

Facts & Figures

Veterinary internship survey, 2012

Allison J. Shepherd, MBA; David E. Granstrom, DVM, PhD, DACVM;
Lara A. Boland, BVSc; Kate F. Murphy, BVSc

The AVMA Executive Board established the Task Force on Veterinary Internships in 2009 to assess the quality of veterinary internships, identify areas that need improvement, and develop a plan to address the needs identified. Because of the lack of reliable data on which to base these assessments, the task force recommended a comprehensive survey to examine factors potentially associated with internship quality. The survey was co-sponsored by the AVMA, American Animal Hospital Association, American Association of Equine Practitioners, Association of American Veterinary Medical Colleges, and American Association of Veterinary Clinicians.

In addition to gathering data to characterize internship programs and assess the reasons that new graduates chose to enter internships, the survey instrument was designed to determine veterinarians' satisfaction with various aspects of their internship programs and provide a basis for comparison of several related measurable variables (hours worked, compensation, work activities, proportion of time worked with supervision, and self-assessed degree of competency at the end of the first year of employment) between individuals who did and did not perform internships. The information gained was used to examine changes in internships over time and to help the task force evaluate the possible need for a formal internship quality assurance program.

Materials and Methods

A sample of 9,524 US veterinarians who had graduated between 1995 and 2010 was randomly selected from the AVMA membership database and invited to participate in the survey. In addition, 383 veterinarians who had participated in the 2010 Biennial Economic Survey conducted by the AVMA and who indicated that they had participated in internships between 2005 and 2010 were invited to participate. The 15-year period was

selected to ensure a sufficient sample size for analysis and to allow changes in variables to be evaluated across 3 time periods (each consisting of 5 years).

The survey included a combination of multiple-choice and open-ended questions; it consisted primarily of multiple-choice questions with an option to provide other information not listed among the responses in an open-ended field. The survey questionnaire was based on a template created by 2 of the authors (LB and KM) for use in a study in the United Kingdom (unpublished data) and was revised by members of the Task Force on Veterinary Internships and AVMA's market research staff with input from the sponsoring organizations. Surveys were distributed by e-mail or postal mail between March 21 and April 16, 2012. For those who received the survey invitation by e-mail, a reminder e-mail was sent approximately 1 week later; no reminders were sent to individuals who received the survey invitation by postal mail.

All respondents were asked to provide basic demographic information. In addition, respondents who participated in an internship during their first year after graduation were asked to provide their primary reason for seeking an internship; the setting, focus, and type of internship; clinical and educational activities performed on a daily or weekly basis; number of hours worked each week; starting annual salary; percentage of time spent performing various activities during the internship; percentage of time supervised or mentored during the internship; degree of competency in various skills at the end of the internship; and overall satisfaction with the internship program. Respondents who entered clinical practice after graduating from veterinary school were asked to provide information on the number of hours worked each week, starting annual salary, percentage of time spent performing various activities, percentage of time supervised or mentored, and degree of competency acquired in various skills during their first year of practice.

A marketing research firm^a was used to field the survey and tabulate the responses; results were analyzed by another research provider.^b Two-tailed *z* and *t* tests were used to determine significant differences between groups. Respondents were assigned to 2 groups (internship or clinical practice) on the basis of their first year of employment as veterinarians. Those who had performed internships were further categorized according to internship type (private referral practice, private practice, or academic or university setting) and the time period in which the internship was performed (1 to 5 [2007 through 2011], 6 to 10 [2002 through

From the Communications (Shepherd) and Education and Research (Granstrom) Divisions, AVMA, 1931 N Meacham Rd, Schaumburg, IL 60173; and the Department of Clinical Veterinary Science, Division of Companion Animals (Boland), and School of Veterinary Sciences (Murphy), University of Bristol, Langford, Bristol, BS40 5DU, England. Dr. Boland's present address is Faculty of Science, University Veterinary Teaching Hospital—Sydney, University of Sydney, NSW 2006, Australia. Dr. Murphy's present address is Bath Veterinary Referrals, Rosemary Lodge, Wellsway, Bath, BA2 5RL, England.

This article has not undergone peer review.

The authors thank Drs. Roger Fingland and William S. Swecker Jr for their work on the survey instrument and review of the results. Address correspondence to Dr. Granstrom (dgranstrom@avma.org).

2006], or 10 to 15 [1996 through 2001] years prior survey completion). For all comparisons, values of $P < 0.05$ were considered significant.

Results

The overall response rate for the survey was 22.6% (2,241/9,907). Six respondents were not included in the analysis because they graduated prior to 1995. Of the 2,235 respondents examined, 572 (25.6%) indicated that they had participated in an internship during the first year after graduation, 1,569 (70.2%) indicated that they had entered clinical practice, and 94 (4.2%) indicated that they had entered a type of veterinary employment other than an internship or clinical practice. Not all respondents answered every question.

Reasons for seeking an internship—Respondents who participated in internships were asked their primary reason for doing so. More than a third (36.6% [209/571]) of respondents indicated they entered an internship because they planned to apply for a residency, and a similar proportion (35.6% [203]) said they did so because they wanted to practice better quality medicine. Several respondents (24.0% [137]) indicated they entered an internship because they felt they needed more training before entering veterinary practice. Only 1.1% (6/571) of respondents reported that they participated in an internship to earn more money in veterinary medicine, and 2.8% (16) gave reasons other than those included in the survey.

Of those that provided the year they completed internship, significantly more respondents who participated in internships 1 to 5 years prior to the survey (ie, between 2007 and 2011; 26.9% [66/245]; $P = 0.003$) and 6 to 10 years prior to the survey (ie, between 2002 and 2006; 25.8% [42/163]; $P = 0.015$) cited the need for more training as their reason, compared with respondents who participated in internships 10 to 15 years prior to the survey (ie, between 1996 and 2001; 14.6% [20/137]).

Internship programs—Most respondents who participated in an internship did so in a private referral practice (307/571 [53.8%]), academic or university setting (153 [26.8%]), or private practice setting (73 [12.8%]). Other internships were in a corporate-owned practice (20/571 [3.5%]), not-for-profit (10 [1.8%]), or other setting (8 [1.4%]).

Internships typically had a companion animal (336/567 [59.3%]) or equine (182 [32.1%]) focus. Some internships had a food animal (19/567 [3.4%]), exotic or zoological animal (9 [1.6%]), mixed animal (6 [1.1%]), or other species (15 [2.6%]) focus. Of those that provided the year they completed internship, a significantly higher percentage of respondents who participated in internships 1 to 5 years prior to the survey (39.2% [96/245]) selected equine internships, compared with those whose internships took place 6 to 10 years (26.1% [42/161]; $P = 0.005$) and 10 to 15 years prior to the survey (25.0% [34/136]; $P = 0.004$).

The primary focus of most (442/569 [77.7%]) internships was categorized as general rotating practice, followed by emergency and critical care practice (36 [6.3%]), medicine (26 [4.6%]), and surgery (20 [3.5%]). Forty-five of 569 (7.9%) respondents had participated in other types of internships.

Frequency of involvement in various clinical and educational activities during the internship was assessed. Most respondents indicated that they had been involved in the following types of activities on a daily or weekly basis during their internship: general clinical skills (93.1% [529/568]), clinical rounds or case discussions (90.3% [513/568]), receiving instruction in or performing advanced clinical skills (80.4% [450/560]), and receiving instruction in or performing basic surgical skills (69.4% [375/540]). Nearly half (48.4% [266/550]) participated in structured intern teaching rounds given by senior staff, and 37.0% (206/557) were involved in journal club activities at least weekly. Few (12.8% [70/547]) gave intern presentations on at least a weekly basis.

Whereas 83.2% ([114/137]) of respondents who performed internships 10 to 15 years prior to the survey and 82.7% ([134/162]) of those who performed internships 6 to 10 years prior to the survey participated in clinical rounds or case discussions on a daily basis, a significantly ($P < 0.001$ for both comparisons) smaller percentage (67.1% [163/243]) of those whose internships took place 1 to 5 years prior to the survey indicated daily participation in this activity. The percentage of respondents who had instruction in or performed basic surgical skills at least once weekly was significantly ($P = 0.002$) greater for those who performed internships 10 to 15 years prior to the survey (79.4% [100/126]) than for those who performed internships 1 to 5 years prior to the survey (64.2% [149/232]) but was not significantly different from the value for individuals whose internships took place 6 to 10 years before the survey (72.4% [113/156]).

Internship versus clinical practice—The distribution of hours worked was compared between respondents who participated in internships and those who had entered clinical practice after graduation. Whereas 92.7% (1,451/1,565) and 99.8% (567/568) of respondents who entered clinical practice or performed internships, respectively, reported working ≥ 40 h/wk ($P < 0.001$), notably, 80.8% (459/568) of those who had performed internships reported working ≥ 60 h/wk, compared with only 20.0% (313/1,565) of those who had entered clinical practice ($P < 0.001$).

Respondents were asked to indicate the approximate percentage of time they spent performing various activities during their first year of employment and the percentage of time they had supervision or mentoring for each of these activities. Mean $\pm$ SD percentage estimates of time spent in several activities was significantly ($P < 0.001$ for all comparisons) greater for respondents who participated in internships than for those who entered clinical practice; these included providing advanced care ($21.8 \pm 17.4\%$ vs $7.1 \pm 8.9\%$) and emergency or after-hours care ($32.0 \pm 17.4\%$ vs $12.0 \pm 15.6\%$), and activity off clinics (ie, research; $1.6 \pm 4.9\%$ vs $0.3 \pm 3.7\%$). Interns reported a mean of $5.4 \pm 8.1\%$ of time in elective rotations; the base size for those in clinical practice was too small for comparison. However, the mean percentage of time spent providing primary care ($79.8 \pm 18.7\%$) was significantly ($P < 0.001$) higher for respondents who entered clinical practice, compared with that reported by those who performed internships ($37.1 \pm 23.2\%$).

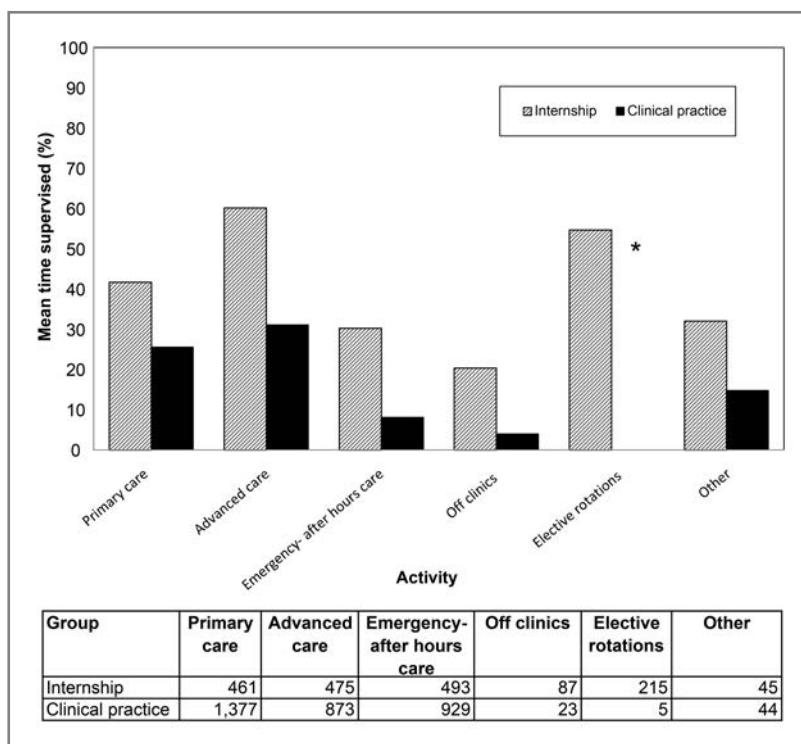


Figure 1—Mean percentages of estimates of time spent performing various activities with supervision each week by survey respondents who entered internships ($n = 572$) or clinical practice (1,569) after graduation from veterinary medical colleges between 1995 and 2010. Surveys were sent to 9,907 veterinarians registered in the AVMA membership database in March 2012; 2,241 responses were received. Differences were significant ($P < 0.05$) for all comparisons. Base sizes (number of respondents that answered the question) for each activity are shown in the box. *Base size was too small to report a percentage.

For each activity evaluated, the mean percentage estimate of time worked with supervision each week was significantly greater for respondents who entered internships than for those who entered clinical practice (Figure 1). The 2 activities that had the greatest distribution difference between groups were advanced care (60.2 vs 31.1% [29.1 mean percentage point difference]; $P < 0.001$) and emergency or after-hours care (30.3 vs 8.1% [22.2 mean percentage point difference]; $P < 0.001$).

Respondents were asked to indicate the degree of competency they had acquired in various skill sets during their first year of employment on a 5-point rating scale ranging from extremely competent to not at all competent (Figure 2). Significantly ($P < 0.001$ for all comparisons) higher percentages of respondents who had participated in internships rated themselves as having become extremely competent or very competent in general clinical skills (eg, IV catheter placement, venipuncture, physical examination, rectal palpation, and lameness diagnosis), advanced clinical skills (eg, pericardiocentesis, CSF collection, and abdominocentesis), teaching skills, communication with referring veterinarians, and communication with clients during their first year of employment, compared with

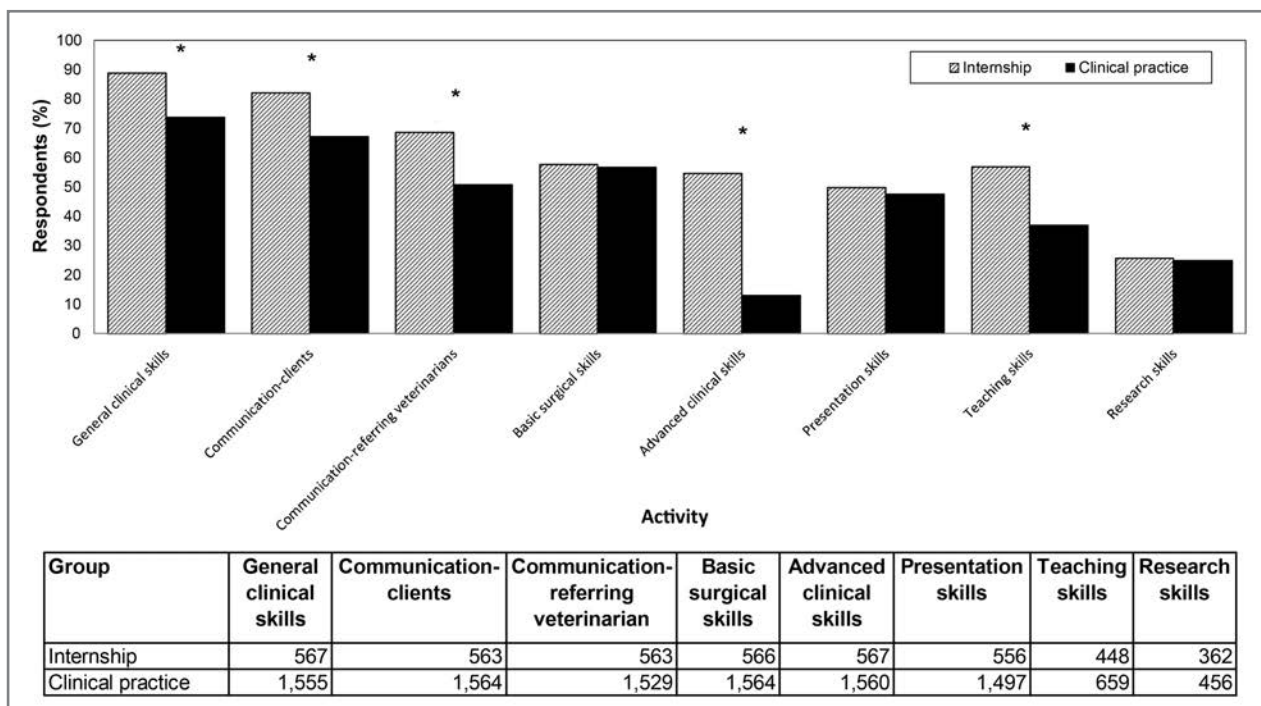


Figure 2—Proportion of survey respondents who rated themselves as having become extremely competent or very competent during the first year of employment in internships or clinical practice after graduation from veterinary medical colleges between 1995 and 2010. Ratings were determined with a 5-point rating scale ranging from extremely competent to not at all competent. Base sizes (number of respondents that answered the question) for each activity are shown in the box. *Values were significantly ($P < 0.05$) different between groups.

respondents who had entered clinical practice. The largest disparity in competency ratings between the 2 groups was in advanced clinical skills, with 54.7% (310/567) of respondents who had participated in internships describing themselves as extremely competent or very competent by the end of their first year, compared with 13.0% (203/1,560) of those who had entered clinical practice. Percentages of respondents who rated themselves as extremely competent or very competent did not differ significantly between the 2 groups for research skills, presentation skills, or basic surgical skills.

Comparisons among time periods revealed that a significantly ($P = 0.002$) higher percentage of respondents who performed an internship 1 to 5 years prior to the survey rated themselves as having become extremely competent or very competent in communicating with clients during the first year (88.4% [214/242]) than did respondents who performed internships 10 to 15 years prior to the survey (75.0% [102/136]). No other significant differences among time periods were identified.

Satisfaction with internships—Respondents who participated in an internship were asked to indicate on a 5-point scale (ranging from strongly agree to strongly disagree) their level of agreement with several statements about their internship experience. Of 570 individuals who answered the question, 85.4% (487) strongly agreed or somewhat agreed with the statement that they were satisfied with their internship overall, and 86.3% (492) strongly agreed or somewhat agreed that the internship had met their learning or career objectives. When asked their level of agreement with the statement that the advertised position was consistent with their internship experience, 80.6% (454/563) indicated that they strongly agreed or somewhat agreed. Almost all (96.0% [548/571]) respondents who started an internship completed it, and 94.4% (537/569) of internship participants agreed strongly or somewhat with the statement that they felt they were better veterinarians because of their internship experience.

Sixty-one of 570 (10.7%) respondents who had participated in an internship strongly disagreed or somewhat disagreed with the statement that they were satisfied with their internship overall. Respondents who indicated they were dissatisfied with their internship experience had worked with a mean of 4.0 ± 5.3 other interns with the same focus at the same facility, whereas those who indicated satisfaction had worked with a mean of 5.9 ± 2.7 other interns ($P < 0.001$). Comments provided in open-ended fields by these individuals indicated that they were dissatisfied because they had received little to no guidance (26.2% [16/61]), the internship was a waste of time (29.5% [18]), they were treated unfairly (14.8% [9]), or the hours were grueling (9.8% [6]).

Differences among internship settings—Experiences of respondents who participated in the 3 most common internship settings (private referral practice, private practice, and academic or university setting) were compared. For most skill sets, self-reported com-

petency ratings did not differ significantly among the 3 groups. However, in 2 areas, significantly ($P < 0.001$ for all comparisons) higher percentages of those in academic or university internship settings indicated that they were extremely competent or very competent by the end of the first year than did those in private referral practice and private practice settings; these were presentation skills (63.2% [96/152], 45.9% [136/296], and 34.3% [24/70], respectively) and teaching skills (77.0% [114/148], 47.5% [105/221], and 42.0% [21/50], respectively). In addition, significantly ($P = 0.002$) higher percentages of those in academic or university settings rated themselves as extremely competent in research skills by the end of the first year than did those in private practice (32.5% [40/123] vs 11.4% [4/35]).

A significantly higher proportion of respondents whose internships were in private referral practice (85.9% [262/305]) reported working ≥ 60 h/wk, compared with those in private practice (71.2% [52/73]; $P = 0.01$) and academic or university settings (74.3% [113/152]; $P = 0.005$). Mean $\pm$ SD percentage estimates of time spent off clinics (ie, in research) and in elective rotations for individuals in academic or university settings ($3.5 \pm 7.1\%$ and $7.8 \pm 7.8\%$, respectively; $n = 152$) were significantly ($P < 0.001$ for both comparisons) higher than the estimates for those in private referral practice ($0.7 \pm 2.9\%$ and $5.0 \pm 8.5\%$, respectively; 305) or private practice settings ($0.8 \pm 3.3\%$ and $1.3 \pm 4.3\%$, respectively; 73). The percentage of time spent performing advanced care was significantly ($P < 0.001$ for both comparisons) higher for respondents in private referral practice ($23.8 \pm 17.8\%$) and academic or university settings ($23.2 \pm 18.6\%$) than for those in private practice settings ($14.4 \pm 11.9\%$), whereas the proportion of time spent in primary care activities was significantly ($P < 0.001$ for both comparisons) higher for those in private practice ($54.6 \pm 18.1\%$) than for those in academic or university ($36.4 \pm 22.3\%$) and private referral practice settings ($33.5 \pm 22.9\%$). Respondents who participated in private referral practice internships spent a significantly ($P < 0.02$ for both comparisons) higher percentage of time providing emergency or after-hours care ($35.3 \pm 17.9\%$) than did those who interned in private practice ($27.8 \pm 15.9\%$) and academic or university settings ($26.2 \pm 14.2\%$).

Mean $\pm$ SD percentage estimates of time spent performing emergency or after-hours care with supervision or mentorship were significantly ($P \leq 0.02$ for both comparisons) higher for respondents who interned in private referral practice ($32.7 \pm 31.3\%$; $n = 262$ responses) and academic or university settings ($29.7 \pm 29.9\%$; 134) than for those in private practice settings ($20.0 \pm 25.4\%$; 65). In addition, the percentage of time spent performing primary care activities with supervision or mentorship was significantly ($P = 0.03$) higher for individuals in academic or university settings ($45.5 \pm 32.1\%$; $n = 128$ responses) than for those in private practice settings ($35.1 \pm 30.0\%$; 66), although neither of these differed significantly from the value for those in private referral practice ($42.6 \pm 31.8\%$; 234).

The percentage of respondents who strongly agreed or somewhat agreed with the statement that they were satisfied with their internship overall was significantly ($P =$

0.01) higher among those in academic or university settings (90.8% [139/153]), compared with those in private practice settings (76.7% [56/73]), but these values did not differ significantly from those for individuals in private referral practice settings (85.0% [260/306]). The percentage of respondents who strongly or somewhat agreed with the statement that the internship had met their learning or career objectives was significantly lower for individuals who interned in private practice (75.3% [55/73]) than for those who interned in private referral practice (87.3% [267/306]; $P = 0.027$) and academic or university settings (90.2% [138/153]; $P = 0.008$). The proportion of individuals who strongly or somewhat agreed with the statement that the advertised position was consistent with their internship experience was significantly higher for those in academic or university settings (92.1% [139/151]) than for those in private referral practice (78.8% [238/302]; $P < 0.001$) or private practice settings (68.5% [50/73]; $P < 0.001$). However, most respondents in each group (private referral practice, 95.8% [293/306]; private practice, 88.9% [64/72]; and academic or university setting, 95.4% [146/153]) agreed strongly or somewhat with the statement that they felt they were better veterinarians because of their internship experience.

Conclusions

Although individuals who participated in internships after graduation worked more hours per week and earned less during their first year of employment, compared with individuals who entered clinical practice, most individuals

who participated in internships were satisfied with their internship overall (85.4% [487/570] strongly or somewhat agreed). In general, these individuals indicated that the internship experience met their learning or career objectives, that the advertised position was consistent with their internship experience, and that they were better veterinarians as a result of the experience.

The AVMA recently formed a working group comprising representatives from each of the survey cosponsors and several institutions that offer a large number of veterinary internships to consider the survey results. The working group was encouraged by the high rate of satisfaction among veterinarians who completed internship programs during the period included in this study and concluded that maintaining this high rate of satisfaction required ensuring that interns have exposure to a wide variety of training and clinical experiences with appropriate levels of supervision during their program. There was considerable discussion regarding creation of a formal quality assurance program for internships. On the basis of results of the current study, the working group concluded that wide distribution of the AVMA's revised internship definition, internship disclosure guidelines, and model internship guidelines should occur prior to creation of any formal quality assurance program to help inform internship providers and potential interns regarding best practices. The AVMA will continue to monitor the quality of internship programs.

a. Irwin Broh & Associates, Des Plaines, Ill.

b. Linkage Research & Consulting Inc, New Port Richey, Fla.
