

**AN ASSESSMENT OF THE EDUCATIONAL PREPARATION OF TEXAS
A&M UNIVERSITY COLLEGE OF VETERINARY MEDICINE GRADUATES**

A Dissertation

by

VIRGINIA ISABEL CARBAJAL

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2005

Major Subject: Agricultural Education

**AN ASSESSMENT OF THE EDUCATIONAL PREPARATION OF TEXAS
A&M UNIVERSITY COLLEGE OF VETERINARY MEDICINE GRADUATES**

A Dissertation

by

VIRGINIA ISABEL CARBAJAL

Submitted to Texas A&M University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Approved as to style and content by:

Christine Townsend
(Chair of Committee)

E. Dean Gage
(Member)

Gary Briers
(Member)

Barry Boyd
(Member)

Glen Shinn
(Head of Department)

May 2005

Major Subject: Agricultural Education

ABSTRACT

An Assessment of the Educational Preparation of Texas A&M University College
of Veterinary Medicine Graduates. (May 2005)

Virginia Isabel Carbajal, D.V.M., National Autonomous University of Mexico

Chair of Advisory Committee: Dr. Christine Townsend.

The purpose of this study was to determine the initial and actual professional goals, the changes in initial and actual professional goals and the reasons for this change of the different Texas A&M University veterinary medicine graduates from 1990-2002, how satisfied the selected veterinary medicine graduates were with their veterinary medicine college educational preparation from the graduating classes representing 1990-2002, and to determine if the top ranked courses have changed among the veterinary medicine graduates from 1990 until 2002.

The descriptive research design included a questionnaire that was provided to Texas A&M University's College of Veterinary Medicine graduates one year following graduation. Data was collected from the group of veterinarians who graduated during 1990-2002.

Findings indicate that since 1990, veterinary students have entered the College of Veterinary Medicine with a predominant interest in small animal or mixed practices.

This study shows the stability of the career choices with mixed and small being consistently the first and second choices over the span of years studied.

No apparent trend appeared from the data that identifies one compelling reason for changing jobs. The overall satisfaction for the educational preparation on their education is 90% or more. The top-ranked basic science courses have not changed among the veterinary medicine graduates during the selected period and these are: “Pharmacology,” “Gross Anatomy,” “Endocrine,” “Parasitology,” “Physiology” and “Clinical Pathology.” The top-ranked clinical disciplines are not as clearly ranked as the basic sciences. They are: “Anesthesiology,” “Gastroenterology,” “General Surgery,” “Internal Medicine,” “Oncology,” and “Radiology.” No apparent trend appeared from the data that identifies one or the other of these categories becoming more popular over time.

DEDICATION

For Rafael, Rodrigo, Santiago and Lucia and my inspiration: my dad.

TABLE OF CONTENTS

	Page
ABSTRACT	iii
TABLE OF CONTENTS.....	iv
LIST OF TABLES.....	viii
LIST OF FIGURES	ix
 CHAPTER	
I INTRODUCTION.....	1
Background of the Study	1
Historical Perspective.....	2
Texas A&M University College of Veterinary Medicine Assessment	6
Statement of the Problem	8
Purpose of the Study	10
Significance of the Study	11
Limitations.....	11
Assumptions	12
Delimitations	12
II REVIEW OF LITERATURE	13
Research in Characteristics of College Students	13
Research in Career Development of Collegiate Students	16
Reform in Veterinary Medicine.....	17
Evaluation.....	23
Procedures in Social Science.....	24
Summary of the Review of Literature.....	26
III METHODOLOGY	28
Introduction	28
Research Design	29
Research Questions	30
Population.....	30

CHAPTER		Page
	Instrumentation	31
	Data Collection	32
IV	FINDINGS AND DISCUSSION.....	33
	Purpose of the Study	33
	Presentation of the Data	34
V	SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	52
	Introduction	52
	Review of Literature	52
	Purpose	53
	Methods.....	54
	Findings.....	56
	Conclusions	59
	Recommendations.....	63
	REFERENCES.....	65
	APPENDIX A.....	68
	APPENDIX B.....	77
	APPENDIX C.....	125
	VITA.....	128

LIST OF TABLES

TABLE	Page
1 Initial practice choice upon entrance to College of Veterinary Medicine 1990-2002 (<i>n</i> =675)	35
2 Ranking of the initial practice choice upon entrance to College of Veterinary Medicine 1990-2002 (<i>n</i> =675)	37
3 Type of employment actually chosen immediately after graduation 1990-2002 (<i>n</i> =675).....	38
4 Ranking of the type of employment actually chosen immediately after graduation 1990-2001 (<i>n</i> =675)	39
5 Reasons respondents changed positions within one year of graduation 1990-2002 (<i>n</i> =264)	41
6 Ranking of the reasons why respondents changed positions within one year of graduation 1990-2002 (<i>n</i> =264)	42
7 Proportion among all classes between the levels of satisfaction with the profession of veterinary medicine 1990-2002 (<i>n</i> =415).....	44
8 Five-year proportion among all classes between the levels of satisfaction with the professional curriculum.....	45
9 Average of the respondent's evaluation for each "basic science" discipline area in reference to the professional curriculum.....	48
10 Ranking of the higher-rated discipline areas in reference to "basic science" on professional curriculum per year	49
11 Average of the respondent's evaluation for each "clinical science" discipline area in reference to the professional curriculum.....	50
12 Ranking of the higher-rated discipline areas in reference to "clinical science" on professional curriculum per year.....	51

LIST OF FIGURES

FIGURE	Page
1 Three Year Consumer Price Index from 1990-1999 for veterinary jobs	10
2 Raw percentages and three year average of no job offers, and more than three job offers from graduates.....	46

CHAPTER I

INTRODUCTION

Background of the Study

Veterinary Medicine is a traditional but rapidly changing health profession. Like other medical professions, it is expanding in its knowledge base, and its training is situated within a higher education sector that has undergone radical changes in recent decades (Sweet, 2003). Society itself is also dramatically changing. The driving forces of globalization, technology, restructuring of agriculture, food safety, emerging diseases, bioterrorism, and the social issues involving the environment, conservation, sustainability, and animal welfare represent new challenges (Eyre, 2002).

The educational process is a partnership between student and teacher, and veterinary students make a large investment to pay for their education. Students generally are not accepted into veterinary medical programs if they lack motivation, learning skills, or intelligence as Lewis noted in 2002. Both the veterinary medical profession and veterinary medical education are a microcosm of our new reality and are in very tenuous and vulnerable situations with regard to their ability to meet new societal needs (Brown, Carbajal, & Wagner, 2001).

This dissertation follows the style and format of the *Journal of Agricultural Education*.

Historical Perspective

In 1995, Dunlop and Williams noted that histories of veterinary medicine generally begin with descriptions of a growing fascination and reverence for wild animals, as first expressed in prehistoric cave art. The story then weaves through the special contributions made by African and Asian cultures, the Byzantine Empire, the ancient Greeks and Romans, and the translation of classic works by Arab scholars. Dunlop and Williams continued by stating that rudimentary animal medical skills are believed to have existed among Middle Eastern herding cultures as early as 9000 BC, and then went through extensive development in Egypt between 4000 and 300 BC. Archaeologists have discovered papyrus fragments of an Egyptian medical textbook dated approximately 1850 BC that describes the diseases of cattle, dogs, birds, and fish. These fragments show that ancient Egyptians understood veterinary anatomy, recognized indications of certain diseases, and practiced specific treatment methods. Progress slowed during the middle ages, but the period did produce some important advancements.

The enlightened Sicilian King and later Emperor, Frederick II, introduced rigorous scientific techniques into medical studies, and commissioned a project to record all that was known of equine medicine up to the time of his reign (Dunlop and Williams, 1995).

The Italian Renaissance was the next period of accelerated knowledge in veterinary science, one that eventually set the stage for the establishment of more formal educational programs. The first veterinary school is believed to have been built

in Lyon in 1761. Later known as the Royal Veterinary School, the school stated its purpose was to provide a setting to study the anatomy and diseases of horses, cattle, and sheep.

The first American veterinary medical institution—the Veterinary College of Philadelphia—was established in 1852, but it was closed in 1866. The College of Veterinary Medicine at the University of Pennsylvania, established in 1883, is the oldest accredited veterinary school currently operating in the United States.

Around 1900, there was an abundance of horses used for work and pleasure, but other livestock was scarce. Most livestock owners had their own homemade remedies for treating livestock, and some farmers seemed better at healing than others. Neighbors would often ask them for advice or have them do the work themselves. The period of self-taught veterinary medicine and veterinarians came about in this manner. With the arrival of the automobile, veterinarians had to go through many changes in their practices. The number of hogs and cattle increased, and the number of workhorses decreased, stated Dunlop and Williams (1995).

According to Eyre (2002), colleges of veterinary medicine are slowly changing their professional curricula. Veterinary licensing authorities are considering changes in the requirements for licensure to practice, and the demographics of veterinary students have changed dramatically. Forty years ago, most students were male, had similar backgrounds, and a mixed-animal practice outlook. Today, most students are female, from urban backgrounds, and have specific professional goals on admission to veterinary medical college. Eyre (2002) stated that a majority of new graduates from

North America now enter small animal practice. Some practices are highly sophisticated, with advanced diagnostic aids and therapeutic techniques that are attractive to the patients and veterinarians. An increasing percentage of small animal practitioners are becoming board-certified in one of the many clinical disciplines. As a result, veterinary medical colleges have responded by diverting more resources into sophisticated equipment and faculty specialists to support companion animal practice, equine practice, and other specialty disciplines.

Concurrently, there has been a steady decline in student interest in food animal practice and an erosion of resources in food animal veterinary education, at the very time when the food animal industries are becoming larger and more intensified (Eyre, 2002). Food animal industries need veterinarians competent to provide health and production management. Only a small number of students and new graduates are interested in species-specific food animal practice (dairy cattle, beef cattle herds, beef cattle feedlots, swine), at a time when there is a need to identify, recruit, and adequately prepare new veterinary graduates for productive and fulfilling careers within the production animal industries. A significant percentage of new graduates desire mixed-animal practice, commonly because they are unsure of their preferred career path. But being a mixed animal practitioner in a rural locality soon loses its attractiveness to most graduates, because of the rural lifestyle and the working conditions. (Eyre, 2002).

The professional veterinary medical program at Texas A&M University is one of the oldest and most prestigious programs of its kind in the United States and the world. The professional doctor of veterinary medicine degree curriculum is a four-year

program composed of three years of classroom and laboratory study with a final year of clinical rotation involving thirty weeks of basic core rotations, twelve weeks of elective clinical rotations or career alternative electives, four weeks of externship and two weeks of vacation for forty-six credit hours. The fourth-year curriculum allows students to choose a species directed career, i.e., large animal, small animal, mixed animal, or an alternative career elective. It is designed this way to give future veterinarians a solid base in disease recognition and clinical competency. The course content and teaching methods used in courses are selected to assist in the development of knowledge and skills in the discipline of veterinary medical education and in the application of knowledge and skills in identifying and analyzing problems and initiating plans of action for the solutions of those problems (Texas A&M University, 2004). Becoming a veterinarian requires dedication and many hours of diligent study. The veterinary medical student must meet high standards of ethics and academic performance. Although the demands on student time and energy are considerable, the rewards and challenges are numerous.

Each of the five academic departments in the Texas A&M College of Veterinary Medicine has dedicated faculty that maintain continuous contact with professionals in the field. These contacts enable faculty members to conduct teaching, research, and clinical service in support of graduate programs with understanding and appreciation of important and complex problems encountered by practitioners. The curriculum leading to this degree gives the candidate a thorough and comprehensive knowledge of medicine, science, and training in methods of research (Texas A&M University, 2004).

Texas A&M University College of Veterinary Medicine Assessment

The main instruments for assessing the quality of education in the professional curriculum are:

- 1) Instructor evaluation: This assessment is performed at the end of each semester for every instructor. The forms are administered by the academic departments online and are confidential.
- 2) Course evaluation: This assessment is performed at the end of each semester for every course taught in the professional curriculum. All instructors are asked to include the following on their syllabus: “All students are expected and requested to complete the College of Veterinary Medicine Course Evaluation Form on the website near the end of each semester. Students will be notified by e-mail and in class when the Evaluation Forms are to be completed” (Texas A&M University, 2004).
- 3) Outcome assessment: The National Board of Veterinary Medical Examiners (NBVME) conducts The North American Veterinary Licensing Examination (NAVLE). Senior students must successfully pass the exam in order to be licensed. The scores are compared to those for all seniors enrolled in American Veterinary Medical Association (AVMA) accredited schools. The NBVME provides standardized licensing examinations for use by state and provincial licensing boards as part of their licensure procedure for veterinarians. The NAVLE is offered throughout North America at computer testing centers operated by Prometric, Inc. Candidates can take the examination no sooner than eight months prior to expected graduation. The NAVLE consists of clinically relevant multiple-choice questions, and approximately 10% of the

items include graphic images (photographs, radiographs, photomicrographs, etc.).

Visual images are important to the practice of veterinary medicine, but have not been used on the national licensing examinations until the implementation of the NAVLE (National Board of Medical Examiners, 2004).

The passing standard for the NAVLE is established using a content-based standard-setting procedure. Passing standard depends only on the content and difficulty of the items on the examination. Each candidate's performance is measured against a fixed passing standard, and the examination is not graded on a curve. In theory, all candidates could pass or all could fail. The procedure is called the modified Angoff method, and is commonly used to set passing standards on licensing and certification examinations (National Board of Medical Examiners, 2004).

According to the National Board of Medical Examiners' report, Texas A&M graduates consistently score five to ten points above the national average. Even in the lower quarter of the Texas A&M University class, there is a 92% passing rate on the first try. For the three other quarters the passing rate is 100% on the first try. The passing rate after the second try is 100%. Texas A&M University graduates have a 100% passing rate on the Texas State Exam, which only evaluates jurisprudence (E.D. Gage, Associate Dean for Professional Students, Texas A&M University, College Station, personal communication, September 29, 2004).

4) Former Student Survey: This assessment is the instrument utilized for this study. The College of Veterinary Medicine conducts an annual survey after the graduates have had a year of experience following graduation. The survey focuses on the adequacy of

preparation received within the Doctor of Veterinary Medicine program and covers a broad set of competencies. It also examines sources of career satisfaction and career dissatisfaction, debt, non-clinical skills, etc. (Appendix A).

The information from the survey is summarized in an annual report distributed to all department heads and to the dean's staff at the College of Veterinary Medicine. The information is used to provide analysis of the College of Veterinary Medicine program, feedback on educational methods and programs used, and a deeper appreciation of educational outcomes. As a result of these findings, important changes have been made in the curriculum over the years.

Statement of the Problem

The College of Veterinary Medicine at Texas A&M University provides its students with the broad comparative medical knowledge base, clinical skills, and insight necessary to treat and prevent animal diseases. In order for this institution to continue to produce such high quality veterinarians to successfully serve communities around the world, the College of Veterinary Medicine constantly strives to expand and improve its students' educational experience. To accomplish this, the College of Veterinary Medicine must assess the perceptions of its graduates about their educational preparation for their careers, as well as the progressive trends of students throughout the four-year curriculum. At present, each class is evaluated separately. In light of the changes in society and veterinary medicine practice, an evaluation of multiple classes may provide insight into trends that affect the profession. This longitudinal evaluation

will ensure that the quality of education is maintained and modified in any necessary means to continue the success of the Texas A&M University College of Veterinary Medicine.

The success of veterinary medicine will ultimately be judged by how well veterinarians meet the needs of society. Veterinary medical schools are the gatekeepers to the veterinary profession and as such, have an important responsibility in preparing veterinary students and alumni for current and emerging issues in the profession and in society (Heath, 2003).

As an indication, Figure 1 shows the three year average median (midpoint) for the starting income/ Consumer Price Index, one year income/ Consumer Price Index, and starting debt/ Consumer Price Index Consumer price index (CPI) for veterinary jobs, from 1990 until 1999. Figure 1 shows a constant and gradual increase (United States Census Bureau, 2002).

Reichheld (1996) has studied the economic effects of loyalty for more than ten years because professionals change jobs more frequently than in the past; Reichheld stated that those companies thriving have high levels of loyalty and retention in both customers and employees.

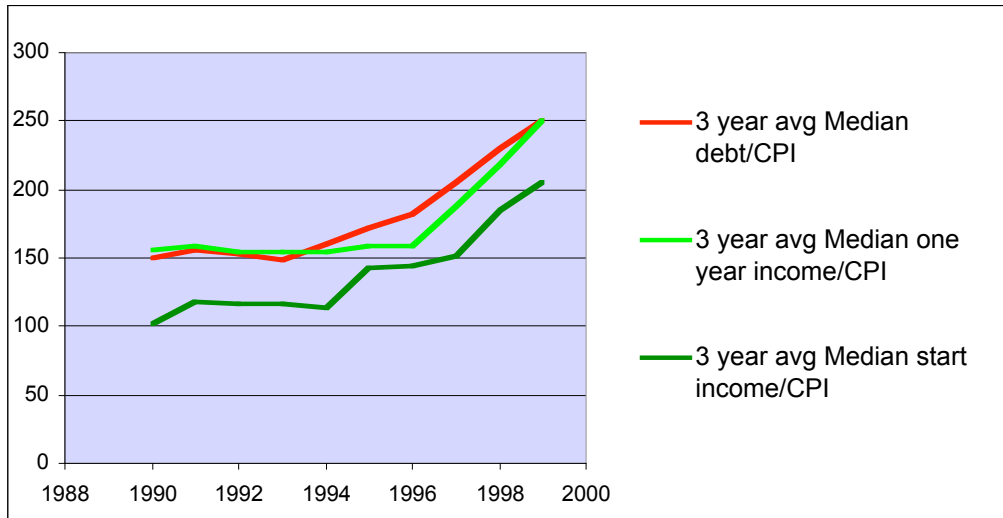


Figure 1. Three Year Consumer Price Index from 1990-1999 for veterinary jobs

Purpose of the Study

The purpose of this study was to evaluate:

1. What were the initial and actual professional goals of Veterinary Medicine graduates from the graduating classes of 1990-2002?
2. What were the changes in initial and actual professional goals of Veterinary Medicine graduates from the graduating classes of 1990-2002?
3. What were the reasons indicated for changes between initial and actual professional goals from the graduating classes of 1990-2002?
4. How satisfied were the Veterinary Medicine graduates with their veterinary medicine college preparation from the graduating classes of 1990-2002?

5. Have the top ranked courses changed among the Veterinary Medicine graduates from 1990-2002?

Significance of the Study

In the broadest sense, the goal of professional veterinary medical education is to provide students with the scientific base, attitudes, and skills necessary to enter and fully participate in their chosen profession. Not only must students master a body of knowledge, they also must learn to apply that knowledge to new situations and develop skills that will allow them to identify solutions to problems that may be unforeseen during the formal education. Therefore, this study supports continued improvement activities for Texas A&M University College of Veterinary Medicine.

Limitations

This study considered only those graduates that returned the questionnaires.

The generality of this study is limited to Texas A&M University College of Veterinary Medicine graduates.

Individuals surveyed may have varied in their perceptions toward their education due to varied backgrounds and personal experiences.

This study was not designed to examine the relationship of gender, age, or ethnicity in regard to perceptions toward veterinary education.

Data were aggregated and not coded by subject; therefore, the data could not be correlated by individuals.

Assumptions

The following assumptions were made in the conduct of the study:

The instrument used in the study measured the graduate's perception toward his/her veterinary medical education at Texas A&M University.

The interpretation of the data collected did reflect the perception of those surveyed.

Delimitations

This study was delimited to include only those graduates from Texas A&M University College of Veterinary Medicine from the class of 1990 through the class of 2002.

CHAPTER II

REVIEW OF LITERATURE

Research in Characteristics of College Students

Altbach and Berdahl (1987) explained that today's college students are different from the students who attended American universities two decades ago. There are more of them, enrollment patterns have changed, and many students are attending school part-time. A majority of undergraduates work in addition to going to college. In short, Altbach and Berdahl argue that not only is college a less central part of student's lives, but also that current students are more mobile, less tied to a single institution, want slightly different things out of life, and are demanding different things from college. In the 1990s, current college students have heard about Presidents Bush and Clinton, have always had computers at home, and have always had the technology advancements be part of their lives.

In contrast, Storr (1969) mentioned that a lively university is a work of art, a product of imagination and of command over material. For a university to come into existence, someone must become aware of a new opportunity or a fresh need for higher education. For a university to endure, men and women must master the resources that make higher learning possible. The difference between college students and professional students is extreme. Storr asked: what fired the imagination of the men who began to advocate graduate education in the late eighteenth and early nineteenth

centuries?

There was a time when a Bachelor's diploma represented the completion of formal studies, but now it is commonly considered a "first degree." According to Rogers (2001), there are many reasons why people decide to attain a higher degree. One interesting conclusion suggested that people attend college to gain higher social recognition.

Mott and Daley (2000) stated that pre-professional education programs typically select applicants who meet the admission criteria and quotas, and then address responsiveness in the interests of student achievement. This selection model does not occur for professional programs, as the selection process is more flexible from the aspect of utilizing other criteria. It is much more restrictive and selective based on set criteria. With their androgogy theory, Knowles, Holton and Swanson (1998) noted that one of the chief distinctions between conventional and adult education is found in the learning process itself. In adult classes, the student's experiences count as much as the teacher's knowledge. In the context of this current study, veterinary students are students whose intellectual aspirations are least likely to be aroused by the rigid, uncompromising requirements of authoritative, conventionalized institutions of learning. These two studies highlight the distinctions between pre-professional and professional student selection processes and the acknowledgement that professional programs treat students as "adults."

According to Knowles, Holton & Swanson (1998) the Staged Self-Directed Learning Model (SSDLM) was created to enhance learning experiences for students. It

proposes that learners advance through stages of increasing self-direction and teachers can enhance or deter that development. The SSDLM is based on the Situational Leadership model of Hershey and Blanchard and describes four stages:

Stage 1: The student is dependent and the teacher is the authority or coach.

Stage 2: The student is interested and the teacher is motivating and guiding.

Stage 3: At this stage the student is involved and the teacher is a facilitator.

Stage 4: The students set their own goals and standards, with or without help from experts.

Gerald Grow (1991) proposed the SSDLM as a powerful concept; good teaching matches the learner's stage of self-direction and helps the learner advance toward greater self-direction. He places an authoritarian teacher in a lower level since he stresses the need of using highly directive, teacher-centered methods when the students lack basic skill, but the final goal is to prepare self-directed learners. Grow admitted the necessity to develop an understanding of the times when a mismatch could be more preferable than matching styles, and that the idea of self-direction should not be considered a generic quality. Some students will learn in spite of bad teachers, but there is a need to match other's learning stages and help them advance toward greater self-direction. It is recognized that professional students (such as veterinary medicine students) take part of the andragogy theory and the SSDLM in a more conscious way than undergraduate students.

Research in Career Development of Collegiate Students

In 1974, Argyris and Schon explained that when the number of applicants on a waiting list for acceptance to professional schools is long, the students' discontent with their education grows. Argyris and Schon identified five central issues that are considered by professional school applicants:

- 1) Who professionals serve,
- 2) Whether professional schools prepare competent practitioners,
- 3) Whether professional schools benefit from cumulative learning,
- 4) Whether reform is possible, and
- 5) Whether self-actualization is possible in professional practice.

Argyris and Schon (1974) cited Schein who explained that whatever *competence* means today, we can be sure its meaning will have changed tomorrow. The foundation for future professional competence seems to be the capacity to learn how to learn. This action requires developing one's own continuing theory of practice under real-time conditions.

Boley (1975) cited Pellegrino, who explained that while the responsibilities in the undergraduate and graduate divisions are somewhat different, these divisions are the heart of the university. The prime responsibilities of a university, Pellegrino continued, are to serve as society's mechanism for preserving, codifying, validating, reflecting upon and transmitting the cumulative reservoir of human knowledge, and adding to it further by original research and thought. Pellegrino stated that the university has the social obligation to bring the young into contact with this intellectual endowment to

enable them to grow intellectually to the extent their potential will allow, and to equip them with the tools of language, thought and critical inquiry for whatever way of life they may choose. According to Pellegrino, few students will go for academia, but the university has the responsibility to assure some degree of competence and sensitivity in language, reasoning, judging, etc.

Houle, cited by Mott and Daley (2000) described professionals as deeply versed in advanced and subtle bodies of knowledge, which they apply with dedication in solving complex practical problems.

Professionals learn, Houle maintained, through study, apprenticeship, and experience, both by expanding their comprehension of formal discipline and by finding new ways to use them to achieve specific ends, constantly moving backward and forward from theory to practice so that each end enriches the other.

Reform in Veterinary Medicine

In his commentary, "Engineering Veterinary Education," Dr. Peter Eyre described how the veterinary profession has grown enormously in breadth and depth in the past 100 years (Eyre, 2002). Veterinary medical colleges and the profession worldwide are facing similar issues about their future.

Eyre continued his evaluation by commenting on the need for change. He stated that veterinary medicine must make profound and fundamental changes in the way it functions if it is to effectively cope with the changes occurring in its environment. In most facets of the profession, a few perceptive and entrepreneurial veterinarians are

responding effectively to these changes and are showing the way for the rest of the profession. The veterinary profession is well along in the process of evolution from a profession composed of generalists who are expected to minister to the clinical needs of any and all animals and to function in all other facets of veterinary medicine, to one composed of practitioners skilled to a much greater depth of competence and understanding of both health and diseases in a class of animals or a species, and a cadre of highly skilled specialists who provide many other veterinary services in both the public and private sectors. Veterinary practice in the future will be much more precise, predictable, and effective as a result of more knowledge about biology and diseases of animals, improved animal health technology, improved animal health strategies, and the demands of users of veterinary medical services. Increasingly, veterinarians will limit their professional activities to a class of animals or species, and a larger number will provide discipline-oriented specialized services, requiring post Doctor in Veterinary Medicine specialty training.

According to Eyre (2002), most veterinary students now have specific professional goals early in their course of studies. Veterinary medical colleges offer core-elective programs in which students select species-specific electives in their clinical years. Elective programs are known as variations of streaming or tracking, and while they are consistent with the philosophy of the engineering model, they are still too limiting to have significant benefits of this approach. Instead, the approach has led to directing students to small animals and to relative neglect of other vital fields of veterinary medicine. There is also a shortage of new graduates interested in careers in

public health, ecosystem health, and diagnostic veterinary services. The small number of graduates seeking teaching and research careers is also a concern.

Eyre stated that tracking programs offered by some veterinary medical colleges have included several different options, such as small animals, equine, food animals, mixed-animal practice, zoological animals, a combination of food animals and small animals, governmental and corporate veterinary medicine, and individual disciplines. To wit, up to 65% of students have selected the small animal tracks, with very small percentages selecting non-companion animal activities (Eyre, 2002).

The World Veterinary Association noted that in the new millennium, the profession is shifting its emphasis away from the traditional role of direct animal health care to issues concerning the combating of trans-boundary infectious diseases, food safety and animal welfare. Hence, new demands for involvement in our profession include bio-security and the threats of bio-terrorism, the protection of our world's biodiversity and the protection of our finite environment and the sustainable management of our natural resources (World Veterinary Association, 2004).

Brown, Hird, Roth, Wagner, Sost, and Memon (2002) stated that veterinarians have a primordial role to play in confronting a growing number of new and reemerging diseases, maximizing food animal productivity and quality, providing effective and safe food supply, and protecting our finite environment through regulatory veterinary medicine. They concluded, therefore, that it is important to educate capable veterinarians with a global perspective in emerging areas to ensure the wholesomeness and safety of the international trade in animal protein for human consumption.

Radostits (2003) continued this commentary on reform. He noted that the explosion of knowledge during the twentieth century and the many diverse roles now played by veterinarians suggest that the broad, general education of the past may no longer adequately prepare graduates for their entry into a world of highly specialized employment. In addition, the knowledge base for a spectrum of skills in veterinary medicine has increased to such an extent that it is no longer possible for students to learn the material and acquire the skills needed to be competent and confident at graduation. Nevertheless, we insist in encompassing all the branches of science, agriculture, public health and medicine into the veterinary and animal production curriculum (Radostits, 2003).

In 2001, Brown, Carbajal and Wagner published results relating to the preparation of veterinary education. They stated that more veterinarians should have a comprehensive understanding about how information technology, food security, and sustainable agriculture are related to safe food production. Veterinarians are continually challenged to evaluate and use new technologies to expand the production of pathogen-free food animals and products, and to operate in a globally competitive and environmentally responsible way.

According to the United States Department of Labor (2004), employment of veterinarians is expected to increase faster than the average for all occupations through the year 2012. As pets are increasingly viewed as members of the family, pet owners will be more willing to spend increasing amounts on advanced veterinary medical care, thus creating more demand for veterinarians. Most veterinarians practice in animal

hospitals or clinics and care primarily for companion animals. Recent trends indicate a particularly strong interest in cats as pets. Faster growth of the cat population is expected to increase the demand for feline medicine and veterinary services, while demand for veterinary care for dogs should continue to grow at a more modest pace. Pet owners are becoming more aware of the availability of advanced care and are more willing to pay for intensive veterinary care than in the past because many pet owners are more affluent, and because they consider their pets part of the family. More pet owners even purchase pet insurance, thus increasing the likelihood that a considerable amount of money will be spent on veterinary care for their pets. Also more pet owners will take advantage of nontraditional veterinary services, such as preventive dental care.

New graduates continue to be attracted to small-animal medicine because they prefer to deal with pets and to live and work near heavily populated areas. This situation will not necessarily limit the ability of veterinarians to find employment or to set up and maintain a practice in a particular area. Rather, beginning veterinarians may take positions requiring evening or weekend work to accommodate the extended hours of operation that many practices are offering. Self-employed veterinarians usually have to work long and hard to build a sufficient client base.

The number of jobs for large-animal veterinarians is likely to grow more slowly than that for veterinarians in private practice who care for companion animals.

Nevertheless, job prospects may be better for veterinarians who specialize in farm animals than for small-animal practitioners because of low earnings in the former specialty, and because many veterinarians do not want to work in rural or isolated areas.

Continued support for public health and food safety, national disease control programs, and biomedical research on human health problems will contribute to the demand for veterinarians, although positions in these areas of interest are few in number. Homeland security also may provide opportunities for veterinarians involved in efforts to minimize animal diseases and prevent them from entering the country. Veterinarians with training in public health and epidemiology should have the best opportunities for a career in the federal government.

Median annual earnings of veterinarians were \$63,090 in 2002. The middle 50% earned between \$49,050 and \$85,770. The lowest 10% earned less than \$38,000, and the highest 10% earned more than \$123,370.

According to a survey by the American Veterinary Medical Association, average starting salaries of 2002 veterinary medical college graduates varied by type of practice as follows:

All private clinical practices	\$46,339
Large animals, exclusively	\$48,303
Small animals, exclusively	\$48,178
Small animals, predominantly	\$46,582
Large animals, predominantly	\$45,087
Equine (horses)	\$34,273

The average annual salary for veterinarians in Federal Government in non-supervisory, supervisory, and managerial positions was \$72,208 in 2003 (United States Department of Labor, 2004).

Evaluation

When the idea of this dissertation started, Dr. Dean Gage, Associate Dean for Professional Programs, expressed that Texas A&M University's College of Veterinary Medicine was interested in evaluating the success of each level within the system. However, educational scholars note that "evaluation" has no common understanding as to what the term actually means. For some, evaluation is simply another label for research in that it should embrace the values and processes of the traditional scientific method. Others believe that evaluation is its own broad form of inquiry and is characterized by many distinct approaches or schools, each with its own unique purpose (e.g., process versus outcome evaluation). Those working in the health professions also distinguish among learner, course, and curriculum and program evaluations (Radostits, 2003).

The purpose of summative evaluation, according to Seels and Glasgow (1998), is to make statements about the effectiveness of the program. Summative evaluation looks at the effectiveness, efficiency, and benefits of the instruction (Seels and Glasgow, 1998). Hannum and Hansen, as cited by Henry and Mavis in 2002, however, approach the purpose of evaluation from the perspective that the intention of instructional design is to improve the performance of educational and training programs

(Henry & Mavis, 2002) and therefore, it is through evaluation that improvement of the effectiveness and efficiency of the program can be determined. They also posit that evaluation can assist in determining changes needed to the program to improve the performance of the program and to determine if learners have met the intended goals of the instruction. Criteria include effectiveness, appeal, and efficiency (Henry & Mavis, 2002).

A curriculum that is static gradually declines and dies. A successful curriculum is continually developing. It must respond to evaluation results and feedback, to changes in the knowledge base, and to the material requiring mastery (Kern, Thomas, Howard & Bass, 1998). Therefore, evaluation for this study is the comparison of an object of interest to an explicit standard of acceptability. Feedback is defined as the provision of information about an individual or curriculum's performance to learners, faculty, and other stakeholders in the curriculum.

Procedures in Social Science

Science, explained Charles (1995), is organized to do two things: establish reliable facts and discover valid relationships among those facts. Facts are absolutely dependent on accurate information. The scientific method is a set of procedures and cautions that helps obtain reliable information for establishing facts. When adhered to, the scientific method helps ensure that reliable and valid information is obtained, and it also helps control the effects of extraneous or "confounding" variables. Mouly, as cited by Cohen, Manion, and Morrison in 2000, explained that people have long been

concerned with their environment and the nature of the phenomena it presents to their senses. How humans achieve these ends may be classified into three broad categories: experience, reasoning, and research. Consequently, scientists construct their theories carefully and systematically. Whatever hypotheses they formulate must be tested empirically so that their explanations have a firm basis (Cohen, Manion, and Morrison, 2000).

Cohen, Manion, and Morrison (2000) explained that reasoning has three different types: deductive, inductive, and the combined inductive-deductive. Deductive reasoning is based on the syllogism, which was Aristotle's great contribution to formal logic. In its simplest form, the syllogism consists of a major premise based on *a priori* or self-evident proposition, a minor premise providing a particular instance, and a conclusion.

According to Cohen, Manion, and Morrison (2000), although both deduction and induction have weaknesses, their contributions to the development of science are enormous. Deduction and induction consist of three categories: 1) the suggestion of hypotheses; 2) the logical development of these hypotheses; and 3) clarification and interpretation of scientific findings and their synthesis into the conceptual framework.

Using these frameworks, the planning of social or educational research is not an arbitrary matter; the research itself is an inescapably ethical enterprise. The research community and those using the findings of research have the right to expect that research be conducted rigorously. Cohen, Manion, and Morrison (2000) suggested a research plan can be formulated and operationalized by moving from general areas of

interests, questions and purposes to very specific research questions which can be answered with appropriate sampling procedures, methodologies and instruments, and the gathering of relevant data.

The planning of research begins with the identification of purposes and constraints. Both novice and experienced researchers alike have to confront the necessity having a clear plan of action if the researcher is to have momentum and purpose. The sampling chosen must be appropriate for all factors if validity is to be served. The validity lies in its ability to represent the informant's subjective reality; that is to say, the definition of the situation (Cohen, Manion and Morrison, 2000).

Summary of the Review of Literature

Students are evolving, according to Altbach and Berdahl (1987). Today's college students are different from the students who attended American universities two decades ago. According to Knowles et al (1998), the difference between college students and professional students is extreme, in adult classes the student's experiences count as much as the teacher's knowledge. When Pellegrino, as cited by Boley in 1975, described the difference between undergraduates and professionals, he noted that the university has the social obligation to bring the young into contact with this intellectual endowment; this enables them to grow intellectually to the extent their potentialities will allow, and to equip them with the tools of language, thought and critical inquiry for whatever way of life they may choose. As important as evaluating veterinary education is, veterinarians sometimes do not understand that the planning of social or educational

research is not an arbitrary matter; the research itself is an inescapably ethical enterprise. The research community and those using the findings of research have the right to expect that research be conducted rigorously.

Veterinarians have an important role to play in confronting a growing number of new and reemerging diseases, maximizing food animal productivity and quality, providing effective and safe food supply, and protecting our finite environment. That is why it is so important to educate capable veterinarians with a global perspective and to evaluate veterinary education.

CHAPTER III

METHODOLOGY

Introduction

Social science research has been conducted largely on traditions and methods that were initially developed in the physical and biological sciences. This model has been variously referred to as “quantitative,” “conventional,” “traditional,” or “positivistic” research according to Borg and Gall cited by Charles in 1995. According to Merriam, as cited by Charles in 1995, the purposes of quantitative research have been to explain, predict, or control outcomes. These purposes were based on the philosophy that there is only one reality that can be observed, known, and measured. Quantitative research has been relatively uninterested in what meaning a phenomenon or situation had for the subject. This method of research was intended to limit bias while advancing objectivity. The researcher in the social sciences who employs this traditional and accepted methodology has had to confront the difficulty of knowing if all subjects respond in a similar fashion, or if it is even possible to collect empirical data on the human mind. For this research, the assumption was made that such knowledge is possible. The design of this research sought to use quantitative methods to create “objective” and empirical results (Charles, 1995).

Research Design

Research has been broadly defined as systematic inquiry. It was important for this study that the research paradigm selected fit the project, the inquiry, and the researcher's interest. This study sought the perception of College of Veterinary Medicine graduates over a twelve- year period of time. The design of this inquiry was descriptive and sought to identify trends from a longitudinal perspective. In addition, as an ex post facto design, it was recognized that the study was not amenable to experimental manipulation.

The design for this study was a trend study design; the data was obtained at one point in time, but from groups of different classes. The collection period was very short; therefore, sample attrition was not an issue. However, it was recognized that this kind of research has several limitations. One major problem was assessing the effect of changes in the population that occur over time. The researcher reasoned that these changes might, in fact, provide the trends that relate to curriculum relevance. Another limitation is that the study considered only the graduates who returned the questionnaire.

The design of this study was employed to measure perceptions toward career development and satisfaction of job preparation by Texas A&M University's College of Veterinary Medicine graduates. This study was not an evaluation of the college courses or an appraisal of instructional methodology, but rather an assessment of participants' perceptions of their skills. All responses were tabulated so that no person was identified in any report or other use of the data. This study did not include the use of any audio or videotaping.

Research Questions

1. What were the initial and actual professional goals of Veterinary Medicine graduates from the graduating classes of 1990-2002?
2. What were the changes in initial and actual professional goals of Veterinary Medicine graduates from the graduating classes of 1990-2002?
3. What were the reasons indicated for changes between initial and actual professional goals from the graduating classes of 1990-2002?
4. How satisfied were the Veterinary Medicine graduates with their veterinary medicine college preparation from the graduating classes of 1990-2002?
5. Have the top ranked courses changed among the Veterinary Medicine graduates from 1990-2002?

Population

The population for this study consisted of College of Veterinary Medicine graduates who graduated within the period of 1990-2002. All members of the population were informed that if they returned the questionnaire, research data would be collected. Of a potential population numbering 1,515, 701 participated. This number yielded a 46.27% response rate. The researcher speculated that because the graduates could complete the questionnaire on the College of Veterinary Medicine website, they could easily return their instruments. The population, instrumentation, and research design were approved by the Texas A&M Institutional Review Board and the researcher

read the Belmont Report, “Ethical Principles and Guidelines for the Protection of Human Subjects of Research,” and subscribed to the principles it contains.

Instrumentation

The instrument used to collect data for this study was the questionnaire, “Former Students Survey” (Appendix B). The survey was conducted in order to assess the opinions and attitudes of the graduates of Texas A&M College of Veterinary Medicine on several areas of interest of their time as students at the college. The questionnaire was developed and administered by the Office of the Associate Dean for Professional Programs. Starting in 1991 and continuing 2002, the Office of the Dean distributed the questionnaires to the subject. The Office of the Associate Dean for Professional Programs used the information year by year to note areas that may need improvement in the veterinary medical college curriculum, and highlighted those areas that are successful and effective for the students in order for the faculty and staff to make the proper curricular adjustments needed to ensure the highest quality education possible.

The questions asked on the instrument varied over a wide spectrum. They included questions concerning the professional goals of the students upon entering veterinary medicine, the type of employment entered immediately upon graduation, the type of employment change, and reasoning for that change if it was within a year of graduation. The survey also covered questions concerning the overall rating of the education students received and the overall rating of satisfaction with the profession of veterinary medicine.

Additional questions addressed areas more curriculum-oriented, such as the track elected for fourth year curriculum (including mixed, small animal, large animal, and non-practice career alternative), how well that track prepared them for licensing board exams, how well that track prepared them for their first job position, and satisfaction of discipline areas of the curriculum in preparation for their present career. Then, to further assess the success of the courses and teaching styles offered, each graduate was asked to list three areas from the courses listed in the survey that were the strongest in the program, followed by ranking the three which they felt were the weakest.

Data Collection

All graduates received the same questionnaire one year after graduation and were asked to return the completed instrument, folded, in the envelope that was provided, within seven days (except for those graduating in 2001 and 2002, who were emailed). No discomfort, stress, or harm to graduates resulted. Some respondents may have experienced an increase in self-awareness and could have felt that they were helping their alma mater since they were told that the responses would allow the college to improve the quality of education, correct deficiencies, and continue strengths in the professional curriculum. The return of the instrument was completely voluntary. No compensation was offered for returning this questionnaire. The responses were entered in Microsoft Excel (Microsoft Excel 10, Microsoft Corp. 2002) and then analyzed using by SPSS (SPSS 9.0, Inc., 1998).

CHAPTER IV

FINDINGS AND DISCUSSION

Purpose of the Study

The purpose of this study was to measure perceptions toward career development, educational preparation, and satisfaction of job preparation and non-clinical skills by Texas A&M University's College of Veterinary Medicine graduates.

The research questions that needed to be answered were:

1. What were the initial and actual professional goals of Veterinary Medicine graduates from the graduating classes of 1990-2002?
2. What were the changes in initial and actual professional goals of Veterinary Medicine graduates from the graduating classes of 1990-2002?
3. What were the reasons indicated for changes between initial and actual professional goals from the graduating classes of 1990-2002?
4. How satisfied were the Veterinary Medicine graduates with their veterinary medicine college preparation from the graduating classes of 1990-2002?
5. Have the top ranked courses changed among the Veterinary Medicine graduates from 1990-2002?

Presentation of the Data

Research question 1: Initial professional goals

Students who enter Texas A&M University's College of Veterinary Medicine begin their professional education with some type of an initial professional goal. This study sought information to ascertain if these goals remained constant or changed throughout the students' education. Table 1 illustrates the choice veterinarians indicated as their initial career goals.

The respondents selected one choice from the list provided on the questionnaire (Appendix B). The former veterinary students were asked to give their initial career choices upon entering Texas A&M University's College of Veterinary Medicine. The graduates were given the choice of "equine," "large animals" ("large animals only" and "large animals predominantly" were combined in this category), "mixed," "small animals" (small animals only and small animals predominantly), "zoo/exotic animals," or "other."

Of the thirteen graduating classes surveyed, the most common answer was the "small animal" category. This choice was most popular in the years 1991, 1992, 1995, 1998, 2000, and 2002 when approximately half of these classes chose "small animals."

The second most popular choice of veterinary practice was the "mixed" category, which consisted of working with both small and large animals; the peak years were 1990, 1993, and especially 1994 where exactly half of the graduates initially chose the "mixed" category. Further down the list at number three was "equine," followed very closely by the category "other," which consisted of practices not listed such as

teaching, research, government, etc. The “large animal” category was number five in the list of six possible choices while the “zoo/exotics” category was the least popular choice coming in at number six.

No apparent trend appeared from the data that identifies one or the other of these categories becoming more popular over time.

Table 1
Initial practice choice upon entrance to the College of Veterinary Medicine 1990-2002 (n=675)

		Equine	Large animal	Mixed	Small animal	Zoo/exotic	Other
<i>Year</i>	<i>n</i>	<i>f</i> %	<i>f</i> %	<i>f</i> %	<i>f</i> %	<i>f</i> %	<i>f</i> %
1990	58	6 10.3	4 6.8	23 39.6	19 32.7	2 3.4	4 6.8
1991	56	5 8.9	4 7.2	16 28.6	26 46.4	2 3.6	3 5.4
1992	46	2 4.3	0 0	14 30.4	23 50	2 4.3	5 10.8
1993	58	6 10.4	4 6.8	23 39.6	19 32.7	2 3.4	4 6.8
1994	52	2 4	4 8	26 50	14 26	1 2	5 10
1995	41	3 7.3	2 4.88	9 21.9	22 53.6	2 4.8	3 7.3
1996	52	4 7.6	5 9.6	16 30.7	19 36.5	2 3.8	6 11.5
1997	54	4 7.41	6 11.1	14 25.9	21 38.8	5 9.2	4 7.4
1998	56	5 8.9	3 5.4	11 19.6	28 50	4 7.1	5 9
1999	38	4 10.5	2 5.2	14 36.8	14 37	1 2.6	3 7.9
2000	51	3 5.88	2 3.92	14 27.5	26 50.9	3 5.88	3 5.88
2001	41	8 19.5	1 2.44	11 26.8	17 41.4	1 2.44	3 7.32
2002	72	8 11	6 9	9 13	37 52	5 7	7 8
AVERAGE		4 8.9	3 6.1	15 30	22 42.1	2 4.57	4 8

Table 2 illustrates the ranking of the choice the veterinarians indicated as their initial career goals. The initial career choices were placed in a rank order to present a visual approach to the students' choices. The respondents selected one choice from the list provided on the questionnaire (Appendix B). For this study, several categories were combined. The large animal category includes "large animal only" and "large animal predominantly"; the "small animal" category includes the "small animal only" and the "small animal predominantly." The other category includes the less traditional practices such as "government," "teaching," "research," "military," "graduate research," and "other" possibilities. The "small animal" category was the number one choice in 1991, 1992, and all years from 1995-2002. It was the most popular choice overall. The "mixed animal" category was ranked number one in 1990, 1993, and 1994. It was the second choice overall by the graduates. The "equine" category was next in line, followed by the "other" category and finally the "zoo/exotics" category, which had peak years at third place in 1992 and 2000. No apparent trend appeared from the data that identifies one or the other of these categories becoming more popular over time.

Table 2

Ranking of the initial practice choice upon entrance to College of Veterinary Medicine 1990-2002(n=675)

Choice	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Equine	3	3	3	3	5	2.5	5	5	2	3	3	3	3
Large Animal	3	4	5		4	4	4	3	5	5	6	4	5
Mixed	1	2	2	1	1	2	2	2	2	1	2	2	2
Small Animal	2	1	1	2	2	1	1	1	1	1	1	1	1
Zoo/exotics	5	6	3	5	6	4	6	4	5	6	3	4	6
Other	3	5	3	3	3	2	3	5	3	4	5	4	4

Research question 2: Actual professional goals

The graduates of the College of Veterinary Medicine were asked their primary career goals after graduating from this College. As noted in Table 3, the most popular employment after graduation was the "small animal" category. The peak years in which the "small animal" category was chosen were 1995 and 2000, when the class percentages were respectively 70.5% and 70.6%. The mixed animal category was still statistically ranked number two, as was initial professional goal; however, there was a drastic decline in overall percentage from roughly 30% to approximately 18.5% (a drop of 11.5 %). The peak for this category fell to 37% in 1994, as compared to 50% (Table 1), for initial professional goal. The "other" category moved from number four to

number three in the poll increasing 4.36% (Table 1). The peak years for this category were 2001 (29.1%) and 2002 (22%). The “equine” and “large animal” categories were ranked fourth and fifth respectively. The “zoo/exotics” category was ranked last again, but fell to a mere 0.78%. Aside from 1992 and 1995-1997, virtually no one had chosen this field of practice. No apparent trend appeared from the data that identifies one or the other of these categories becoming more popular over time.

Table 3

Type of employment actually chosen immediately after graduation 1990-2002 (n=675)

		Equine	Large animal	Mixed	Small animal	Zoo/exotic	Other
Year	<i>n</i>	<i>f</i> %	<i>f</i> %	<i>f</i> %	<i>f</i> %	<i>f</i> %	<i>f</i> %
1990	58	5 8.6	5 8.6	9 15.5	35 60.3	0 0	4 6.89
1991	55	2 3.6	0 0	15 27.3	32 58.2	0 0	6 10.9
1992	47	3 6.3	2 4.2	8 17	27 57.4	1 2.1	6 12.7
1993	58	5 8.6	5 8.6	9 15.5	35 60.3	0 0	4 6.8
1994	52	1 2	2 4	19 37	21 40	0 0	9 17
1995	42	3 7.1	0 0	6 14.5	29 70.6	1 2.3	3 7.2
1996	52	4 7.8	5 9.8	16 31.3	19 37.1	2 3.9	6 7.8
1997	54	2 3.7	3 5.5	14 25.9	27 49.9	1 1.8	7 12.9
1998	56	4 7.1	1 1.8	6 10.7	39 69.6	0 0	6 10.7
1999	38	3 7.9	1 2.6	4 10.5	26 68.4	0 0	4 11
2000	51	0 0	2 3.9	10 19.6	36 70.5	0 0	3 5.88
2001	41	0 0	1 2.4	4 9.7	24 58.4	0 0	12 29.1
2002	72	4 6	4 6	4 6	44 61	0 0	16 22
AVERAGE		2 5.28	2 4.41	9 18.5	30 58	0 0.77	6 12.3

The types of employment actually chosen immediately after graduation were placed in a rank order to present a visual approach to the students' choices. Table 4 illustrates the ranking of actual employment chosen immediately after graduation. The respondents selected one choice from the list provided on the questionnaire (Appendix B). It is very interesting to notice that the ranking for the initial goal and the first job as a veterinarian has remained constant through the years, with an emphasis on small animal clinic and mixed practice. The initial and actual professional goals have not changed significantly in more than a decade.

Table 4 shows the stability of the career choices, with “mixed” and “small animal” the consistent first and second choices over the span of the research.

Table 4
Ranking of the type of employment actually chosen immediately after graduation 1990-2002 (n=675)

Choice	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Equine	3	4	4	3	5	3	3	5	5	3	5	5	3
Large Animal	3	5	5	3	4	6	4	4	4	5	4	4	3
Mixed	2	2	2	2	2	2	2	2	2	2	2	3	3
Other	5	3	3	6	3	3	3	3	2	3	3	2	2
Small Animal	1	1	1	1	1	1	1	1	1	1	1	1	1
Zoo/exotics	6	5	6	5	6	5	6	6	6	6	5	5	6

Research question 3: Reason indicated for changes between initial and actual professional goals

Given a list of eight possible choices, the graduates were asked why they changed their practice goals upon graduating the College of Veterinary Medicine. 264 students responded to this question. The categories were “salary,” “working conditions,” “location,” “family,” “change in career goal,” “temporary first position,” “education,” and “other.” Of the 264 responses, an average of 29.14% of the graduates chose “working conditions” as the main cause for their change in profession. An average percentage of 11.4% cited “further education” and an average percentage of 14% noted that they were beginning a job, which was only temporary. Following closely at number three was the “other” category, which averaged 13% of the answers for each of the years. At 11.5%, “continuing education” was ranked number four on the list of reasons. Further down the line of choices were “location,” “family” and a “change in career goal.”

As noted on Table 5, a slight trend appeared from the data that identifies one or the other of these categories becoming more popular over time. “Working conditions” was ranked as the number one reason why the veterinarians changed jobs, but in 1996 “working conditions” represented less than 8%, and was ranked fifth. In 2002, the percentage of graduates that consider that the reason for changing jobs were working conditions was lower than 7%, and the classification under “other” played an important role, representing 66%.

Table 5
Reasons respondents changed positions within one year of graduation 1990-2002
 (n=264)

Year	n	Salary	Working Conditions	Location	Family	Change Career	Temp 1st Position	Further Education	Other
1990	24	f %	f %	f %	f %	f %	f %	f %	f %
1991	20	5 20.8	8 33.3	0 0	0 0	0 8.3	3 12.5	4 16.7	2 8.3
1992	19	1 1	10 50	1 5	0 0	0 0	3 15	3 15	2 10
1993	24	5 20.8	8 33.3	0 0	0 0	2 8.3	3 12.5	4 16.7	2 8.3
1994	16	1 6	3 19	2 13	1 6	0 0	2 13	1 6	6 37
1995	19	3 7.3	7 17.0	3 7.3	1 2.4	0 0	3 7.3	2 4.8	0 0
1996	17	5 9.8	4 7.84	1 1.9	1 1.9	0 0	1 1.9	5 9.8	0 0
1997	17	1 5.8	8 47.0	2 11.7	0 0	1 5.8	2 0.7	2 11.7	1 5.8
1998	14	0 0	2 14.2	1 7.2	2 14.2	0 0	5 35.7	3 21.4	2 7.1
1999	6	0 0	3 50	0 0	1 16.6	0 0	1 16.6	1 16.6	0 0
2000	13	1 7.6	6 46.1	1 7.6	0 0	1 7.6	2 5.4	0 0	2 15.3
2001	13	1 7.6	5 39.4	4 5.3	1 7.6	0 0	3 23.0	2 15.4	0 0
2002	75	1 1.3	5 6.6		6 8	3 4	5 6.6	1 1.3	50 66.6

The compelling reasons why participants changed positions the first year after graduations were placed in a rank order to present a visual approach to the students' choices. Table 6 illustrates the ranking of the choices veterinarians indicated as the reason why they changed jobs. The respondents selected one choice from the list provided on the questionnaire (Appendix B).

Table 6
Ranking of the reasons why respondents changed positions within one year of graduation 1990-2002 (n=264)

Year of Graduation	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Salary	2	5	1	2	4	2	1	6	7	4	4	4	1
Working Conditions	1	1	1	1	2	1	3	1	6	1	1	1	3
Location	7	5	1		3		4	3	6	4	4	4	5
Family	7	7	6	7	4	6	4	6	3	2	5	4	5
Change career	5	7	4	5	6	5	6	8	6	4	4	6	3
Temporary 1 st position	4	2	4	4	3	2	7	3	1	2	2	2	3
Further education	3	2	1	3	4	5	1	3	2	4	0	3	6
Other	5	4	4	5	1	6	7	6	5	4	2	6	1

Research question 4: Satisfaction of veterinary medicine graduates with their veterinary
medicine school preparation

The graduates were asked to rate their satisfaction with the Veterinary Medicine Profession on a scale ranging from 1-5, with 5 being “extremely satisfied,” to 1 being “not satisfied.” The most popular answer, statistically, was 4 “very satisfied” with an average percentage of 38.2%. The second choice, in terms of popularity, among the graduates was 5 “extremely satisfied” with an average of 25.8%. This category was the least popular in 1992 when the average percentage of “extremely satisfied” graduates was only 15.22%. Following very closely at 24.4% was the “satisfied category,” in which the peak years were 1990, 1993 (35.71%), and 2001 (34.15%). “Somewhat satisfied” was fourth in the list of five possible choices, at 10%. “Not satisfied” was only 1.43% of the cumulative set of graduates. 1996 was the peak year of unsatisfied veterinarians at approximately 4%. As noted on Table 7, no apparent trend appeared in the data that identified one over another of these categories becoming more persistent in over this period of time. Table 8 shows the level of satisfaction with the choice of Veterinary Medicine within five years. The data collected for this table was very similar to that of Table 7 and any deviation in percentages was minimal.

Table 7

Proportion among all classes between the levels of satisfaction with the profession of veterinary medicine, 1990-2002 (n=415)

Year of Graduation	extremely satisfied	very satisfied	satisfied	somewhat satisfied	not satisfied
1990	0.2143%	0.25%	0.3571%	0.1607%	0.0179%
1991	0.1633%	0.5306%	0.2653%	0.0408%	0%
1992	0.1522%	0.4565%	0.1957%	0.1739%	0.0217%
1993	0.2143%	0.25%	0.3571%	0.1607%	0.0179%
1994	0.1923%	0.4423%	0.2885%	0.0769%	0%
1995	0.325%	0.325%	0.225%	0.1%	0.025%
1996	0.3333%	0.451%	0.1176%	0.0588%	0.0392%
1997	0.2778%	0.2778%	0.2593%	0.1481%	0.037%
1998	0.25%	0.4464%	0.2143%	0.0893%	0%
1999	0.2703	0.4324%	0.1622%	0.1351%	0%
2000	0.2941%	0.4314%	0.2157%	0.0588%	0%
2001	0.2927%	0.3415%	0.3415%	0.0244%	0%
2002	0.3733%	0.3333%	0.1867%	0.08%	0.0267%

Table 8

Five-year proportion among all classes between the levels of satisfaction with the professional curriculum

Year Graduation	<u>extremely satisfied</u>	<u>very satisfied</u>	<u>satisfied</u>	<u>somewhat satisfied</u>	<u>not satisfied</u>
1990	0.1888%	0.3903%	0.3112%	0.1008%	0.0089%
1991	0.1766%	0.4124%	0.2727%	0.1251%	0.0132%
1992	0.1766%	0.4124%	0.2727%	0.1251%	0.0132%
1993	0.1863%	0.3829%	0.2804%	0.1372%	0.0132%
1994	0.2439%	0.3391%	0.2902%	0.1125%	0.0143%
1995	0.2835%	0.4061%	0.2104%	0.0786%	0.0214%
1996	0.312%	0.3513%	0.2006%	0.1023%	0.0338%
1997	0.287%	0.3917%	0.1971%	0.0988%	0.0254%
1998	0.266%	0.3855%	0.2119%	0.1242%	0.0123%
1999	0.2715%	0.4367%	0.1974%	0.0944%	0%
2000	0.2857%	0.4018%	0.2398%	0.0728%	0%
2001	0.32%	0.3687%	0.2479%	0.0544%	0.0089%
2002	0.333%	0.3374%	0.2641%	0.0522%	0.0133%

As shown on Figure 2, the respondents rated their satisfaction with the profession of veterinary medicine in these categories: “extremely satisfied,” “very satisfied,” “satisfied,” “somewhat satisfied,” and “not satisfied.”

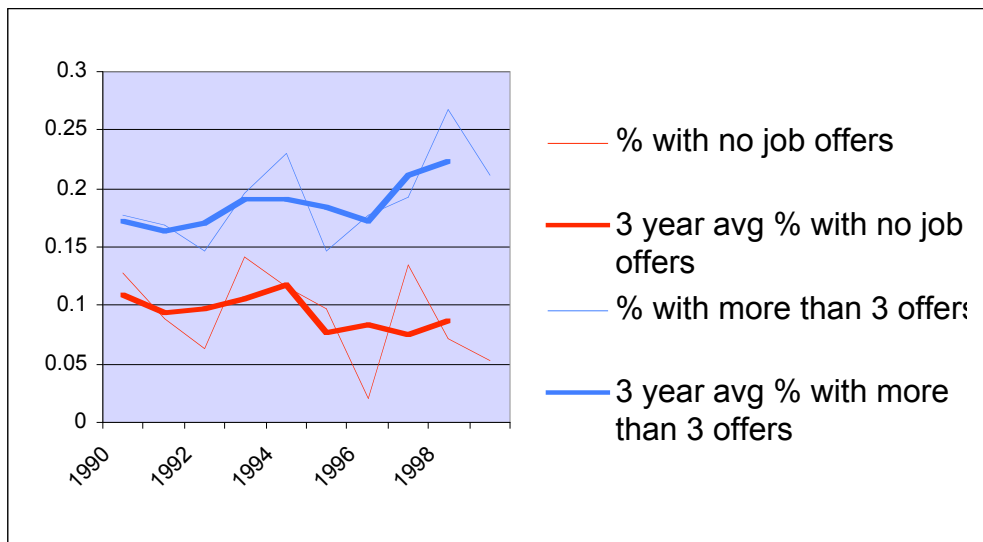


Figure 2. Raw percentages and three year average percentages of no job offers, and more than three job offers from the graduates

Research question 5: Educational value of courses

The respondents graduating from 1990 until 2000 were asked to list the classes that they felt best prepared them for entrance to the veterinary medical profession. The highest- ranked course was “Gross Anatomy” followed by “Parasitology.” “Physiology” was number three in the ranking and “Endocrinology” and “Pharmacology” tied for number four in the average rank. “Clinical Pathology” was number five in the list of twenty-four classes cited by the graduates.

Table 9 shows the average of the respondent’s evaluation for each Basic Science discipline area in reference to the Professional Curriculum. The respondent’s evaluation was based on how well the discipline prepared them for their present career activity. The data is presented as percentage. The participants had the choice to rate these disciplines as “excellent,” “adequate,” inadequate,” and “not applicable.”

In Table 10, the courses were placed in rank order to present a visual approach to the students' choices. The top-ranked courses have not changed among the selected veterinary medicine graduates during the selected ten-year period. These are: “Pharmacology,” “Gross Anatomy,” “Endocrine,” “Parasitology,” “Physiology” and “Clinical Pathology.” No apparent trend appeared from the data that identifies one or the other of these categories becoming more popular over time.

Table 9

Average of the respondent's evaluation for each "basic science" discipline area in reference to the professional curriculum

Course	Excellent	Adequate	Inadequate
Gross Anatomy	54.4	38.6	7
Micro. Anatomy	24.1	65.5	1.7
Neuroanatomy	25.9	60.3	12.1
Microbiology	17.2	69	12.1
Immunology	12.1	60.3	25.9
Clinical Microbiology	17.2	62.1	19
Parasitology	39.7	51.7	8.6
Physiology	50	48.3	1.7
Pharmacology	60.3	36.2	3.47
Toxicology	27.6	53.4	19
Biochemistry	15.5	63.8	10.3
Animal Behavior	19	48.3	31
Pathology	22.4	65.5	10.3
Avian Disease	1.7	15.5	58.6
Clinical Pathology	29.3	62.8	6.9
Zoo/Exotics	0	27.6	53.4
Public Health	17.2	67.2	12.1
Regulatory Med.	10.3	60.3	15.5
Practice Management	3.4	22.4	67.2
Professional Ethics	17.2	70.7	10.3
Endocrine/Metabolism	46.6	48.3	5.2
Jurisprudence	5.3	68.4	26.3
Lab Animal	3.4	32.8	34.5
Interpersonal	17.2	48.3	34.5

Table 10

Ranking of the higher-rated discipline areas in reference to "basic science" on professional curriculum per year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Pharmacology	3	1	1	4	5	3	7	3	3	10
Gross Anatomy	1	4	2	1	1	1	1	2	1	1
Endocrinology	3	3	4	5	3	4	3	7	5	2
Parasitology	5	8	5	3	3	2	2	1	2	3
Physiology	2	2	3	2	2	6	5	3	6	4
Clinical Pathology	6	6	5	5	6	5	3	5	4	5

Table 11 shows the average of the respondent's evaluation for each clinical science discipline in reference to the Professional Curriculum. The respondent's evaluation was based on how well the discipline prepared them for their present career activity. The data is presented as percentage. The participants had the choice to rate these disciplines as "excellent," "adequate," "inadequate," and "not applicable."

In Table 12, the courses were placed in rank order to present a visual approach to the students' choices. The top-ranked courses are in the small animal area. The clinical sciences are not as clearly defined as the basic sciences, and they are: "Anesthesiology," "Gastroenterology," "General Surgery," "Internal Medicine," "Oncology," and "Radiology." No apparent trend appeared from the data that identifies one or the other of these categories becoming more popular over time.

Table 11

Average of the respondent's evaluation for each "clinical science" discipline area in reference to the professional curriculum

Disciplines			
Small Animal Clinic			
Course	Excellent	Adequate	Inadequate
Soft Tissue Surgery	25.32	48.76	16.79
Orthopedic Surgery	15.58	41.08	34.97
Anesthesiology	57.08	37.82	1.90
Internal Medicine	57.47	38.34	2.11
Cardiology	27.61	51.08	9.35
Dermatology	45.46	40.09	10.66
Neurology	29.28	49.91	9.80
Ophthalmology	16.21	47.42	27.77
Oncology	46.16	41.96	6.66
Radiology	40.16	52.18	7.69
Outpatient	40.69	42.82	14.95
Pet Birds	3.99	16.95	40.41
Exotics	5.78	23.42	40.71
Reproduction	8.73	48.94	31.76
Gastroenterology	49.17	47.46	2.01
Urology	29.95	59.54	12.17
Nutrition	14.32	57.72	21.14
General Surgery	54.36	36.68	6.53
Large Animal Clinics			
Food Animal Surgery	6.02	19.20	19.27
Equine Surgery	11.35	24.78	12.80
Anesthesiology	23.51	25.60	1.90
Equine Medicine	18.51	25.88	4.05

Table 11 Continued

Course	Excellent	Adequate	Inadequate
Food Animal Medicine	10.17	21.99	11.96
Neurology	6.17	32.49	14.85
Ophthalmology	7.61	27.59	15.11
Oncology	6.68	26.62	15.16
Dermatology	6.25	27.65	15.95
Cardiology	4.14	27.29	16.87
Herd Health	5.42	24.70	15.19
Ambulatory	21.41	20.74	5.74
Dairy	1.68	19.47	13.54
Swine	0.49	10.72	26.31
Theriogenology	21.99	24.40	10.04
Nutrition	4.81	23.63	21.03

Table 12

Ranking of the higher-rated discipline areas in reference to "clinical science" on professional curriculum per year

Clinical science	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Anesthesiology	1	1	1	1	3	3	3	8	1	3	2	4	3
Gastroenterology	2	2	2	2	6	6	5	4	7	5	5	3	5
General Surgery	5	6	5	5	4	2	1	1	2	4	3	3	1
Internal Med	3	3	3	3	1	1	2	2	3	2	4	1	4
Oncology	4	4	4	4	5	4	4	3	5	7	7	3	6
Radiology	5	3	5	5	7	8	4	6	8	6	6	5	7

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

Veterinary Medicine is a traditional, yet rapidly changing health profession. Like other medical professions, it is experiencing an ever-increasing expansion in its knowledge base, and its training is situated within a higher education sector that has undergone radical changes in recent decades (Sweet et al. 2003).

A total of 701 Veterinary Medical College graduates (from the class of 1990-2002) were surveyed in the study. The survey consisted of several questions pertaining to the College of Veterinary Medicine curriculum, job satisfaction, career choices, and career preparation.

Review of Literature

Students are evolving, according to Altbach and Berdahl (1987). Today's college students are different from the students who attended American universities two decades ago. The difference between college students and professional students is extreme, according to Knowles (1988). In adult classes, the student's experiences count as much as the teacher's knowledge. When Pellegrino, as cited by Boley in 1975

described the difference between undergraduates and professionals, he noted that the university has the social obligation to bring the young into contact with this intellectual endowment to enable them to grow intellectually to the extent their potential will allow, and to equip them with the tools of language, thought, and critical inquiry for whatever way of life they choose. As important as evaluating veterinary medical education is, veterinarians sometimes do not understand that the planning of social or educational research is not an arbitrary matter; the research itself is an inescapably ethical enterprise. The research community and those using the findings of research have the right to expect that research be conducted rigorously.

Veterinarians have a decisive role to play in confronting a growing number of new and reemerging diseases, maximizing food animal productivity and quality, providing effective and safe food supply and protecting our finite environment. That is why it is so important to educate capable veterinarians with a global perspective and to evaluate veterinary education.

Purpose

The purpose of this study was to measure perceptions toward career development, educational preparation, and satisfaction of job preparation and skills by Texas A&M University College of Veterinary Medicine graduates. The research questions were:

1. What were the initial and actual professional goals of Veterinary Medicine graduates from the graduating classes of 1990-2002?

2. What were the changes in initial and actual professional goals of Veterinary Medicine graduates from the graduating classes of 1990-2002?
3. What were the reasons indicated for changes between initial and actual professional goals from the graduating classes of 1990-2002?
4. How satisfied were the Veterinary Medicine graduates with their veterinary medicine college preparation from the graduating classes of 1990-2002?
5. Have the top ranked courses changed among the Veterinary Medicine graduates from 1990-2002?

Methods

The population for this study was a cross-sectional design criterion group; the data were obtained at relatively the same time for each class of graduates. The design of this study was employed to measure perceptions toward career development and satisfaction of job preparation and non-clinical skills by Texas A&M University's College of Veterinary Medicine graduates. This study was not an evaluation of the college courses, nor an appraisal of instructional methodology, but rather an assessment of participants' perception of clinical skills. All responses were tabulated so that no person was identified in any report or other use of the data.

The population for this study consisted of College of Veterinary Medicine graduates who graduated from 1991-2002. All members of the population were informed that if they returned the survey, their responses would be evaluated. The instrument used to collect data for this study was the survey, "Former Students Survey"

(Appendix B). The survey was conducted in order to assess the opinions and attitudes of the Doctor in Veterinary Medicine graduates of Texas A&M University's College of Veterinary Medicine on several areas of career interest and educational preparation as a student at the college. The questionnaire was developed and administered by the Office of the Associate Dean for Professional Programs. From 1991 to 2002, the Office of the Dean distributed the questionnaires to the population. The Office of the Associate Dean for Professional Programs used the information year by year to note areas which needed improvement in the veterinary medical college curriculum, and to highlight those areas that were successful and effective for the students in order for the faculty and staff to make the proper curricular adjustments needed to ensure the highest quality education possible.

The questions asked on the questionnaire varied over a wide spectrum. They included questions concerning the professional goals of the students upon entering veterinary medicine, the type of employment entered immediately upon graduation, the type of employment change and reason behind that change if it was within a year of graduation. The survey also covered questions concerning the overall rating of the education the students received and the overall rating of satisfaction with the profession of veterinary medicine.

To further assess the success of the courses and teaching styles offered, each graduate was asked to list three areas from the courses listed in the survey that were the strongest in the program, and by ranking the three which they felt were the weakest over a ten-year period. All the graduates received the same survey one year after graduation

and were asked to return the survey within 7 days in the envelope that was provided (except for 2000 and 2001, which were emailed). The return of the survey was completely voluntary. No compensation was offered for returning this survey. The responses were entered in Microsoft Excel (Microsoft Excel 10, Microsoft Corp. 2002) and then analyzed using by SPSS (SPSS 9.0, Inc., 1998).

Findings

701 veterinarians responded, from the potential population of 1515. This number yielded a 46.27% response rate. Some respondents may have experienced an increase in self-awareness and may have felt that they were helping their Alma Mater since they were told that the responses would allow the College of Veterinary Medicine to improve the quality of education, correct deficiencies, and continue strengths in the professional curriculum.

The collection period was very short; therefore, sample attrition was not an issue. However, it was recognized that this kind of research has several limitations. One major problem was assessing the effect of changes in the population that occur over time. The researcher reasoned that these changes might, in fact, provide the trends that relate to curriculum relevance. Another limitation is that the study only considered the graduates that returned the survey.

Research question 1

What were the initial professional goals of the different veterinary medicine graduates from the graduating classes representing 1990-2002?

Since 1990, veterinary students have entered the College of Veterinary Medicine with a predominant interest in “small animal” or “mixed practices”. The most popular initial choices were "mixed" and "small" categories. No apparent trend appeared in the data that identified one or the other of these categories becoming more popular over time. However, it was clear that, upon entry, students believe their professional career will contain small animals. The least chosen professional types were not as clearly defined as the top two choices. A significant number of students had a desire to practice Equine Medicine, as the ranking for equine medicine is usually third. There was a discrepancy in equine practice on the initial goal with the immediate job students were offered after graduation. The number of veterinarians practicing equine medicine exclusively was ranked fourth or fifth most of the time.

Research question 2

What were the actual professional goals of the different veterinary medicine graduates from the graduating classes representing 1990-2002?

It is very interesting to notice that the ranking for the initial goal and the first job as a veterinarian has remained constant through the years, with an emphasis on small

animal and mixed practice. Interestingly enough, the initial and actual professional goals have not changed significantly through more than a decade. As this study shows, no apparent trend appeared from the data that identifies one or the other of these categories becoming more popular over time. This study shows the stability of the career choices, with “mixed” and “small” being consistent first and second choices over the span of the research. No apparent trend appeared from the data that identifies one or the other of these categories becoming more popular over time.

Research question 3

What were the reasons indicated for changes between initial and actual professional goals from the graduating classes representing 1990-2002?

No apparent trend appeared from the data that identified one or the other of these categories becoming more popular over time. “Working conditions” was ranked as the number one reason why the veterinarians changed jobs, but in 1996, the working conditions represented less than 8%, and was ranked fifth.

Research question 4

How satisfied were the selected veterinary medicine graduates with their veterinary medical college preparation?

There was not a significant difference between the levels of satisfaction with the profession of veterinary medicine among all classes during 1990- 2001 time frame. The overall satisfaction was 90% or more.

Research question 5

Have the top-ranked courses changed among the selected veterinary medicine graduates from 1990 until 2002?

The top-ranked basic science courses have not changed among the selected veterinary medicine graduates during the selected twelve-year period. These are: “Pharmacology,” “Gross Anatomy,” “Endocrine,” “Parasitology,” “Physiology” and “Clinical Pathology.” The clinical sciences were not as clearly defined as the basic sciences, but the top-ranked courses were: “Anesthesiology,” “Gastroenterology,” “General Surgery,” “Internal Medicine,” “Oncology,” and “Radiology.” No apparent trend appeared from the data that identifies one or the other of these categories becoming more popular over time. The instrument didn’t have a coding system to identify if the clinical science ranking was influenced by the interest of the students in small animal practice.

Conclusions

The College of Veterinary Medicine has successfully met the needs of its graduates, but society challenges veterinarians. At the very time when the food animal industries are becoming larger and more intensified, the College needs to focus more on small and mixed animal practice.

We found that since 1990, veterinary medical students have entered the College of Veterinary Medicine with a main interest in small animal or mixed practice. This finding supports Eyre's statement in 2001. He noted that the majority of new graduates from North America now enter small animal practice. He also stated that some practices are highly sophisticated, with advanced diagnostic aids. However, the respondents in this study did not show dramatic interest in clinical disciplines, as suggested by Eyre. Eyre stated an increasing percentage of small animal practitioners are becoming board-certified in one of the many clinical disciplines. As a result, veterinary medical colleges have responded by diverting more resources to sophisticated equipment and faculty specialists to support companion animal practice, equine practice, and other specialty disciplines. It is therefore concluded that since graduates of Texas A&M University's College of Veterinary Medicine still view their careers as typically small animal-oriented, this unit be supported. However, since this study did not support Eyre's clinical discipline selection, it is concluded that the College of Veterinary Medicine should investigate new technology and the impact of veterinarian preparation to meet the needs of society.

This study found that the ranking for the initial goals and the first job as a veterinarian has remained constant through the years, with an emphasis on small animal and mixed practice. Interestingly enough, the initial and actual professional goals have not changed significantly through more than a decade. This study shows the stability of the career choices, with mixed and small practice being consistent first and second choices over the span of the research. This supports what Brown, Carbajal and Wagner

stated in 2001: both the veterinary medical profession and veterinary medical education are a microcosm of our new reality and are in very tenuous and vulnerable situations with regard to their ability to meet new societal needs. The top-ranked clinical courses are in the small area discipline. We conclude that Texas A&M's College of Veterinary Medicine has been able to successfully manage the continuous decline in student interest in food animal practice as Eyre mentioned in 2001.

According to the United States Department of Labor, there is a difference in salary between large and small animal practitioners. For example, small animal practice veterinarians earned a mean starting salary of \$48,817, while large animal veterinarians earned a mean starting salary of \$43,600. The results of this study indicated that students select the higher-salaried small animal practice. In addition, position changes were not generally due to salary but more likely working conditions. Therefore if needs are not met in the non-small animal areas, consideration and further study of working conditions need to be considered. Also, salary increases may adjust the popularity from small animal to other type of practice.

The veterinary medical sciences have historical roots in equine medicine due to early society's dependence on the horse, as Dunlop noted in 1995. Although the horse is less important to society as a whole now, the respondents to this study continue to have a desire to practice equine medicine. The ranking for initial career choice in equine medicine is typically third. However, the number graduates who actually work in an equine practice is not ranked that high. Therefore, it is concluded that equine preparation is not as important as it was in historical perspectives.

In the past, a significant number of veterinarians started working in a job and continued there for a long time, as Reichheld (1996) stated. The slight trend toward changing jobs because of working conditions appeared. This trend may relate to Houle, as cited by Mott and Daley (2000), who suggested students' education is enhanced by their experiences. Therefore, it is concluded that Veterinary Medicine students experience realistic working conditions during their study, apprenticeships, and/or experiences.

This study found that the top-ranked courses have not changed among the selected veterinary medicine graduates during the selected thirteen-years period. The ranked basic sciences courses are: Pharmacology, Gross Anatomy, Endocrine, Parasitology, Physiology, and Clinical Pathology. Therefore, we conclude that a successful curriculum is continually developing. It must respond to evaluation results and feedback, to changes in the knowledge base, and to the material requiring mastery.

In practice, curriculum development does not usually proceed in sequence, one step at a time. Rather, it is a dynamic, interactive process. Progress is often made on two or more steps simultaneously. Progress on one step influences progress on another. For example, limited resources may restrict the number and nature of objectives. Education should give sufficient nourishment, shelter and privacy, physiological and mental health, companionship, mutual devotion, belongingness, recognition, appreciation, status, novelty, curiosity, variation, recreation, adventure, growth, creativity, literacy, skill, information, participation, sharing, fairly immediate meaning, and significance. The professors that have taught those courses were serious, and when there was a

negative answer for a certain course, the next year or two years following those responses saw a change. For example, the students were consistently complaining about emergency medicine, and as a result that area hired two professors. More information about individual evaluation on courses can be found in Appendix B.

We conclude that, as Kern et al. mentioned in 1998, a successful curriculum is continually developing. It must respond to evaluation results and feedback, to changes in the knowledge base, and to the material requiring mastery. The College of Veterinary Medicine has a strong curriculum development program.

Recommendations

Society is changing and the veterinary curriculum needs to adapt, but sometimes the needs of the profession and of the society seem to contradict.

- 1) Veterinary medical educators need to focus on developing and training veterinarians in the areas of public policy, risk assessment, sociology, economics, epidemiology and information management as Eyre mentioned in 2002. At the same time, veterinary medical educators need to concentrate on the excellence in clinical practice areas that has characterized Texas A&M University's College of Veterinary Medicine.
- 2) A future study could be performed to evaluate the relationship between students who chose small animal and how they rated "herd health."
- 3) A future study could compare students' satisfaction and attach and manipulate respondents' comments.

- 4) Future research could include an evaluation of students' perception after five and ten years after graduation.
- 6) Use of email for sending and receiving questionnaires should increase the number of respondents.
- 7) Texas A&M University could prepare post-doctorate training for food animal practice, public health and food safety, regulatory veterinary medicine, ecosystem health, and biomedical research. Recent world events have highlighted the potential threat of agricultural bioterrorism, in which veterinary medicine has a major responsibility, and therefore has re-emphasized our role in many of these fields.

REFERENCES

- Altbach, P., & Berdahl, R. (1987). *Higher education in American society*. Amherst, NY: Prometheus Books.
- Argyris, C., & Schön, D. (1974). *Theory in practice*. San Francisco, CA: Jossey-Bass Publishers.
- Boley, A. (1975). *Crossfire in professional education: Proceedings of a conference crossfire in professional education*. Evanston, IL: Pergamon Press, Inc.
- Brown, C., Carbajal, I., & Wagner, G. (2001). Preparing the veterinary profession for corporate trade issues in the Americas: Proceedings of a conference on synergism and globalization. *Journal of Veterinary Medical Education*, 28(1), 56-61.
- Brown, C., Hird, D., Roth, J., Wagner, G., Jost, C., & Memon, M. (2002). International opportunities for veterinary medicine students. *Journal of Veterinary Medical Education*, 29(4), 220-223.
- Charles, C. M. (1995). *Introduction to educational research*. White Plains, NY: Longman Publishers.
- Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education*. Routledge, NY: Routledge Farmer.
- Dunlop, R., & Williams, D. (1995). *Veterinary medicine: An illustrated history*. St. Louise, MO: Mosby.
- Eyre, P. (2002). Engineering veterinary education. *Journal of Veterinary Medical Education*, 29 (4), 195-200.
- Grow, G. O. (1991). Teaching learners to be self directed. *Adult Education Quarterly*, 41(3), 125-149.
- Heath, S. (2003). Education in disaster management at U.S. Veterinary Schools and Colleges. *Journal of Veterinary Medical Education*, 30(2), 157-159
- Henry, R., & Mavis, B. (2002). A strategy for developing educational evaluations for learners, course, and instructional goals. *Journal of Veterinary Medical Education*, 29(3), 34-35.

Kern, D., Thomas, P., Howard, D., & Bass, E. (1998). *Curriculum development for medical education*. New York, NY: The John Hopkins University Press.

Knowles, M. S., Holton, E. F. III, & Swanson, R. A. (1998). *The adult learner (5th ed.)*. Houston, TX: Gulf Professional Publishing.

Lewis, H. (2002). The responsibility for preparing students for practice careers: Theirs or ours? *Journal of Veterinary Medical Education*, 29 (3), 54-58.

Mott, V., & Daley, B. (2000). *Charting a course for continuing professional education: Reframing professional practice*. San Francisco, CA: Jossey-Bass Publishers.

National Board of Medical Examiners (2004). *National Veterinary Licensing Exam*. Retrieved on May 15, 2004, from National Veterinary Licensing Exam website: <http://www.nbec.org/navle.html>

Radostits, O. M. (2003). Engineering veterinary education: A clarion call for reform in veterinary education – Let's do it! *Journal of Veterinary Medical Education*, 30 (2), 176-190.

Reichheld, F. (1996). *The loyalty effect: The hidden force behind growth, profits and lasting value*. Boston, MA: Harvard Business School Press.

Rogers, J. (2001). *The relationship between perseverance and academic attainment in agricultural education*. Unpublished master's thesis, Texas A&M University, College Station.

Seels, B., & Glasgow Z. (1997). *Making instructional design decisions*. Essex, UK: Pearson Education.

Storr, R. (1969). *The beginnings of graduate education in America*. New York, NY: Arno Press and the New York Times.

Sweet, J., Huttly, S., & Taylor, I. (2003). *Medical, dental, and veterinary education*. London, UK: Kogan Page Limited.

Texas A&M University (2004) *College of Veterinary Medicine and Biomedical Sciences*. Retrieved October 1, 2004, from the College of Veterinary Medicine website: <http://www.cvm.tamu.edu/dcvm/>

United States Department of Labor (2004). *Veterinarians*. Retrieved October 1, 2004, from U.S. Department of Labor, Bureau of Labor Statistics website:
<http://www.bls.gov/oco/ocos076.htm>

World Veterinary Association Bulletin (2004). *World Veterinary Day 2004*. Retrieved February 12, 2004, from World Veterinary Association Web site:
<http://www.worldvet.org>

APPENDIX A

FORMER STUDENT SURVEY

FORMER STUDENTS SURVEY
College of Veterinary Medicine
Texas A&M University
Class of 2000*

Directions: This survey asks information about the preparation you received at Texas A&M University to be a veterinarian so that we might improve the quality of education at the College of Veterinary Medicine for future veterinarians, as well as enhance our continuing education programs. Your responses will be tabulated with other colleagues in your class, and *no person will be identified* in any written report. Please enter your name, your gender (in the box labeled "Section", marking **001** for Female or **002** for Male), and your responses on the blue answer sheet. **Return the answer sheet, unfolded, in the envelope provided. Remember from your college days to mark your answers with a #2 lead pencil.**

1-3. What was your professional goal or career intention upon entering the professional curriculum in veterinary medicine? (Choose only one of the following and mark your response on the blue answer sheet in the rows numbered 1-3.)

- | | |
|-----------------------------------|----------------------------------|
| 1A Equine Practice (over 50%) | 2C Teaching/Research |
| 1B Large Animal Exclusive | 2D Military Service |
| 1C Large Animal Predominant | 2E Government |
| 1D Mixed Practice | 3A Industry/Commerc. Bus. |
| 1E Small Animal Predominant Study | 3B Graduate/Residency/Internship |
| 2A Small Animal Exclusive | 3C Other |
| 2B Zoo and Exotic Practice | Write on BACK of Ans. Sheet |

4-6. What type of employment did you enter immediately upon graduation from the College of Veterinary Medicine? (Choose only one of the following and mark your response on the blue answer sheet in the rows numbered 4-6.)

- | | |
|-----------------------------------|----------------------------------|
| 4A Equine Practice (over 50%) | 5C Teaching/Research |
| 4B Large Animal Exclusive | 5D Military Service |
| 4C Large Animal Predominant | 5E Government |
| 4D Mixed Practice | 6A Industry/Commerc. Bus. |
| 4E Small Animal Predominant Study | 6B Graduate/Residency/Internship |
| 5A Small Animal Exclusive | 6C Other: |
| 5B Zoo and Exotic Practice | Write on BACK of Ans. Sheet |

7-9. In what type of position were you employed one year after graduation? (Choose only one of the following and mark your response on the blue answer sheet in the rows numbered 7-9.)

- | | |
|-------------------------------|----------------------|
| 7A Equine Practice (over 50%) | 8C Teaching/Research |
| 7B Large Animal Exclusive | 8D Military Service |
| 7C Large Animal Predominant | 8E Government |

- | | | | |
|----|--------------------------------|----|-------------------------------|
| 7D | Mixed Practice | 9A | Industry/Commerc. Bus. |
| 7E | Small Animal Predominant Study | 9B | Graduate/Residency/Internship |
| 8A | Small Animal Exclusive | 9C | Other: |
- Write on BACK of Ans. Sheet
- | | |
|----|-------------------------|
| 8B | Zoo and Exotic Practice |
|----|-------------------------|

10-11. If your position changed within the first year after graduation, what were the compelling reasons? (Choose the most appropriate reason and mark your response on the blue answer sheet in the rows numbered 10-11.)

- | | | | |
|-----|--------------------|-----|--------------------------|
| 10A | Salary | 10E | Change in Career Goals |
| 10B | Working Conditions | 11A | Temporary First Position |
| 10C | Location | 11B | To Further Education |
| 10D | Family Reasons | 11C | Other: |
- Write on BACK of Ans. Sheet

12-71. Please rate the given discipline areas of the professional curriculum in preparing you for your present career activity. Use the following scale. Item 12-71:

A = Excellent B = Adequate C = Inadequate D = Not applicable to Present Position

- | | | | |
|-----|-----------------------|-----|--------------------------|
| 12. | Gross Anatomy | 24. | Pathology |
| 13. | Microscopic Anatomy | 25. | Clinical Pathology |
| 14. | Neuroanatomy | 26. | Avian Diseases |
| 15. | Microbiology | 27. | Zoo and Exotics |
| 16. | Immunology | 28. | Public Health |
| 17. | Clinical Microbiology | 29. | Regulatory Vet. Medicine |
| 18. | Parasitology | 30. | Practice Management |
| 19. | Physiology | 31. | Professional Ethics |
| 20. | Pharmacology | 32. | Endocrine/Metabolic |
| 21. | Toxicology | 33. | Jurisprudence |
| 22. | Biochemistry | 34. | Laboratory Animal |
| 23. | Animal Behavior | 35. | Interpersonal Skills |

Large Animal Clinics

- | | |
|-----|----------------------|
| 36. | Food Animal Surgery |
| 37. | Equine Surgery |
| 38. | Anesthesiology |
| 39. | Equine Medicine |
| 40. | Food Animal Medicine |
| 41. | Neurology |
| 42. | Ophthalmology |
| 43. | Oncology |
| 44. | Dermatology |
| 45. | Cardiology |

Small Animal Clinics

- | | |
|-----|---------------------|
| 54. | Soft Tissue Surgery |
| 55. | Orthopedic Surgery |
| 56. | Anesthesiology |
| 57. | Internal Medicine |
| 58. | Cardiology |
| 59. | Dermatology |
| 60. | Neurology |
| 61. | Ophthalmology |
| 62. | Oncology |
| 63. | Radiology |

- | | |
|--------------------------------|------------------------|
| 46. Herd Health | 64. Outpatient Clinics |
| 47. Ambulatory | 65. Pet Birds |
| 48. Dairy | 66. Exotics |
| 49. Swine | 67. Reproduction |
| 50. Theriogenology - Equine | 68. Gastroenterology |
| 51. Theriogenology Food Animal | 69. Urology |
| 52. Nutrition | 70. Nutrition |
| 53. Radiology | 71. General Surgery |

72. Overall, how would you rate your professional education in preparing you for your present position?

A = Excellent B = Good C = Fair D = Poor

73-77. Rate how well the professional curriculum prepared you for the following areas:

A = Excellent B = Good C = Adequate D = Inadequate E = Not important to me

- | | |
|---------------------------|---|
| 73. Computer Literacy | 76. Awareness of opportunities in research careers |
| 74. Oral Communication | 77. Awareness of opportunities in non-practice careers. |
| 75. Written Communication | |

78-87. Did any of the following have a significant effect on your academic performance while in veterinary college?

(A = Yes; B = No)

- 78. Financial Problems
- 79. Health Problems
- 80. Marital Problems
- 81. Family Problems
- 82. Personal Problems with Other Students
- 83. Personal Problems with Faculty
- 84. Stress and Burnout
- 85. Lack of Personal Time Due to Curriculum
- 86. Drugs
- 87. Alcohol

88-93. Did any of the following College support systems or programs have a positive effect on your academic performance while in veterinary college?

(A = Yes; B = No)

- 88. Deans Office - Student Services
- 89. Departmental Offices

90. Mentors
 91. Tutoring
 92. Scholarships
 93. Support Groups
94. How many interviews did you attend before selecting your first professional position?
 A. 1 B. 2 C. 3 D. 4 E. >4
95. How many job offers did you receive before selecting your first professional position?
 A. 0 B. 1 C. 2 D. 3 E. >3
- 96-97. If you are employed full time in veterinary medicine, please mark your starting annual salary range immediately following graduation. Mark only 96A if you are a part-time employee.
- 96 A. I am a part-time employee
 96 B. < \$ 25,000 97 A. \$32,500 - 34,999
 96 C. \$25,000 - 27,499 97 B. \$35,000 - 37,499
 96 D. \$27,500 - 29,999 97 C. \$37,500 - 40,000
 96 E. \$30,000 - 32,499 97 D. > \$40,000
98. What compensation, other than your salary, did you receive from profit sharing, overtime, bonus plans, etc.
- 98 A. - 0- 98 D. \$5,000 - 7,500
 98 B. 0 - \$2,500 98 E. > \$7,500
 98 C. \$2,500 - 5,000
99. - 110. Which fringe benefits are provided by your employer.
- | | | | |
|------|--------------------------|--------|-------|
| 99. | life insurance | A. yes | B. no |
| 100. | medical/hospital plan | A. yes | B. no |
| 101. | dental plan | A. yes | B. no |
| 102. | pension plan | A. yes | B. no |
| 103. | profit-sharing | A. yes | B. no |
| 104. | disability insurance | A. yes | B. no |
| 105. | liability insurance | A. yes | B. no |
| 106. | association dues | A. yes | B. no |
| 107. | cont. education expenses | A. yes | B. no |
| 108. | annual vacation leave | A. yes | B. no |
| 109. | sick leave | A. yes | B. no |
| 110. | housing/apartment | A. yes | B. no |
- 111-112. Please mark your salary range one year after graduation.
- 111 A. <\$25,000 111 E. \$32,500 - 34,999

- 111 B. \$25,000 - 27,499 112 A. \$35,000 - 37,499
 111 C. \$27,500 - 29,999 112 B. \$37,500 - 40,000
 111 D. \$30,000 - 32,499 112 C. >\$40,000

113. Do you attend continuing education programs at Texas A&M? If you do not attend Texas A&M programs, why do you not attend. Please comment on the comment sheet.

- A. yes B. no

114. Overall, how would you rate your satisfaction with the profession of veterinary medicine?

- A. extremely satisfied
 B. very satisfied
 C. satisfied
 D. somewhat unsatisfied
 E. not satisfied

115-116. What was the total educational debt you acquired for your professional education.

- 115 A. -0- 116 A. \$40,000 - 50,000
 115 B. \$0 - 10,000 116 B. \$50,000 - 60,000
 115 C. \$10,000 - 20,000 116 C. \$60,000 - 70,000
 115 D. \$20,000 - 30,000 116 D. \$70,000 - 80,000
 115 E. \$30,000 - 40,000 116.E > \$80,000

117. Please indicate which track you elected as a 4th year curriculum.

- 117 A. Mixed
 117 B. Small Animal
 117 C. Large Animal
 117 D. Career Alternative

118. How well did the track prepare you for State Board Examinations?

- 118 A. Excellent
 118 B. Good
 118 C. Fair
 118 D. Inadequate

119. How well did this track prepare you for your first job?

- 119 A. Excellent
 119 B. Good
 119 C. Fair
 119 D. Inadequate

Instructor Recognition

Please list three professors who contributed significantly to your veterinary medical education.
(This information will be used in consideration of faculty recognition.)

Clinical Science (year 4)

Basic & Preclinical Sciences (year 1, 2, 3)

**SUPPLEMENTARY QUESTIONS
and Comments Form**

1. What particular continuing education programs would be most useful to you in your current employment?

_____	_____
_____	_____
_____	_____

2. List the numbers of the 3 discipline areas from those numbered 12 through 71 in this questionnaire which you feel were the strongest in the professional curriculum:

1. _____ 2. _____ 3. _____

3. List the numbers of the 3 discipline areas from those numbered 12 through 71 which you feel were the weakest in the professional curriculum:

1. _____ 2. _____ 3. _____

4. Considering your curriculum, what areas of study should be added or increased in availability/depth, etc.?

5. COMMENTS: Please use the remaining space (front & back) to make any other comments you wish to share about your experience and training at Texas A&M University. Your candid comments will be most useful in improving the curriculum and overall professional academic experience.

Address Update

If you know the address of a classmate who has moved within the past year, please fill in the form below and we will bring the class roster up to date. Thanks!

Name

Address

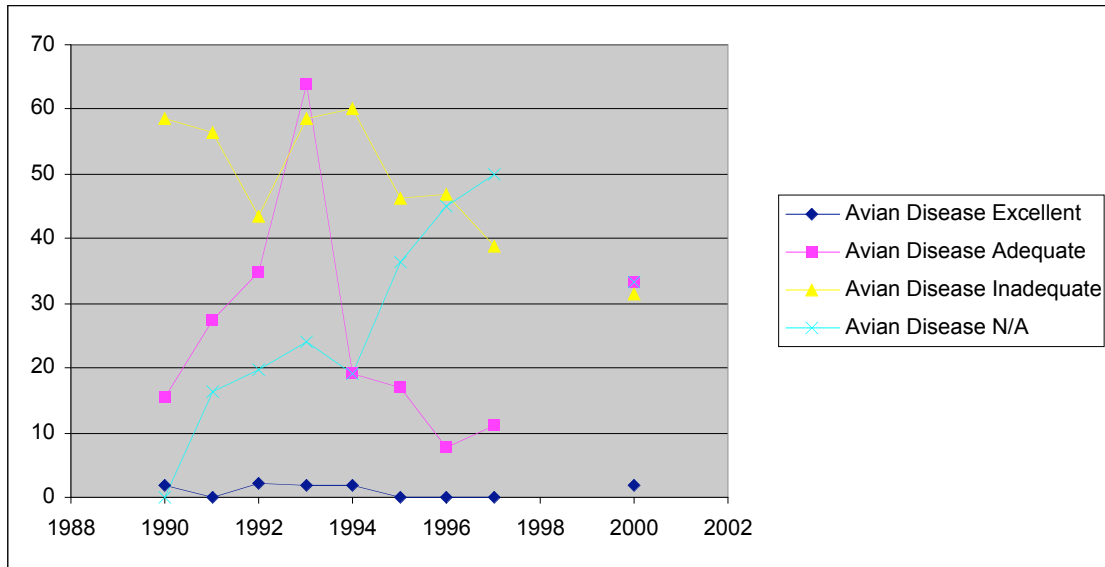
If you would like a copy of the survey results, please list your name, address, and phone number below.

*Reproduction with the permission from the College of Veterinary Medicine.

APPENDIX B

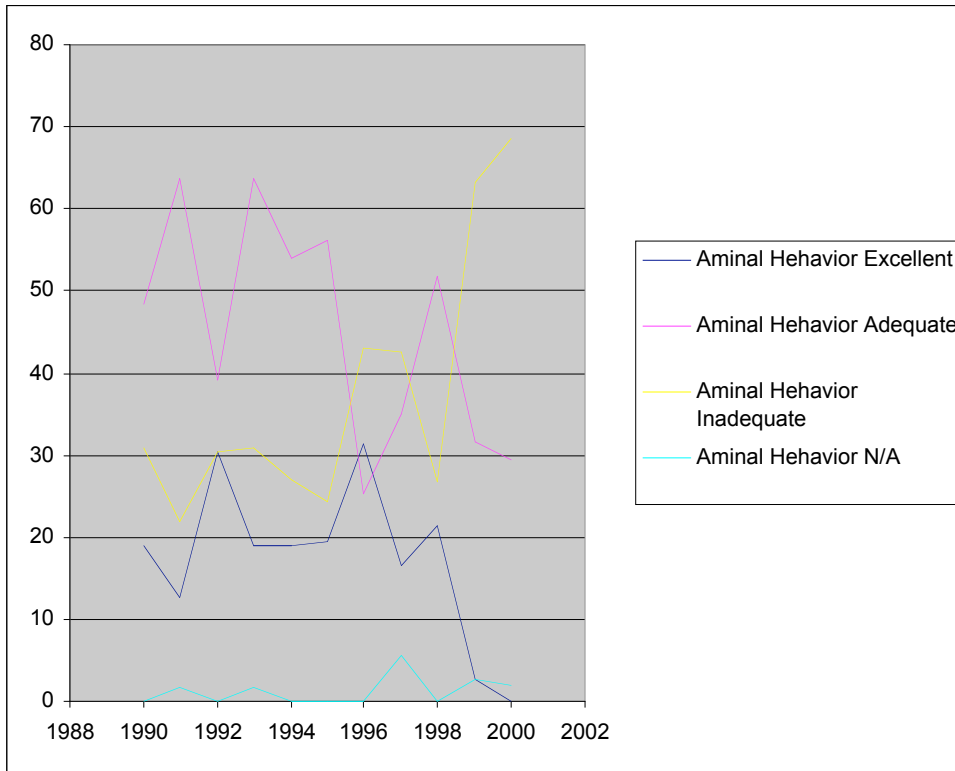
EVALUATION OF EACH DISCIPLINE

These tables include the evaluation of each discipline, the participants selected from these categories “excellent”, “adequate”. “Inadequate” and “no applicable”.



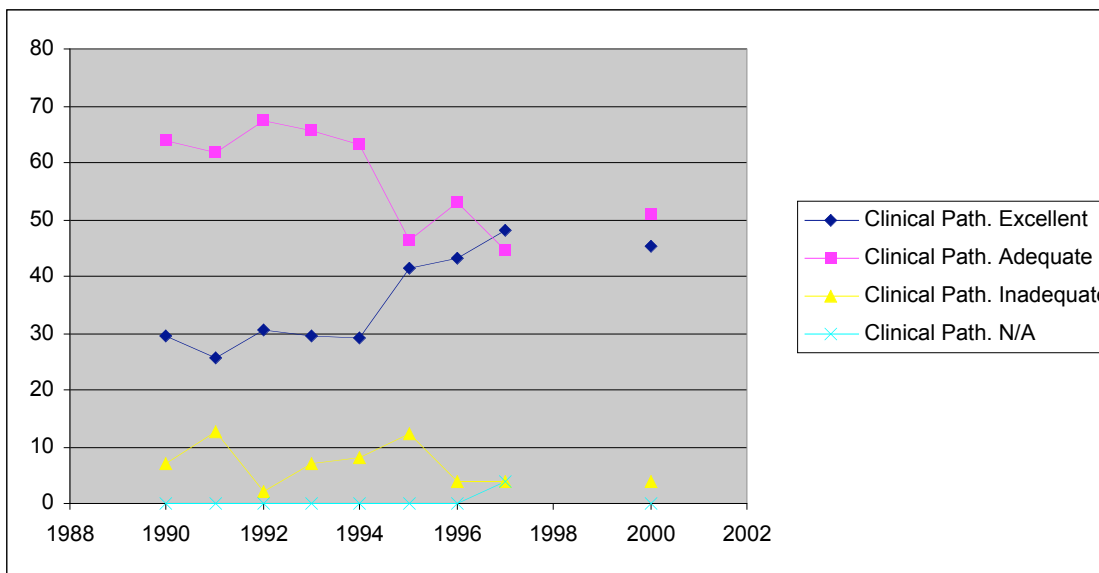
Avian Disease

	Excellent	Adequate	Inadequate	N/A
1990	1.7	15.5	58.6	0
1991	0	27.3	56.4	16.4
1992	2.2	34.8	43.5	19.6
1993	1.7	63.8	58.6	24.1
1994	2	19	60	19
1995	0	17	46.3	36.5
1996	0	7.8	47	45.1
1997	0	11.1	38.8	50
1998	0	0	0	0
1999	0	0	0	0
2000	2	33.3	31.4	33.3



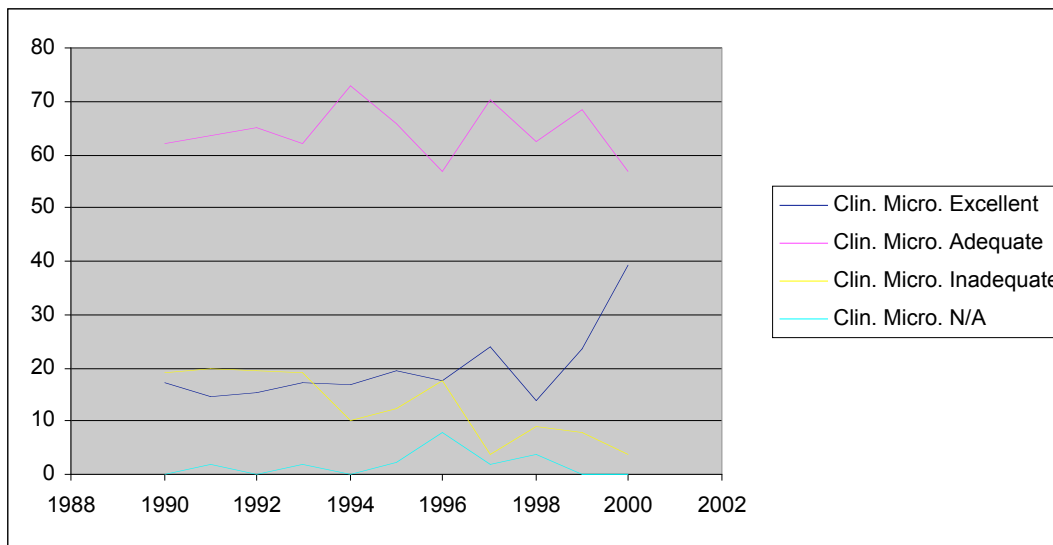
Animal Behavior

	Excellent	Adequate	Inadequate	N/A
1990	19	48.3	31	0
1991	12.7	63.6	21.8	1.8
1992	30.4	39.1	30.4	0
1993	19	63.8	31	1.7
1994	19	54	27	0
1995	19.5	56.1	24.3	0
1996	31.3	25.4	43.1	0
1997	16.6	35.1	42.5	5.5
1998	21.4	51.8	26.8	0
1999	2.6	31.6	63.2	2.6
2000	0	29.4	68.6	2



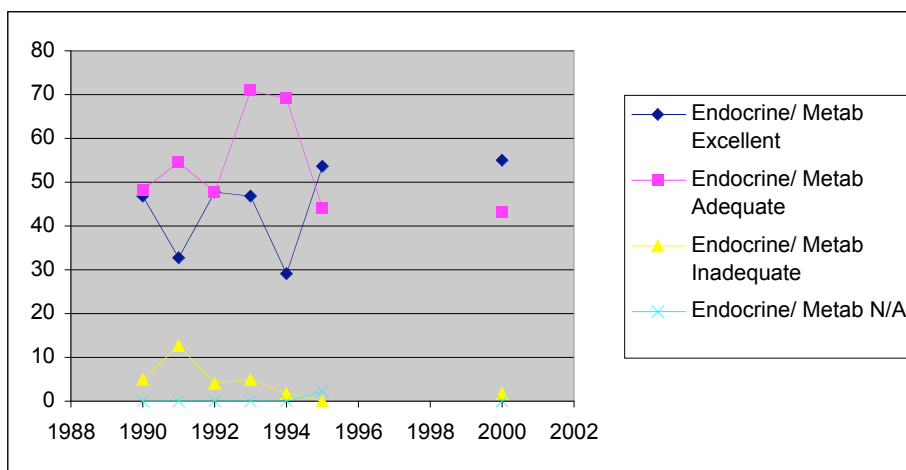
Clinical Path.

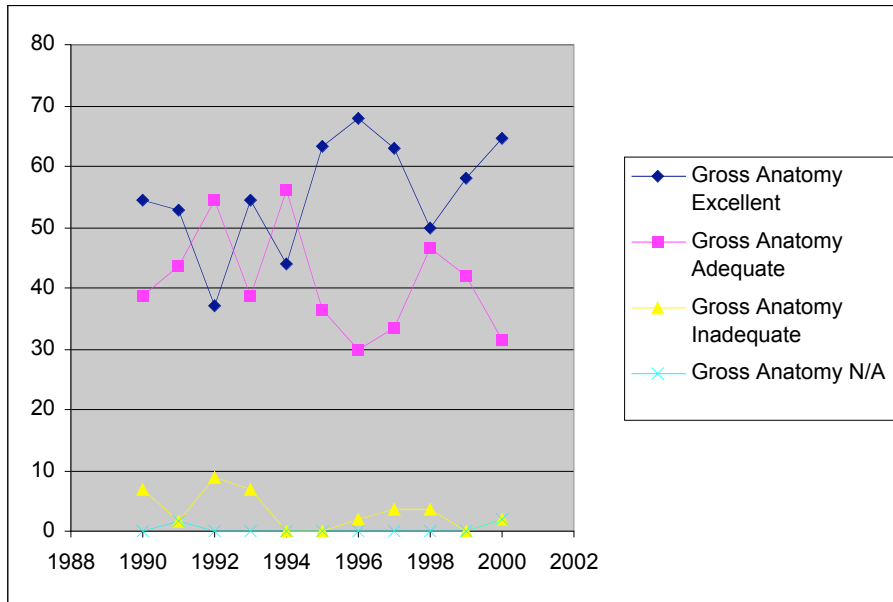
	Excellent	Adequate	Inadequate	N/A
1990	29.3	63.8	6.9	0
1991	25.5	61.8	12.7	0
1992	30.4	67.4	2.2	0
1993	29.3	65.5	6.9	0
1994	29	63	8	0
1995	41.47	46.3	12.2	0
1996	43.1	52.9	3.9	0
1997	48.1	44.4	3.7	3.7
1998				
1999				
2000	45.1	51	3.9	0



Clinical Microbiology.

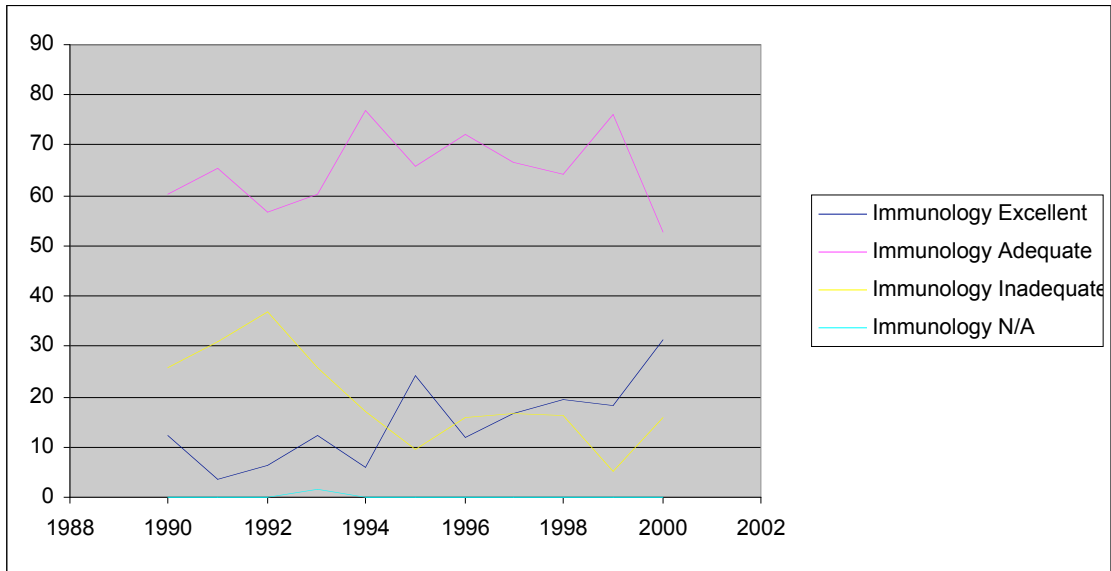
	Excellent	Adequate	Inadequate	N/A
1990	17.2	62.1	19	0
1991	14.5	63.6	20	1.8
1992	15.2	65.2	19.6	0
1993	17.2	62	19	1.7
1994	17	73	10	0
1995	19.5	65.8	12.2	2.4
1996	17.6	56.8	17.56	7.8
1997	24	70.3	3.7	1.8
1998	14	62.5	8.9	3.6
1999	23.7	68.4	7.9	0
2000	39.2	56.9	3.9	0





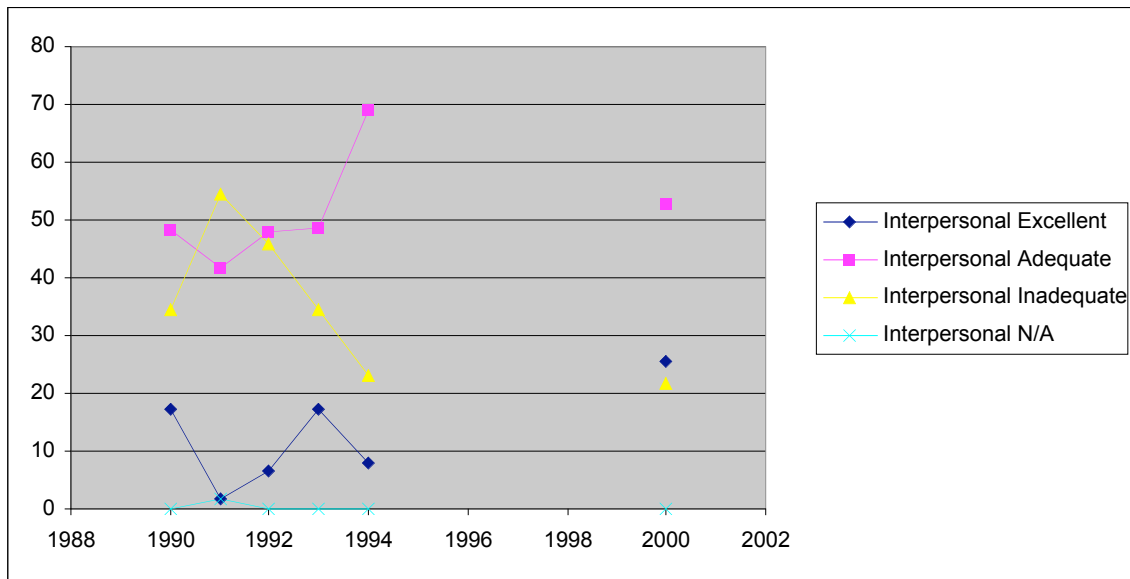
Gross Anatomy

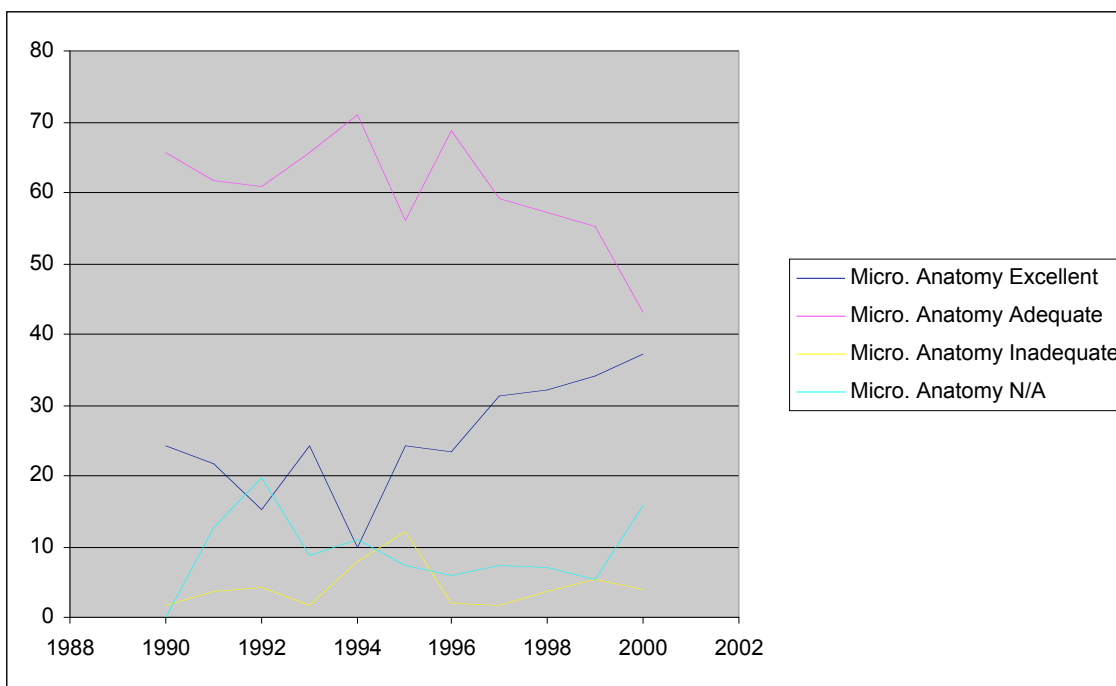
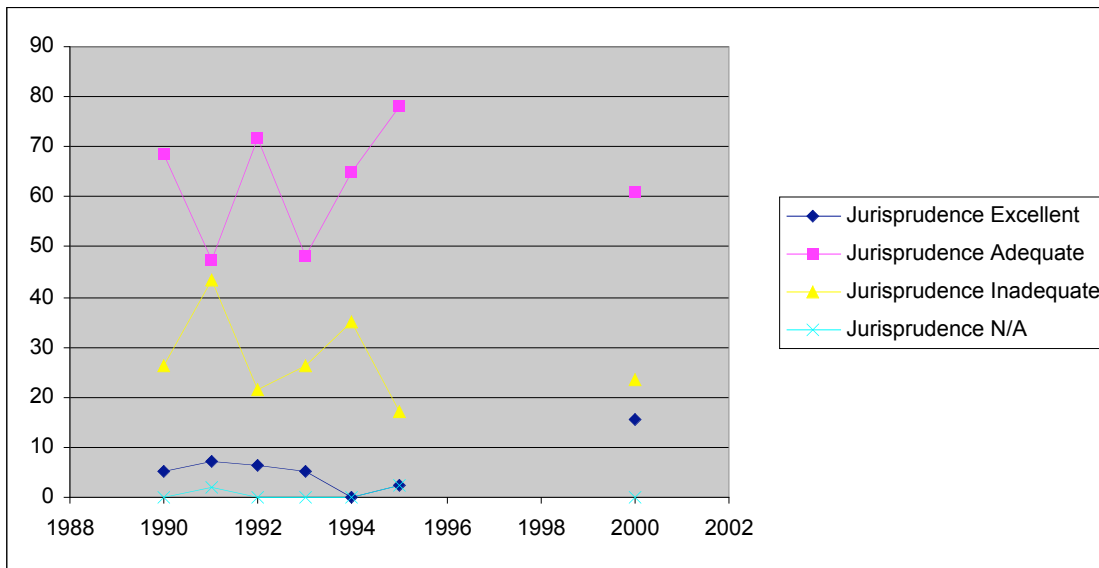
	Excellent	Adequate	Inadequate	N/A
1990	54.4	38.6	7	0
1991	52.7	43.6	1.8	1.8
1992	37	54.3	8.7	0
1993	54.4	38.6	7	0
1994	44	56	0	0
1995	63.4	36.5	0	0
1996	68	30	2	0
1997	62.9	33.3	3.7	0
1998	50	46.4	3.6	0
1999	57.9	42.1	0	0
2000	64.7	31.4	2	2



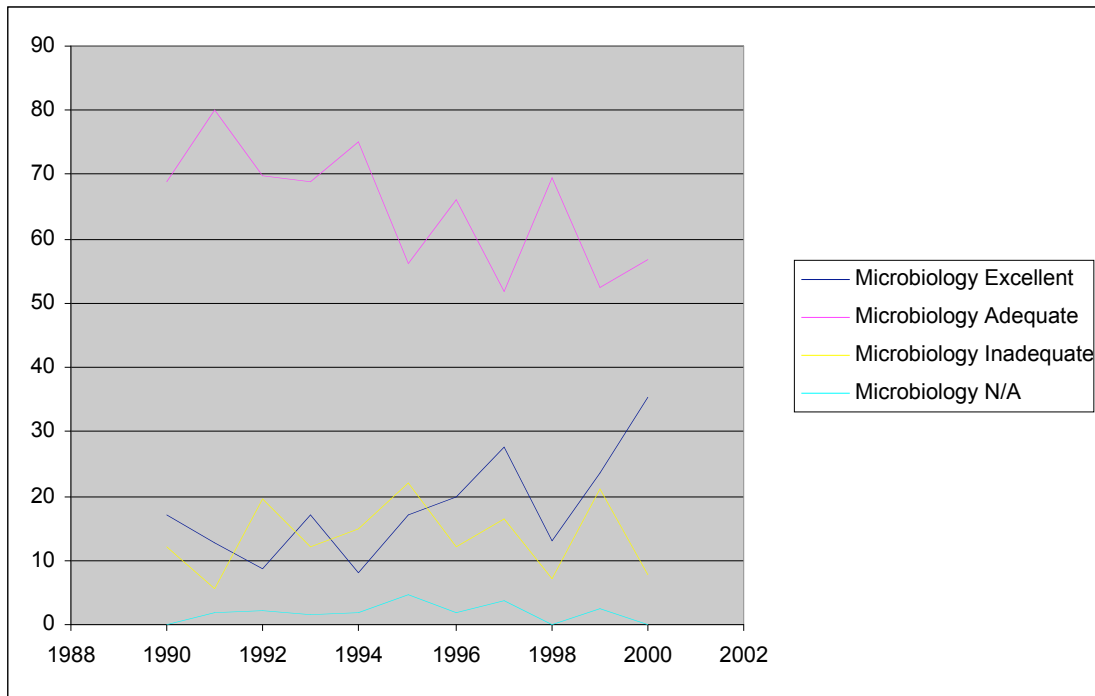
Immunology

	Excellent	Adequate	Inadequate	N/A
1990	12.1	60.3	25.9	0
1991	3.6	65.5	30.9	0
1992	6.5	56.5	37	0
1993	12.1	60.3	25.9	1.7
1994	6	77	17	0
1995	24.3	65.8	9.7	0
1996	12	72	16	0
1997	16.6	66.6	16.6	0
1998	19.6	64.3	16.1	0
1999	18.4	76.3	5.3	0
2000	31.4	52.9	15.7	0





Micro. Anatomy				
	Excellent	Adequate	Inadequate	N/A
1990	24.1	65.5	1.7	0
1991	21.8	61.8	3.6	12.7
1992	15.2	60.9	4.3	19.6
1993	24.1	65.5	1.7	8.6
1994	10	71	8	11
1995	24.3	56.1	12.2	7.3
1996	23.5	68.6	1.9	5.8
1997	31.4	59.2	1.8	7.4
1998	32.1	57.1	3.6	7.1
1999	34.2	55.3	5.3	5.3
2000	37.3	43.1	3.9	15.7

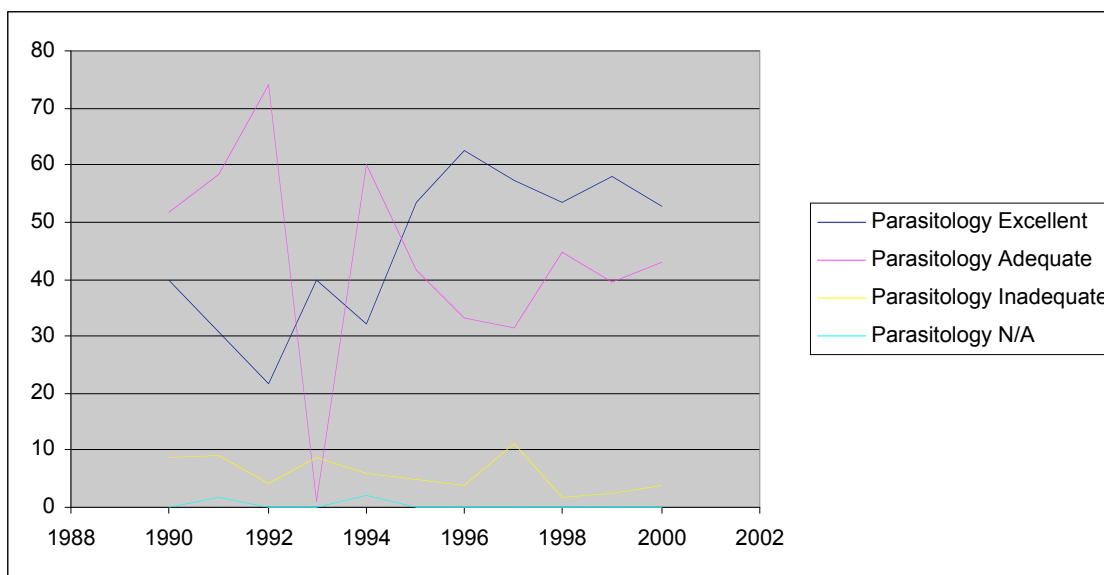


Microbiology				
	Excellent	Adequate	Inadequate	N/A
1990	17.2	69	12.1	0
1991	12.7	80	5.5	1.8
1992	8.7	69.9	19.6	2.2
1993	17.2	69	12.1	1.7

1994	8	75	15	2
1995	17	56.1	21.9	4.8
1996	20	66	12	2
1997	27.7	51.8	16.6	3.7
1998	13	69.6	7.1	0
1999	23.7	52.6	21.1	2.6
2000	35.3	56.9	7.8	0

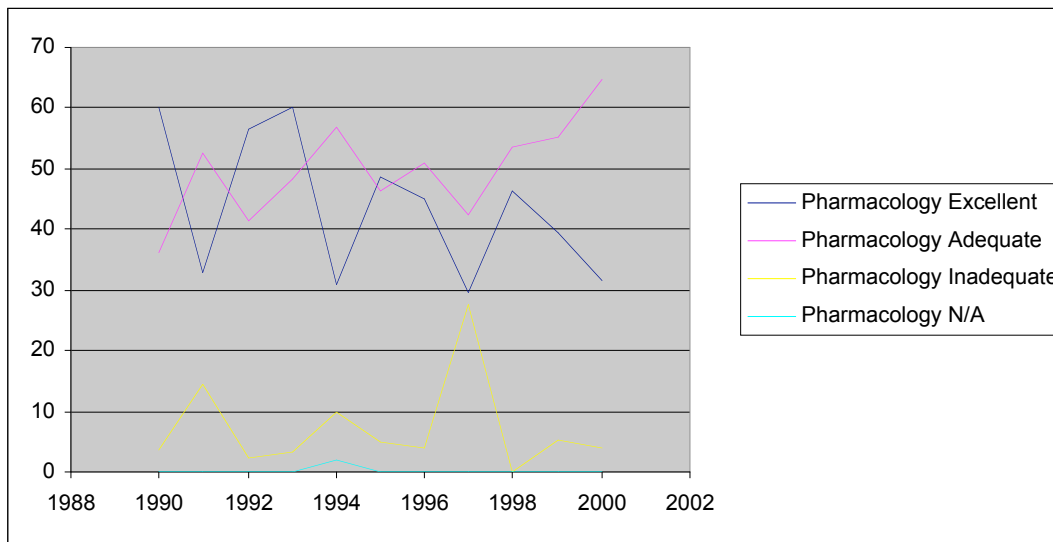
Neuroanatomy

	Excellent	Adequate	Inadequate	N/A
1990	25.9	60.3	12.1	0
1991	10.9	65.5	14.5	9.1
1992	8.7	80.4	10.9	0
1993	25.9	60.3	12.1	1.7
1994	13	73	10	4
1995	26.8	60.9	12.2	0
1996	23.5	62.7	7.8	5.8
1997	14.8	57.4	22.2	5.5
1998	17.9	55.4	23.2	3.6
1999	23.7	52.6	21.1	2.6
2000	11.8	52.9	33.3	2



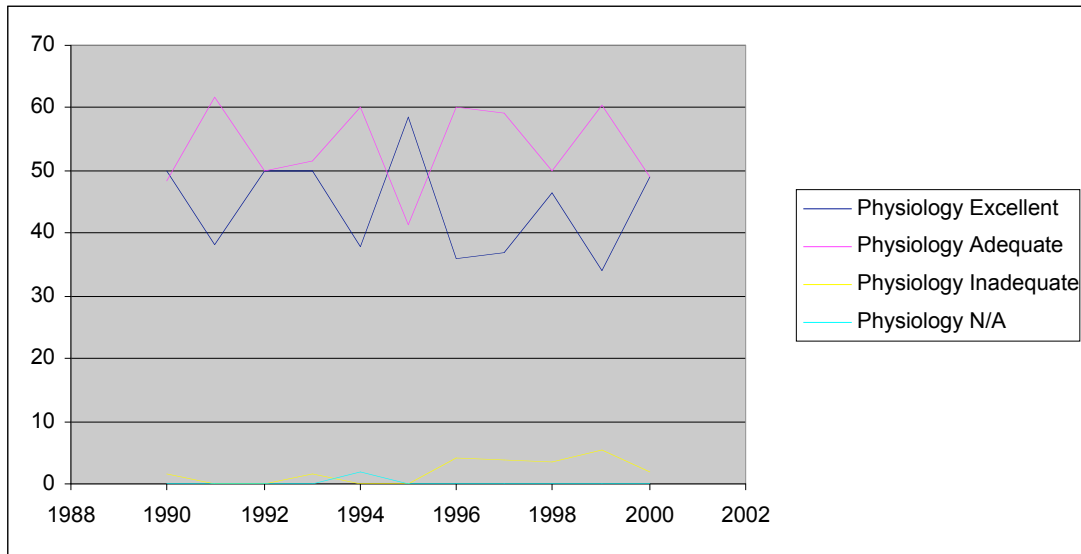
Parasitology

	Excellent	Adequate	Inadequate	N/A
1990	39.7	51.7	8.6	0
1991	30.9	58.2	9.1	1.8
1992	21.7	73.9	4.3	0
1993	39.7	1	8.6	0
1994	32	60	6	2
1995	53.6	41.4	4.8	0
1996	62.7	33.3	3.9	0
1997	57.4	31.4	11.1	0
1998	53.6	44.6	1.8	0
1999	57.9	39.5	2.6	0
2000	52.9	43.1	3.9	0



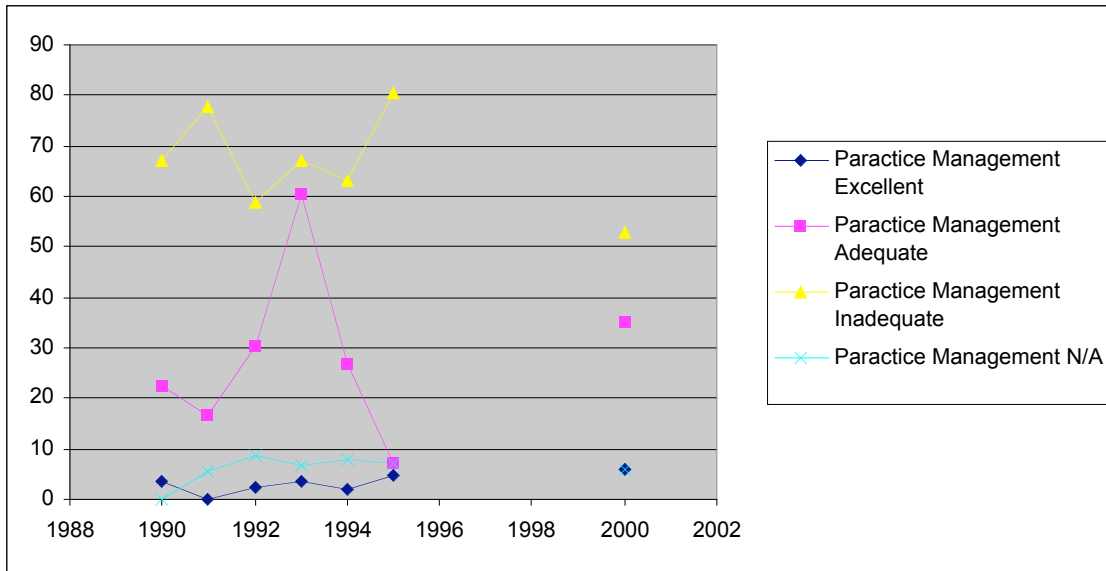
Pharmacology

	Excellent	Adequate	Inadequate	N/A
1990	60.3	36.2	3.47	0
1991	32.7	52.7	14.5	0
1992	56.5	41.3	2.2	0
1993	60.3	48.3	3.4	0
1994	31	57	10	2
1995	48.7	46.3	4.8	0
1996	45.1	50.9	3.9	0
1997	29.6	42.5	27.7	0
1998	46.4	53.6	0	0
1999	39.5	55.3	5.3	0
2000	31.4	64.7	3.9	0



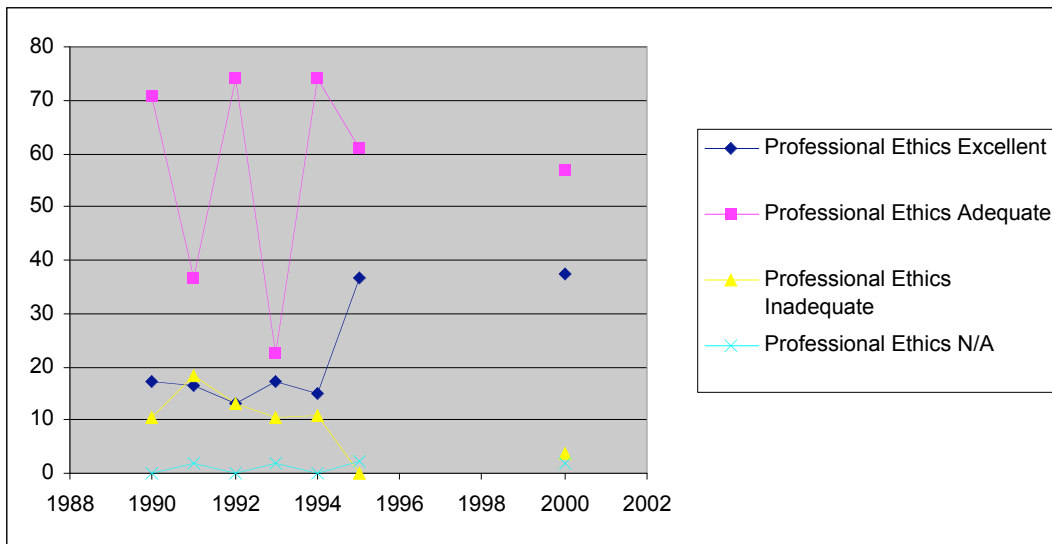
Physiology

	Excellent	Adequate	Inadequate	N/A
1990	50	48.3	1.7	0
1991	38.2	61.8	0	0
1992	50	50	0	0
1993	50	51.7	1.7	0
1994	38	60	0	2
1995	58.5	41.4	0	0
1996	36	60	4	0
1997	37	59.2	3.7	0
1998	46.4	50	3.6	0
1999	34.2	60.5	5.3	0
2000	49	49	2	0



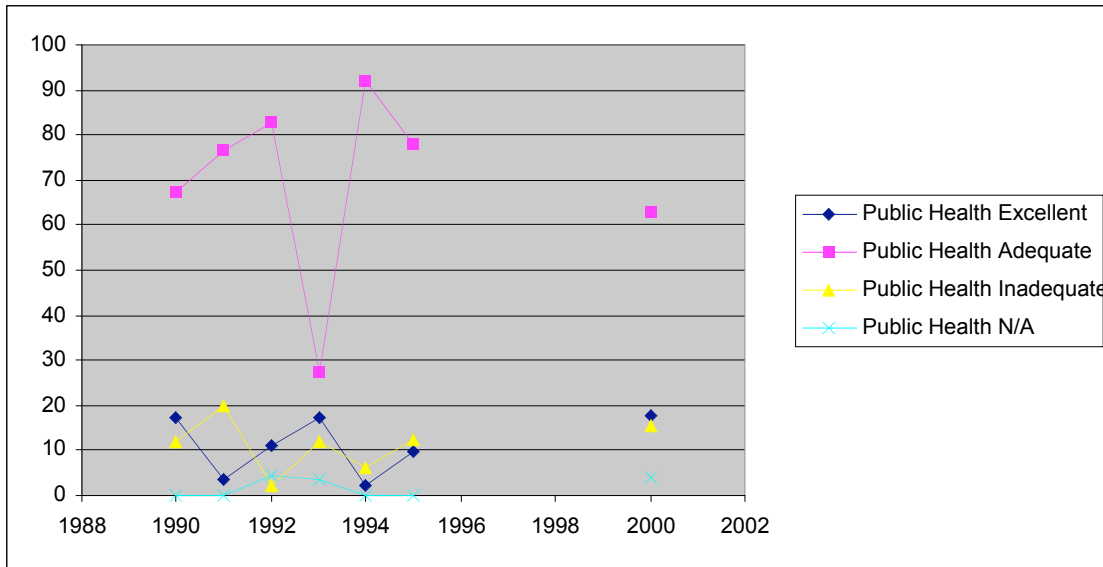
Practice Management

	Excellent	Adequate	Inadequate	N/A
1990	3.4	22.4	67.2	0
1991	0	16.7	77.8	5.6
1992	2.2	30.4	58.7	8.7
1993	3.4	60.3	67.2	6.9
1994	2	27	63	8
1995	4.8	7.3	80.4	7.3
1996				
1997				
1998				
1999				
2000	5.9	35.3	52.9	5.9



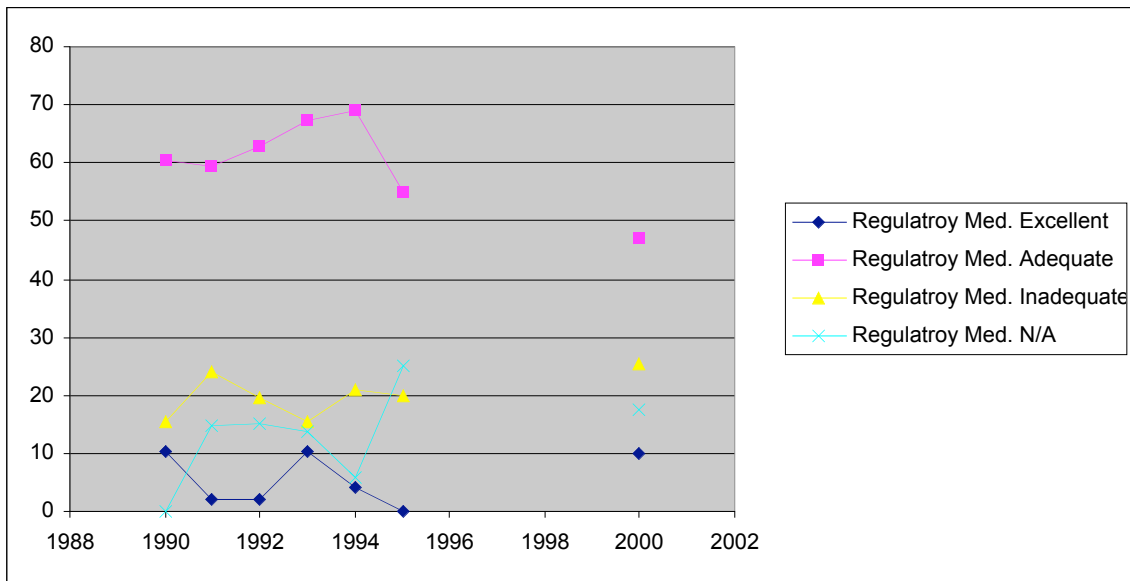
Professional ethics

	Excellent	Adequate	Inadequate	N/A
1990	17.2	70.7	10.3	0
1991	16.4	36.6	18.2	1.8
1992	13	73.9	13	0
1993	17.2	22.4	10.3	1.7
1994	15	74	11	0
1995	36.5	60.9	0	2.4
1996				
1997				
1998				
1999				
2000	37.3	56.9	3.9	2



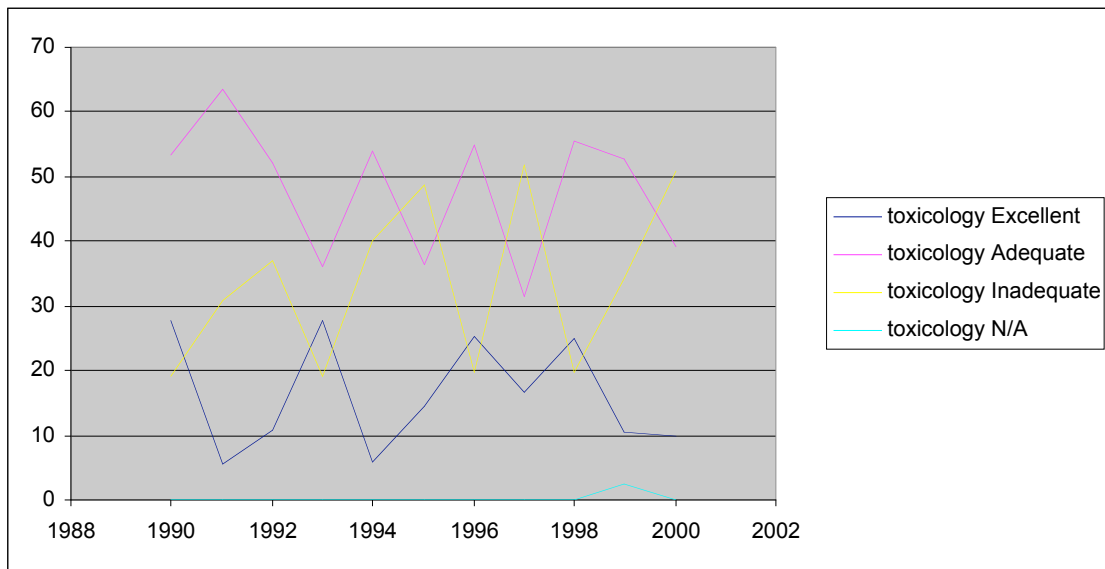
Public Health

	Excellent	Adequate	Inadequate	N/A
1990	17.2	67.2	12.1	0
1991	3.6	76.4	20	0
1992	10.9	82.6	2.2	4.3
1993	17.2	27.6	12.1	3.4
1994	2	92	6	0
1995	9.7	78	12.2	0
1996				
1997				
1998				
1999				
2000	17.6	62.7	15.7	3.9



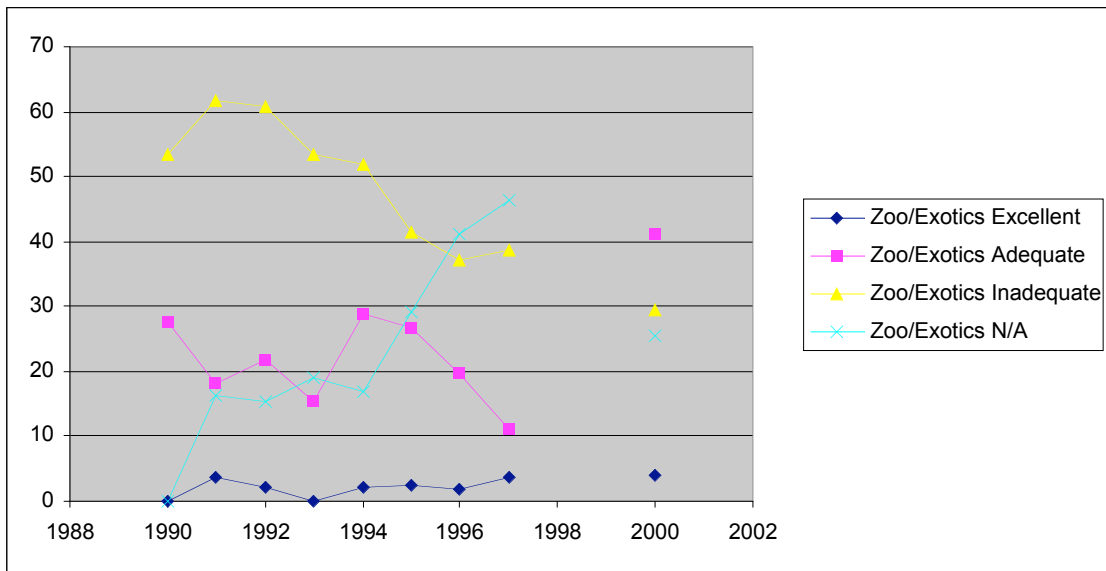
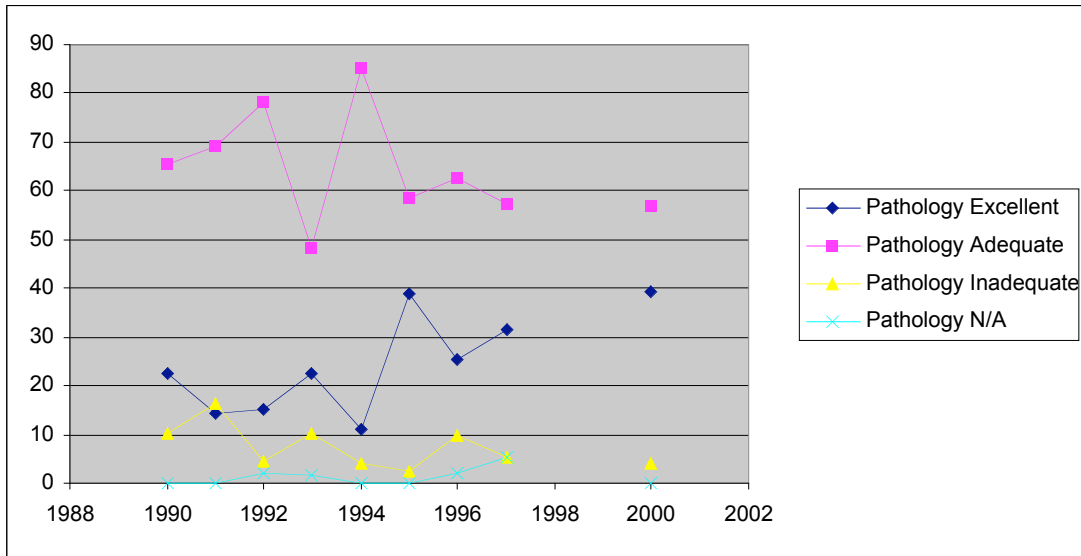
Regulatory Med.

	Excellent	Adequate	Inadequate	N/A
1990	10.3	60.3	15.5	0
1991	1.9	59.3	24.1	14.8
1992	2.2	63	19.6	15.2
1993	10.3	67.2	15.5	13.8
1994	4	69	21	6
1995	0	55	20	25
1996				
1997				
1998				
1999				
2000	9.8	47.1	25.5	17.6



Toxicology

Excellent	Adequate	Inadequate	N/A
27.6	53.4	19	0
5.5	63.6	30.9	0
10.9	52.2	37	0
27.6	36.2	19	0
6	54	40	0
14.6	36.5	48.7	0
25.4	54.9	19.6	0
16.6	31.4	51.8	0
25	55.4	19.6	0
10.5	52.6	34.2	2.6
9.8	39.2	51	0



Zoo/Exotics

	Excellent	Adequate	Inadequate	N/A
1990	0	27.6	53.4	0
1991	3.6	18.2	61.8	16.4
1992	2.2	21.7	60.9	15.2
1993	0	15.5	53.4	19
1994	2	29	52	17
1995	2.4	26.8	41.4	29.2
1996	1.9	19.6	37.2	41.1
1997	3.7	11.1	38.8	46.3

1998				
1999				
2000	3.9	41.2	29.4	25.5

1990

Large Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	7.3	20	29.1	43.6
Equine Surgery	10.9	29.1	18.2	14.8
Anesthesiology	27.3	30.9	3.6	38.2
Equine Medicine	20	30.9	9.1	40
Food Animal Medicine	12.7	25.5	18.2	43.6
Neurology	3.6	40	16.4	40
Ophthalmology	1.8	30.9	27.3	40
Oncology	7.3	30.9	21.8	40
Dermatology	1.8	34.5	23.6	40
Cardiology	9.1	38.2	12.7	40
Herd Health	3.6	32.7	23.6	40
Ambulatory	20	27.3	12.7	40
Dairy	1.8	27.3	20	50.9
Swine	0	16.4	34.5	49.1
Theriogenology	29.1	29.1	3.6	38.2
Nutrition	5.5	29.1	29.1	36.4
Radiology	20	32.7	10.9	36.4

1991**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	0	13	40.7	46.3
Equine Surgery	0	20.4	33.3	46.3
Anesthesiology	33.3	25.9	3.7	37
Equine Medicine	5.6	46.3	7.4	40.7
Food Animal Medicine	1.9	27.8	29.6	40.7
Neurology	5.6	35.2	18.5	40.7
Ophthalmology	7.4	31.5	22.2	38.9
Oncology	9.3	37	13	40.7
Dermatology	3.7	31.5	27.8	37
Cardiology	0	33.3	24.1	42.6
Herd Health	1.9	20.4	35.2	42.6
Ambulatory	20.4	24.1	11.1	44.4
Dairy	1.9	29.6	20.4	48.1
Swine	0	9.3	46.3	44.4
Theriogenology	18.5	35.2	7.4	38.9
Nutrition	0	21.8	40	38.2
Radiology	25.9	31.5	3.7	38.9

1992**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	2.3	16.3	18.6	62.8
Equine Surgery	4.7	20.9	16.3	58.1
Anesthesiology	27.9	23.3	2.3	46.5
Equine Medicine	7.1	35.7	2.4	54.8
Food Animal Medicine	2.3	27.9	11.6	58.1
Neurology	4.7	30.2	16.3	48.8
Ophthalmology	7.1	31	14.3	47.6
Oncology	9.5	21.4	14.3	54.8
Dermatology	7.1	28.6	11.9	52.4
Cardiology	2.4	38.1	7.1	52.4
Herd Health	2.4	26.6	14.3	57.1
Ambulatory	14.3	26.2	4.8	54.8
Dairy	2.4	26.2	7.1	64.3
Swine	0	19	16.7	64.3
Theriogenology	14.3	28.6	2.4	54.3
Nutrition	2.4	28.6	19	50
Radiology	16.7	33.3	2.4	47.6

1993**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	7.3	20	29.1	43.6
Equine Surgery	10.9	29.1	18.2	41.8
Anesthesiology	27.3	30.9	3.6	38.2
Equine Medicine	20	30.9	9.1	40
Food Animal Medicine	12.7	25.5	18.2	43.6
Neurology	3.6	40	16.4	40
Ophthalmology	1.8	30.9	27.3	40
Oncology	7.3	30.9	21.8	40
Dermatology	1.8	34.5	23.6	40
Cardiology	9.1	38.2	12.7	40
Herd Health	3.6	32.7	23.6	40
Ambulatory	20	27.3	12.7	40
Dairy	1.8	27.3	20	50.9
Swine	0	16.4	34.5	49.1
Theriogenology	29.1	29.1	3.6	38.2
Nutrition	5.5	29.1	29.1	36.4
Radiology	20	32.7	10.9	36.4

1994**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	4	32	24	40
Equine Surgery	4	40	18	38
Anesthesiology	24	42	0	34
Equine Medicine	20	40	6	34
Food Animal Medicine	12	34	16	38
Neurology	4	48	12	36
Ophthalmology	2	47	14	37
Oncology	2	48	12	38
Dermatology	4	44	16	36
Cardiology	2	40	22	36
Herd Health	8	40	14	38
Ambulatory	40	26	0	34
Dairy	0	34	24	42
Swine	0	16	42	42
Theriogenology	20	32	14	44
Nutrition	16	26	30	34
Radiology	2	34	4	32

1995**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	7.5	12.5	7.5	72.5
Equine Surgery	25.6	35.9	7.6	30.7
Anesthesiology	7.5	17.5	2.5	72.5
Equine Medicine	12.5	10	7.5	70
Food Animal Medicine	5	7.5	12.5	75
Neurology	2.5	20	7.5	70
Ophthalmology	5	17.5	7.5	70
Oncology	0	12.5	15	72.5
Dermatology	5	15	10	70
Cardiology	0	12.5	17.5	70
Herd Health	4.8	14.6	9.7	70.7
Ambulatory	17.5	10	5	67.5
Dairy	0	7.5	10	82.5
Swine	0	2.5	12.5	85
Theriogenology	22.5	17.5	2.5	77.5
Nutrition	0	12.5	17.5	70
Radiology	15	12.5	2.5	70

1996**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	9.8	23.5	11.7	54.9
Equine Surgery	16	22	14	48
Anesthesiology	19.6	31.3	0	49
Equine Medicine	23.5	27.4	3.9	45.1
Food Animal Medicine	13.7	21.5	13.7	50.9
Neurology	3.9	37.2	7.8	50.9
Ophthalmology	9.8	23.5	17.6	49
Oncology	12.5	28.5	14.2	44.6
Dermatology	1.9	27.4	21.5	49
Cardiology	1.9	23.5	23.5	50.9
Herd Health	3.9	25.4	15.6	54.9
Ambulatory	33.3	17.6	1.9	47
Dairy	0	18	18	64
Swine	0	13.7	25.4	60.7
Theriogenology	31.8	25.6	15.7	56.8
Nutrition	3.9	29.4	19.6	47
Radiology	23.5	19.6	3.9	52.9

1997**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	5.5	9.2	27.7	57.4
Equine Surgery	14.8	18.5	14.8	51.8
Anesthesiology	20.7	22.6	3.7	52.8
Equine Medicine	20.3	25.9	3.7	50
Food Animal Medicine	9.2	12.9	18.5	59.2
Neurology	5.5	25.9	12.9	55.5
Ophthalmology	9.2	24	12.9	53.7
Oncology	5.5	9.2	31.4	53.7
Dermatology	5.5	16.6	25.9	51.8
Cardiology	1.8	12.9	31.4	53.7
Herd Health	9.2	24	14.8	51.8
Ambulatory	25.9	18.5	3.7	51.8
Dairy	5.5	5.5	18.5	70.3
Swine	1.8	3.7	24	70.3
Theriogenology	21.4	17.8	16.3	58.4
Nutrition	3.7	22.6	20.7	52.8
Radiology	28.3	15	1.8	54.7

1998**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	5.4	16.1	3.6	75
Equine Surgery	7.1	19.6	1.8	71.4
Anesthesiology	10.7	17.9	0	66.1
Equine Medicine	16.1	17.9	0	66.1
Food Animal Medicine	5	14.5	3.6	72.7
Neurology	5.5	20	5.5	69.1
Ophthalmology	7.3	16.4	7.3	69.1
Oncology	1.8	20	9.1	67.9
Dermatology	1.8	17.9	12.5	67.9
Cardiology	0	16.1	14.3	69.6
Herd Health	3.6	17.9	5.4	73.2
Ambulatory	14.5	14.5	5.4	71.4
Dairy	0	14.5	0	80
Swine	3.6	10.7	10.7	75
Theriogenology	26.8	17.8	16.3	75
Nutrition	5.4	16.1	8.9	69.6
Radiology	10.7	17.9	3.6	67.9

1999**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	10.5	18.4	28.9	63.16
Equine Surgery	15.8	18.4	7.9	57.9
Anesthesiology	10.5	26.3	5.3	57.9
Equine Medicine	21.1	18.4	2.6	57.9
Food Animal Medicine	5.3	26.3	5.3	63.16
Neurology	13.2	26.3	57.9	2.6
Ophthalmology	13.2	23.7	5.3	57.9
Oncology	2.6	13.2	23.7	62.2
Dermatology	2.6	23.7	15.8	57.9
Cardiology	0	21.1	18.4	62.2
Herd Health	2.6	31.6	10.5	55.2
Ambulatory	13.2	26.3	2.6	57.9
Dairy	5.3	21.1	7.9	65.78
Swine	0	7.9	28.9	63.16
Theriogenology	31.6	31.6	26.3	65.78
Nutrition	5.3	15.8	7.9	62.2
Radiology	18.4	21.1	0	62.2

2000
Large Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	6.3	20.8	8.3	64.6
Equine Surgery	8.3	20.8	6.3	64.6
Anesthesiology	29.2	14.6	0	56.3
Equine Medicine	19.1	17	0	63.8
Food Animal Medicine	10.6	23.4	4.3	65.1
Neurology	4.3	29.8	8.5	57.4
Ophthalmology	10.6	25.5	8.5	55.3
Oncology	4.3	32.6	0	63
Dermatology	6.4	31.9	4.3	57.4
Cardiology	4.3	28.3	6.5	60.9
Herd Health	8.5	19.1	8.5	63.8
Ambulatory	14.9	19.1	6.4	59.6
Dairy	2.1	14.9	12.8	70.2
Swine	0	14.9	19.1	66
Theriogenology	12.8	12.8	10.6	63.8
Nutrition	6.4	21.3	14.9	57.4
Radiology	17	21.3	4.3	57.4

2001**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	7.32	26.83	7.32	58.54
Equine Surgery	19.51	24.39	0	56.09
Anesthesiology	36.59	14.63	0	48.78
Equine Medicine	29.27	17.07	0	53.66
Food Animal Medicine	26.83	17.07	0	56.09
Neurology	9.76	26.83	7.32	56.09
Ophthalmology	9.76	26.83	12.2	51.22
Oncology	9.76	26.83	9.76	53.66
Dermatology	14.63	26.83	2.44	56.09
Cardiology	12.2	14.63	17.07	56.09
Herd Health	7.32	17.07	7.32	68.29
Ambulatory	24.39	9.76	7.32	58.54
Dairy	0	12.2	7.32	80.49
Swine	0	4.88	24.39	70.73
Theriogenology	12	17.07	9.76	60.98
Nutrition	2.44	21.95	14.63	60.98
Radiology	19.51	29.27	2.44	48.78

2002**Large Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Food Animal Surgery	5	21	14	60
Equine Surgery	10	23	10	57
Anesthesiology	31	35	0	35
Equine Medicine	26	19	1	54
Food Animal Medicine	15	22	4	59
Neurology	14	43	6	37
Ophthalmology	14	30	20	37
Oncology	15	35	11	40
Dermatology	25	27	12	36
Cardiology	11	38	12	38
Herd Health	11	19	15	56
Ambulatory	20	23	1	56
Dairy	1	15	10	74
Swine	1	4	23	72
Theriogenology	16	23	2	58
Nutrition	6	33	22	38
Radiology	26	37	2	35

1990				
Small Animal Clinics				
Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	2.76	58.6	8.6	43.6
Orthopedic Surgery	24.1	39.7	32.8	14.8
Anesthesiology	56.9	39.7	0	38.2
Internal Medicine	51.7	41.4	3.4	40
Cardiology	24.6	66.7	5.3	43.6
Dermatology	28.1	47.4	21.1	40
Neurology	30.4	57.1	7.1	40
Ophthalmology	14	43.9	36.8	40
Oncology	45.6	38.6	12.3	40
Radiology	35.1	45.6	15.8	40
Outpatient	24.6	63.2	8.8	40
Pet Birds	0	17.5	59.6	40
Exotics	0	15.8	59.6	50.9
Reproduction	7	52.6	36.8	49.1
Gastroenterology	52.6	40.4	3.5	38.2
Urology	26.3	61.4	8.8	36.4
Nutrition	3.5	59.6	33.3	36.4
General Surgery	35.1	56.1	5.3	0

1991
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	20	60	18.2	46.3
Orthopedic Surgery	14.5	50.9	30.9	46.3
Anesthesiology	69.1	29.1	1.8	37
Internal Medicine	40	58.2	1.8	40.7
Cardiology	29.1	54.5	16.4	40.7
Dermatology	36.4	32.7	27.3	40.7
Neurology	23.6	60	16.4	38.9
Ophthalmology	18.2	47.3	7.3	40.7
Oncology	45.5	41.8	7.3	37
Radiology	50.9	67.3	7.3	42.6
Outpatient	25.5	16.4	70.9	42.6
Pet Birds	0	10.9	67.3	44.4
Exotics	3.6	47.3	36.4	48.1
Reproduction	16.4	43.6	3.6	44.4
Gastroenterology	52.7	65.5	5.5	38.9
Urology	29.1	45.5	47.3	38.2
Nutrition	7.3	54.5	1.8	38.9
General Surgery	N/A	N/A	N/A	N/A

1992
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	17.4	60.9	21.7	0
Orthopedic Surgery	8.7	56.5	32.6	2.2
Anesthesiology	60.9	39.1	0	0
Internal Medicine	47.8	47.8	4.3	0
Cardiology	23.9	60.9	15.2	0
Dermatology	15.2	63	21.7	0
Neurology	23.9	67.4	8.7	0
Ophthalmology	10.9	50	39.1	0
Oncology	43.5	47.8	6.5	2.2
Radiology	34.8	56.5	6.5	2.2
Outpatient	37	56.5	6.5	0
Pet Birds	0	19.6	13	15.2
Exotics	2.2	19.6	65.2	3
Reproduction	6.5	67.4	23.9	2.2
Gastroenterology	50	47.8	2.2	0
Urology	30.4	67.4	2.2	0
Nutrition	4.3	69.6	23.9	2.2
General Surgery	32.6	47.8	17.4	2.2

1993
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	27.6	58.6	8.6	5.2
Orthopedic Surgery	24.1	39.7	32.8	3.4
Anesthesiology	56.9	39.7	0	3.4
Internal Medicine	51.7	41.4	3.4	3.4
Cardiology	24.6	66.7	5.3	3.5
Dermatology	28.1	47.4	21.1	3.5
Neurology	30.4	57.1	7.1	5.4
Ophthalmology	14	43.9	36.8	5.3
Oncology	45.6	38.6	12.3	3.5
Radiology	35.1	45.6	15.8	3.5
Outpatient	24.6	63.2	8.8	3.5
Pet Birds	0	17.5	59.6	22.8
Exotics	0	15.78	59.6	24.6
Reproduction	7	52.6	36.8	3.5
Gastroenterology	52.6	40.4	3.5	3.5
Urology	26.3	61.4	8.8	3.5
Nutrition	35.1	59.6	33.3	3.5
General Surgery	35.1	56.1	5.3	3.5

1994
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	16	61	19	4
Orthopedic Surgery	8	56	32	4
Anesthesiology	47	51	0	2
Internal Medicine	55	43	2	0
Cardiology	26	64	8	2
Dermatology	34	56	8	2
Neurology	20	66	10	4
Ophthalmology	8	62	28	2
Oncology	39	51	6	4
Radiology	27	70	3	0
Outpatient	50	42	8	0
Pet Birds	2	18	59	21
Exotics	0	37	38	25
Reproduction	2	65	33	0
Gastroenterology	37	63	0	0
Urology	25	69	6	0
Nutrition	2	65	33	0
General Surgery	46	42	12	0

1995
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	40	47.5	12.5	0
Orthopedic Surgery	12.5	50	35	2.5
Anesthesiology	60	37.5	0	2.5
Internal Medicine	70	27.5	2.5	0
Cardiology	0	0	0	0
Dermatology	47.5	45	2.5	5
Neurology	5.1	5.1	12.8	76.9
Ophthalmology	17.9	56.4	20.5	5.1
Oncology	51.2	41	2.5	5.1
Radiology	43.5	41	10.2	5.1
Outpatient	62.5	30	7.5	0
Pet Birds	2.5	22.5	35	40
Exotics	2.5	32.5	32.5	32.5
Reproduction	7.5	67.5	20	5
Gastroenterology	50	47.5	0	2.5
Urology	42.5	52.5	2.5	2.5
Nutrition	10	67.5	20	2.5
General Surgery	62.5	32.5	2.5	2.5

1996
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	43.1	45.1	9.8	1.9
Orthopedic Surgery	31.3	39.2	25.4	3.9
Anesthesiology	66.6	29.4	1.9	1.9
Internal Medicine	68.6	31.3	0	0
Cardiology	43.1	47	1.9	7.8
Dermatology	45.1	45.1	5.8	3.9
Neurology	29.4	54.9	9.8	5.8
Ophthalmology	11.7	41.1	43.1	3.9
Oncology	50.9	43.1	0	5.8
Radiology	50.9	43.1	3.9	1.9
Outpatient	64.7	33.3	1.9	0
Pet Birds	1.9	11.7	45.1	41.1
Exotics	3.9	13.7	37.2	45.1
Reproduction	21.5	52.9	23.5	1.9
Gastroenterology	60.7	37.2	0	1.9
Urology	35.2	60.7	1.9	1.9
Nutrition	25.4	58.8	11.7	3.9
General Surgery	74.5	21.5	3.9	0

1997**Small Animal Clinics**

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	3.7	22.6	20.7	7.4
Orthopedic Surgery	28.3	15	1.8	9.4
Anesthesiology	24	55.5	12.9	3.7
Internal Medicine	60.3	32	5.6	1.8
Cardiology	30.1	49	11.3	9.4
Dermatology	41.5	43.4	9.4	5.6
Neurology	30.1	52.8	9.4	7.5
Ophthalmology	18.8	49	24.5	7.5
Oncology	48	32.6	9.6	9.6
Radiology	39.6	49	7.5	3.7
Outpatient	43.4	41.5	9.4	5.6
Pet Birds	3.7	9.4	39.6	47.1
Exotics	5.6	13.2	35.8	45.2
Reproduction	16.9	45.2	32	5.6
Gastroenterology	43.4	52.8	1.8	1.8
Urology	32	56.6	9.4	1.8
Nutrition	18.8	52.8	24.5	3.7
General Surgery	67.9	16.9	9.4	5.6

1998
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	35.7	44.6	17.9	1.8
Orthopedic Surgery	12.5	39.3	44.6	3.6
Anesthesiology	75	21.4	0	3.6
Internal Medicine	62.5	35.7	1.8	0
Cardiology	25	57.1	14.3	3.6
Dermatology	61.8	27.3	14.3	3.6
Neurology	41.4	50	5.4	3.6
Ophthalmology	21.4	50	25	3.6
Oncology	53.6	35.7	7.1	3.6
Radiology	41.1	55.4	0	3.6
Outpatient	51.8	32.1	8.9	7.1
Pet Birds	8.9	7.1	33.9	50
Exotics	16.1	8.9	32.1	42.9
Reproduction	10.9	49.1	38.2	1.8
Gastroenterology	48.2	48.2	1.8	1.8
Urology	21.4	66.1	14.3	1.8
Nutrition	16.1	66.1	14.3	3.6
General Surgery	64.3	30.4	3.6	1.8

1999
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	36.8	42.1	21.1	0
Orthopedic Surgery	10.5	44.7	44.7	0
Anesthesiology	60.5	34.2	2.6	2.6
Internal Medicine	63.2	31.6	2.6	2.6
Cardiology	34.2	52.6	7.9	5.3
Dermatology	65.8	28.9	0	5.3
Neurology	42.1	44.7	7.9	5.3
Ophthalmology	26.3	42.1	26.3	5.3
Oncology	42.1	47.4	5.3	5.3
Radiology	44.7	47.4	2.6	5.3
Outpatient	42.1	42.1	13.2	2.6
Pet Birds	5.3	23.7	36.8	34.2
Exotics	5.3	28.9	31.6	34.2
Reproduction	10.5	36.8	44.7	7.9
Gastroenterology	50	44.7	0	5.3
Urology	34.2	55.3	5.3	5.3
Nutrition	26.3	50	18.4	5.3
General Surgery	52.6	36.8	10.5	0

2000
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	23.5	54.9	19.6	2
Orthopedic Surgery	11.8	31.4	49	7.8
Anesthesiology	68.6	29.4	0	2
Internal Medicine	60.8	37.3	0	2
Cardiology	29.4	56.9	11.8	2
Dermatology	70.6	27.5	2	0
Neurology	35.3	45.1	10	0
Ophthalmology	29.4	47.1	21.6	2
Oncology	45.1	43.1	9.8	2
Radiology	47.1	47.1	5.9	0
Outpatient Clinics	43.1	52.9	2	2
Pet Birds	7.8	23.5	29.4	39.2
Exotics	9.8	35.3	29.4	25.5
Reproduction	3.9	35.3	58.8	2
Gastroenterology	51	47.1	0	2
Urology	39.2	54.9	3.9	2
Nutrition	25.5	56.9	13.7	3.9
General Surgery	66.7	33.3	0	0

2001
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	36.59	39.02	14.63	9.76
Orthopedic Surgery	12.2	36.59	39.02	12.2
Anesthesiology	58.54	31.7	2.44	7.32
Internal Medicine	80.49	12.2	0	7.32
Cardiology	43.9	36.59	12.2	7.32
Dermatology	65.85	19.51	2.44	12.2
Neurology	43.9	36.59	9.76	9.76
Ophthalmology	17.07	31.7	17.07	9.76
Oncology	60.98	26.83	4.88	7.32
Radiology	46.34	46.34	2.44	4.88
Outpatient Clinics	31.7	41.46	19.51	7.32
Pet Birds	9.76	21.95	17.07	51.22
Exotics	12.2	19.51	26.83	41.46
Reproduction	2.44	29.27	58.54	9.76
Gastroenterology	60.98	24.39	4.88	9.76
Urology	31.7	51.22	9.76	7.32
Nutrition	4.88	43.9	43.9	7.32
General Surgery	60.98	31.7	2.44	4.88

2002
Small Animal Clinics

Course	Excellent	Adequate	Inadequate	N/A
Soft Tissue Surgery	26	39	26	9
Orthopedic Surgery	4	35	54	7
Anesthesiology	38	54	3	6
Internal Medicine	35	59	0	6
Cardiology	25	52	12	12
Dermatology	51	38	3	9
Neurology	25	52	13	10
Ophthalmology	3	52	35	10
Oncology	29	58	3	10
Radiology	26	64	19	7
Outpatient Clinics	28	42	29	12
Pet Birds	10	17	30	43
Exotics	14	17	45	38
Reproduction	1	39	3	14
Gastroenterology	30	58	3	9
Urology	16	72	38	9
Nutrition	7	46	3	9
General Surgery	54	35	6	6

APPENDIX C

U.S. CENSUS BUREAU INFORMATION

Income 2002

Annual Average Consumer Price Index Research Series Using Current Methods (CPI-U-RS)
- All Items: 1947 to 2002

Year	CPI-U-RS 1/	Year	CPI-U-RS 1/
1947.....	38.3	1975.....	88.9
1948.....	41.4	1976.....	94.0
1949.....	40.9		
1950.....	41.4	1977.....	100.0
1951.....	44.7	1978.....	104.3
	1979.....		114.1
1952.....	45.5	1980.....	126.7
1953.....	45.9	1981.....	138.6
1954.....	46.2		
1955.....	46.1	1982.....	146.8
1956.....	46.7	1983.....	152.9
	1984.....		159.0
1957.....	48.3	1985.....	164.3
1958.....	49.7	1986.....	167.3
1959.....	50.0		
1960.....	50.9	1987.....	173.0
1961.....	51.4	1988.....	179.3
	1989.....		187.0
1962.....	51.9	1990.....	196.3
1963.....	52.6	1991.....	203.4
1964.....	53.3		
1965.....	54.1	1992.....	208.5
1966.....	55.7	1993.....	213.7
	1994.....		218.2
1967.....	57.4	1995.....	223.5
1968.....	59.7	1996.....	229.5
1969.....	62.3		
1970.....	65.3	1997.....	234.4
1971.....	68.2	1998.....	237.7
	1999.....		242.7

1972.....	70.3	2000.....	250.8
1973.....	74.7	2001.....	257.8
1974.....	82.1	2002.....	261.9

 1/ The Census Bureau uses the Bureau of Labor Statistics' experimental Consumer Price Index (CPI-U-RS) for 1977 through 2002. The Census Bureau derived the CPI-U-RS for years before 1977 by applying the 1977 CPI-U-RS-to-CPI-U ratio to the 1947 to 1976 CPI-U.

Note: Data users can compute the percentage changes in prices between earlier years' data and 2002 by dividing the annual average Consumer Price Index (CPI-U-RS) for 2002 by the annual average for the earlier year(s).

For more information on the CPI-U-RS go to www.bls.gov/cpi/cpirsdc.htm

[More Income Statistics](#)

[Go to Poverty Statistics](#)

Last Revised: *May 13, 2004*

VITA

Candidate: Virginia Isabel Carbajal

Permanent Mailing Address: 8202 Butler Ridge
College Station, TX 77845

Degree: Doctor of Philosophy

Major Subject: Agricultural Education

Biographical: Born September 1, 1971, in Acapulco, Mexico

Education: D.V.M. National Autonomous University of Mexico, Mexico 1995

Professional: Teaching Assistant. 1994-1995

Experience: Self-Employed, Veterinarian, 1995-1996.
Lecturer and International Programs Coordinator, CVM, TAMU 1996-2004.

Lecturer and Academic Advisor II, CVM, TAMU 2004- present.