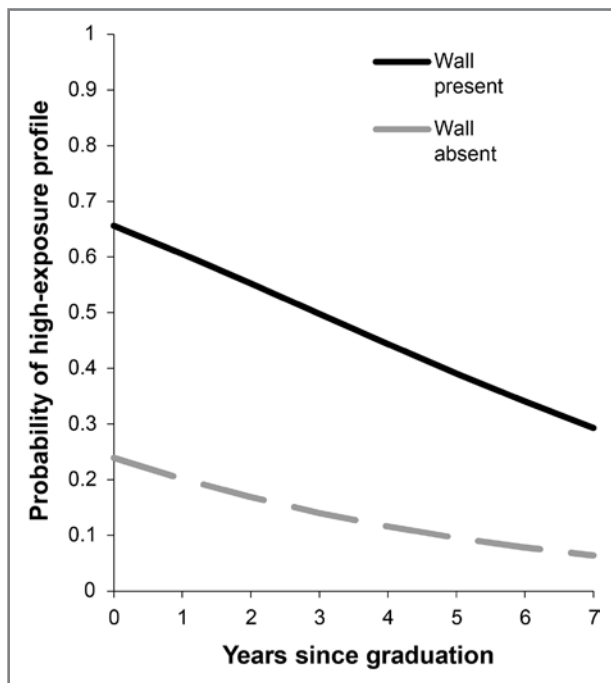

Figure 1—Probability of participants having a high-exposure Facebook profile by year of graduation in a 2010 study of early-career veterinarians (n = 352) in Ontario, Canada.

reflect poorly on them as professionals. One hundred ninety-two posts of this type were identified among the 75 veterinarians' profiles categorized as being high exposure. Key findings in relation to information that could reflect poorly on a person as a professional based on the published literature[7,8,10–12,24] were potential breaches of client confidentiality (28 instances), obscenity (17), substance use or abuse (21), and self-disclosure remarks or photos (126). Self-disclosure was further broken down into sexually suggestive photos (36 instances), demeaning others (19), revealing information clients shouldn't know (33), whining about work (22), sexist or racist remarks (2), and juvenile or immature profile photos (14). Most of the 75 high-exposure profiles contained either 1 (50 instances), 2 (22), or 3 (7) posts considered to reflect poorly on a person as a professional; 8 profiles contained ≥ 6 posts of this nature. These 8 veterinarians contributed 86 of the 192 (44.8%) posts that were identified as reflecting poorly on a professional.

Breach of client confidentiality—Potential breaches of client confidentiality were observed across a number of veterinarians' Facebook profiles. Most of these breaches took the form of comments rather than photos. Although photos of this kind were less common than comments, when they appeared, they were of veterinarians in clinic attire (scrubs or stethoscope), clearly in a clinical setting, and with an animal visible. On 2 such occasions, photos were found with accompanying comments that identified a client's pet by name; in neither of these instances was a statement of the client's consent to post the picture provided.

Some comments posted by veterinarians that could potentially identify a client or patient included particulars about an appointment such as the date, time, breed of patient, service rendered, or a client description. The date and time of status updates are automatically provided by Facebook; furthermore, veterinarians frequently referred to clients they saw today or yesterday, helping to narrow the date of a clinical appointment. Veterinarians appeared to post details about cases in 2 ways. One way was to provide details in an effort to warn others about dangerous behaviors in the hope of preventing similar situations from occurring. For example, a number of posts were phrased as warnings to people about various issues including not letting their dogs eat bones or chocolate and bringing pets in to the clinic at the first signs of illness rather than waiting. However, these posts often included important details about an appointment. In these cases, veterinarians seemed to be upset and voicing frustration about a patient's fate. The other way veterinarians inadvertently posted appointment details was in looking for support from their colleagues and friends. For example, posts containing details of a successful surgery or other treatment that may have been challenging for an early-career veterinarian. In these cases, sufficient detail was often offered that the client or others could have determined the identity of the animal or the owner.

Obscenity—The obscenity category included the use of profane language or posting of crude photos. A number of obscene comments were the result of a veterinarian using crude language to describe procedures

or treatment modalities common to the practice of veterinary medicine. Remarks in this category ranged from fairly mild to fairly vulgar obscenities.

Substance use or abuse—Disclosures in this category included references to overindulgence in alcohol or profile photos containing alcohol use. Profile photos containing alcohol were by far the most common finding. Comments in this category often took the form of describing how much drinking was done, how much fun it was to drink to excess, why it was necessary to drink to excess, and the drinking games that would take place at an upcoming event. These comments were often shared in the context of past or upcoming events (eg, a housewarming party).

Sexual suggestiveness—Instances in this category included depictions that could be interpreted as sexually suggestive or provocative in nature. It should be noted that the choice to wear sexually suggestive clothing in one's personal life is itself neither professional nor unprofessional; rather, it is the choice to post such photos on a public site, and indeed, most photos in this category were profile photos.[20] Suggestive photos were those where women showed cleavage, leg well above the knee (eg, thigh-high mini skirts), or bare midriffs (eg, sports bra, bikinis, short tops)[25] or had their head canted in a sexually provocative pose.[26] Photos of men showed them shirtless.[25]

Demeaning others—There were several instances where veterinarians posted demeaning comments on their Facebook profile; most frequently, comments were directed at clients out of what appeared to be frustration. The 2 most common sources of frustration were when veterinarians felt their clients devalued their training and knowledge and when they believed clients possessed misinformation. A number of veterinarians vented that clients believe breeders, rescuers, pet bloggers, and pet storeowners know more about animals than do veterinarians.

Information clients shouldn't know—There were many instances of information disclosure that clients might be better off not knowing. Some posts revealed personal practices that the posting veterinarian stated were unprofessional or of concern, such as poor hand hygiene or the detrimental cognitive effects of long shifts. Others shared insecurities about upcoming treatments or surgeries, frustration about the stress of falling behind in the daily schedule because of client tardiness, or opinions on topics such as religion and politics. Positive posts included disclosures such as a veterinarian's satisfaction at a successful treatment done for the first time on their own.

Whining about work—Some comments in the category of whining about work were general clichés (eg, "back to the grind"). Other comments were more specifically directed toward common workday frustrations such as having to stay late due to an unexpected emergency.

Potentially immature profile photos—These profile photos were of cartoon characters such as Homer Simpson, pictures of individuals making silly faces at a party or a bar, or friends kissing in an exaggerated fashion.

Additional analysis of links—Content analysis revealed that 16 of 75 (21%) high-exposure profiles listed the veterinarian's employer on the info page. By clicking on the employer, one is directed to the clinic's Facebook profile. Another frequent finding was a link to a group whose purpose was to reconnect veterinarians to other members of their graduating class. Content on these group pages was open to the public. Most members of these groups posted content such as job openings, links to upcoming continuing education events, or fundraising efforts for various worthy animal-related causes. However, several posts we found could reflect poorly on a veterinarian, including discussion topics about serious errors made at work and complaints about financial compensation.

Discussion

The present study found Facebook use to be common among early-career veterinarians, similar to a recent study[8] of newly graduated physicians. Veterinary clinics and clients alike can benefit from its use; in particular, interacting with clients can have many benefits, including reminders of time-dependent services (eg, vaccination), client education opportunities, and opportunities to advocate for animals. Facebook helps maintain a regular and positive relationship with clients, and the benefits can be presumed to contribute to a positive professional image of veterinarians. Nevertheless, some veterinarians post publicly available content to their personal Facebook accounts, which could counteract these benefits as well as present reputation risks to the individual and the employer. Over half (54%) of individuals in the present study had medium-privacy profiles, which allowed public access to personal information; nearly a quarter (25%) had high-privacy profiles, and nearly another quarter (21%) had low-privacy profiles. High-privacy profiles offer some protection by reducing the number of people who can see information to friends only. The low-privacy profiles contained information that may reflect poorly on the individual, their veterinary employer, or the veterinary profession and that could be seen by anyone on the Internet.

The social contract that currently exists between society and all professionals comes with an expectation of moral and ethical behavior,[9] making veterinarians (and all professionals) vulnerable to public scrutiny of their personal profiles on social media sites such as Facebook. This scrutiny reflects society's heightened expectations of health professionals, compared with those of the general public. Our findings suggest that those early-career professionals who make their walls publicly accessible are at greater risk of having a profile that could be considered potentially unprofessional. On a number of occasions, friends of veterinarians included in this study posted potentially harmful comments to the individual's wall. This may partially explain why having a publicly available wall poses an increased risk of possessing a high-exposure profile. Thus, veterinarians need to be aware of the risk associated with content posted to their profile not only by themselves but also by their friends.

Posts that breached client confidentiality were an important finding of this study. Although the impact may appear low in terms of damage to clients, clients reasonably expect that all details of their interactions with veterinarians are completely confidential, unless they have given consent

otherwise. Comments or photos that may be deidentified can often still be pieced together with other information available on the individual's profile to identify the client or patient.[27] In the past, breaches of client confidentiality were likely shared between close colleagues or with a life partner and, although they occurred, would have been kept between 1 or 2 people rather than shared broadly, as is the case when information about clients or patients is posted to Facebook.[28] The likelihood of others reading these posts on Facebook is high; veterinarians in the present study had a mean of 225 Facebook friends, indicating information protected by privacy settings still reached a high number of individuals. This distance is exponentially increased when privacy settings allow friends of friends to see posted information (eg, 225 Facebook friends each with a mean of 225 Facebook friends produces exposure to 50,625 others). To breach client confidentiality is considered professional misconduct in many jurisdictions, including the region where this study took place.[21] Regardless of privacy settings, it is important for veterinarians to remain aware that online postings are subject to evidentiary discovery; precedents have been established where courts have used right of access to full Facebook profiles, including areas that the profile owner may have designated as private.[29] Regardless of the context, veterinarians should take care to avoid any disclosure of information that might lead to a breach of client confidentiality.

Comments demeaning clients or complaining about work were also present in Facebook posts made by early-career veterinarians examined in this study. Comments in this category are considered by regulators under "conduct unbecoming a professional."[21] Venting clearly takes place among professionals, and its value has been debated elsewhere.[28] Nevertheless, we found that such venting frequently risked client confidentiality; was critical of colleagues, employers, or clients; or publicly disclosed more information than clients would likely appreciate or consent to. The veterinarians in this study frequently vented about client misinformation gained from other sources. Client misinformation has been identified by veterinarians to be a source of frustration and a barrier to effective client communications.[30] Regardless of the reason for venting, it is potentially damaging to the health professional's relationships with others.[28]

Photographs which we subjectively considered may be sexually suggestive or immature, and photos of individuals drinking alcohol were chosen as profile photos by a notable number of early-career veterinarians. Profile photos have more impact than album photos because they are more accessible (anyone on the Internet can see them). In addition, profile photos are specifically chosen by the profile owner and therefore represent a person's self-image, social life, and the image they are trying to communicate about themselves.[20] Therefore, there is cause for concern when people strategically choose photos of themselves drinking excessively or in poses that could be interpreted as sexually suggestive or potentially even as someone like Homer Simpson. Although they do not violate any specific veterinary regulations, and the individual who posts the content may not have intended to offend, such photos are ambiguous (eg, the poster could simply be displaying enjoyment of "The Simpsons" cartoons, or could be suggesting Homer is a role model of theirs) and therefore may reflect poorly on the individual in the eyes of some clients. Research from hu-

man medicine suggests that young physicians may be completely unaware that certain behaviors suggest unprofessionalism in clients' minds.[31] For example, a profile photo may lead clients to question a health professional's capacity, judgment, and skill.[27,31] Specifically, early-career veterinarians should appreciate that their clients span various generations and may hold views of acceptable and unacceptable professional behaviors that differ from their own. Because they have grown up in a digital world and are comfortable with online disclosures,[32] early-career professionals may need more and continued support for professional development through education modules, their regulatory body, and their professional associations, despite learning about professional standards in school.

Because social media are still relatively new, there is little formal guidance regarding their use. Indeed, a definitive public standard for professional etiquette online has not yet been established.[33,34] In light of this, a first measure of defense would be for all professionals to use the highest privacy options available.[35] However, privacy settings do not guarantee the security of information because, as we found, users tend to have a large number of friends who can potentially view their wall posts and spread their information further. Changes to the Facebook interface occur frequently; they are generally announced via the media, and are often of the opt-out rather than opt-in variety. This places the onus on individual users to be vigilant in protecting their content. For example, at the time of publication, if a Facebook user decides to send out content (eg, as a news item) to the public rather than only their Facebook friends, all of their future posts will become public unless they return to "Settings" and reset the default to friends.[36] Therefore, health professionals would be advised to accept that nothing they post online can ever be considered private, particularly because any piece of information sent online can be copied, resent or reposted by anyone who sees it.[37] The 4 ethical principles, adapted from veterinary clinical decision-making,[38] can help guide decisions about posting content to Facebook or other digital media so as to avoid making potentially unprofessional posts.

Principles of nonmaleficence, beneficence, autonomy, and justice should be considered by veterinary personnel when posting content online. Of primary importance is nonmaleficence, which refers to avoiding intentional or unintentional harm to clients, colleagues, the profession, and oneself. When nonmaleficence has been assured, beneficence, or the promotion of good, toward these same groups follows. The balance between nonmaleficence and beneficence helps determine what action is in the best interests of all parties. Autonomy relates to one's ability to self-monitor and make decisions, and the last tenet, justice, refers to treating people fairly and considering everyone's needs equally.[38] Ethical principles apply in one's professional role; however, when professionals, acting as private citizens, post potentially harmful content, such as comments that breach client confidentiality, reflect a lack of competence, or are critical of others, they must consider possible effects on clients, colleagues, and the profession. Even though all people should likely take these steps, professionals are obliged to do so, even when using their personal Facebook page[35]; this underscores the difficulty of maintaining personal and professional identities in the digital age.

Incorporating these ethical principles into a series of prioritized, reflective questions (**Appendix**) may assist veterinarians (and other professionals) in balancing their ethical obligations to clients, to colleagues, and to the broader public with their own freedom to use social networking sites. In thinking through these questions, one should take into account the severity and duration of an intended post, and the number of people who may be affected by its content.[35] Facebook profiles are best thought of as a section of the daily newspaper with similar circulation numbers.[39]

The population of veterinarians included in the present study was restricted to 1 geographic area (Ontario, Canada); however, studies[8,10] conducted in other countries with early-career physicians have found similar disclosure behaviors to those in the present study, suggesting these activities cross discipline and geographic boundaries. Most individuals in our study were pet practitioners; thus, results may differ with the inclusion of veterinarians from other employment sectors such as food safety, large animal practice, or infectious disease control. Because this study was cross-sectional, it has provided only a snapshot of Facebook use. A longitudinal study would be valuable in understanding recent graduates' Facebook use over time. In addition, including a broader sample of veterinarians would be valuable in assessing the effect of generation and experience on veterinarians' use of Facebook. There remains the possibility for some bias in categorizations, especially in the categories of sexual suggestiveness and potentially immature photos; however, we used previously published research as a basis for categorizing potentially unprofessional behaviors to limit such bias. That these behaviors might be considered unprofessional seems to also be supported in the results of studies[40,41] of hiring managers. Increasingly, respondents reported using social networking sites to screen potential candidates and found content that led to a non-hiring decision. This content included references to drinking and drug use, provocative or inappropriate photos, poor communication skills, unprofessional screen names, and bad-mouthing of previous employers and colleagues.

The present study was limited to information veterinarians shared publicly on Facebook; future research should consider the underlying motivations affecting veterinarians' use of Facebook by investigating their attitudes toward information disclosure and their use of privacy settings. Lastly, 29% of the veterinarians whose profiles we were unable to find may not have one, may have one under a different name, or may have made themselves unsearchable on Facebook. Because we couldn't find these profiles, we labeled them as high privacy and assumed, for the sake of these analyses, that their privacy approach was effective. We are unable to comment on the specific approaches used in these cases; as a result, high privacy may or may not be fully accurate, but it is consistent with the degree of privacy from those searching for a veterinarian by their name.

This study provided the first evaluation of veterinarians' use of the social media site Facebook. Social media provide a way for professionals to reach out to the community and their clients, but they may also pose privacy and reputation risks. Approximately one-quarter of individuals in this study had very private profiles, half posted a substantial amount of personal information on their Facebook profiles, and nearly one-quarter posted comments or photos that could reflect poorly on themselves, their veterinary employer, or the veterinary profession. Posts that may reflect poorly on the profession combined with the trend toward increased use of Facebook by early-career veterinarians as well as all age groups point to the need for raised awareness of how to manage personal and professional identities online to protect the future and integrity of the veterinary profession. We have included a series of guidelines (Appendix) to aid veterinarians in deciding whether or not to share a particular piece of information on Facebook and suggest that veterinarians use these experiences as a valuable professional development opportunity. We hope that use of this process will aid in preserving the good reputation of the veterinary profession in the new social media landscape.

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Appendix

Prioritized reflective questions for Internet-posting decisions by veterinary personnel.

Category	Question
1. Nonmaleficence (avoid harming others)	Could this post damage my reputation? Could this post hurt my colleagues or my clients? Could this post damage public trust in the profession?
2. Beneficence (promoting good)	Could I modify this post in a way that will benefit my clients, the veterinary profession, and me? Could this post be misinterpreted by others?
3. Autonomy (self-monitoring and choice)	Does this post break any societal laws, professional regulations, or both? Should I defer posting this information until I've slept on it?
4. Justice (fairness and treating people equally)	Before posting to a friend's wall: would I post this comment or photo to my own wall? Would I be pleased or annoyed if someone posted this information to my own Facebook profile?