THE EMERGING FABRIC OF CLINICAL SCIENCE IN VETERINARY COLLEGES

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Changing the curriculum and format of courses in a veterinary college has been described as being as difficult as moving a cemetery, and often for similar reasons. However, such changes are slowly taking place. Presently both veterinary and human medical sciences urgently require solutions to problems of health-care delivery which are equally as important as the great amount of research and advances in knowledge that has been developed in these fields over the past two decades. To help solve these problems of health-care delivery it is essential that the clinical departments of veterinary colleges have a great increase in staff and facilities. With proper support, encouragement and action by all segments of the veterinary profession, such changes could occur more rapidly to the benefit of the profession and the general public.

The basic and principal function of a veterinary college is to produce knowledgeable and capable veterinary practitioners. Clinical veterinary medical training produces broadly-educated, creative individuals who are flexible in their outlook. If students are not thus trained and motivated they will eschew practice and instead enter other professional activities. With varying amounts of postdoctoral training, any well-

educated, clinically-oriented graduate of a veterinary college can develop himself for these other than practice-oriented positions. Clinical veterinary medicine is the essence of veterinary medical science and is what distinguishes a veterinarian from other biological scientists.

The enormous and rapid advances in knowledge in the past 20 years in both basic and applied veterinary sciences and the demand on the part of the profession and an intelligent, educated public that this knowledge be organized, developed and effectively used, has placed an overwhelming responsibility on the present clinical staffs of veterinary colleges.

The clinical departments in all veterinary colleges are responsible for teaching undergraduates 50 percent or more of the credit hours in the veterinary college curriculum. This is nearly twice as great an undergraduate teaching load as that of 30 years ago for the following reasons. Most of the present teaching staff in the basic science departments have had no clinical experience and have very limited knowledge of applied science areas. This trend is further accentuated by increasing numbers of teachers in the basic science departments of veterinary colleges without a D.V.M. degree. In recent years federal research monies have gone almost exclusively to the basic science departments since basic research could more readily be directed toward human medical problems than could research in the applied veterinary sciences. This has further reduced and limited the teaching efforts of the basic science departments. Students currently admitted to veterinary colleges have had the benefit of greatly improved instruction in science in high school and in the expanding pre-veterinary years in college and thus require

fewer hours of basic science instruction in veterinary colleges. Since veterinary practitioners and the public expect the present graduating veterinarian to be highly proficient in the applied clinical disciplines, many schools are beginning to change their traditional curriculum to one in which the student can elect a series of career-oriented courses, mostly in the clinical areas, after he has completed the basic core subjects. This further increases the number and frequency of the offerings as well as the teaching load of the experienced clinical staff.

Another traditional responsibility of the clinical departments is to maintain a teaching hospital and clinic with sufficient animals and case-load to provide instructional and practice material for the undergraduate veterinary students. In most colleges, these hospitals and clinics are expected to largely support themselves, underwrite most of the surgical, diagnostic, and obstetrical laboratories and even pay for some of the department's non-professional employees. Clinical departments must maintain a large veterinary practice that provides service 24 hours a day. The time, care and energy required to maintain a large active practice that is respected and sought by clients is well understood by veterinary practitioners but little understood by university administrators and college officers most of whom are basic science-oriented and have little knowledge of the problems of veterinary practice. In recent years, increasing numbers of veterinary students have necessitated much larger numbers of animals for adequate training in the clinical sciences. In some colleges, new hospitals or clinics have been built or the physical facilities have been enlarged; but, however, the necessary staff has usually not been provided to maintain an increased patient

load and to instruct students in the science and art of clinical medicine and surgery in the necessary tutorial manner.

Because of the ease of transportation, the general affluence of our society, and the increasing specialization of our knowledge, referrals of animals from practicing veterinarians to the veterinary college clinics has increased enormously. In many states, veterinary college clinics are the only ones able to provide the special diagnostic and therapeutic services needed for certain valuable animals. These increased referral services have imposed further responsibilities on the clinical staff as frequent oral and written communications with the referring veterinarian, as well as the owner, are required.

A serious, and often frustrating problem and obligation of the overworked professional staffs of clinical departments is a rapid and seemingly geometric expansion of basic and applied knowledge. The clinical staff must have sufficient time for the study of advances not only in the basic sciences but also in the applied sciences of surgery, medicine, economics, nutrition, animal management and others (Table I). "Keeping up with the literature" and advancing knowledge is a constant struggle for busy clinical instructors. This duty is imposed upon him by his colleagues, the administration, students, consulting veterinary practitioners, animal organizations, and the public.

Because of rapidly expanding knowledge in veterinary science, changing patterns of veterinary practice, and new developments in agriculture and urban living, a third and increasingly important responsibility of the clinical departments has been to attempt to provide a complete, continuing education program to veterinary graduates. Visual aids, lectures,

practical courses, and written and taped instructional material have been used. Although much of this material is helpful for the instruction of undergraduates, preparing and maintaining the current status of this educational material not only requires a visual aids staff and is expensive but it is extremely time consuming for the experienced professional clinical staff. Further problems arise in the presently understaffed clinical departments when staff members are frequently requested to travel to continuing education meetings within and out of the state as other overworked clinical staff members must handle their patient loads and teaching duties.

In addition to providing undergraduate instruction and continuing education for veterinary practitioners, clinical teachers are expected to provide on-campus advanced postdoctoral training for increasing numbers of interns, residents, M.S. and Ph.D. degree candidates, and discipline-oriented specialists (Table I). These more highly trained veterinarians are needed for teaching and research positions in veterinary colleges, for research and managerial positions in veterinary and human medical institutions, pharmaceutical organizations, government, and for large group practices. Interns and residents are usually given broad species-oriented advanced training, whereas degree candidates and discipline-oriented specialists are educated "in depth" in both basic and applied aspects of the subject. It is highly desirable that the latter postdoctoral trainees have several years of practice or clinical experience before undertaking disciplinary studies. Members of all specialty groups recognized by the AVMA require postdoctoral training and experience to meet the qualifications to be a board member or diplomate. The provision of this advanced training places an additional instructional burden on the professional clinical staff,

and also requires a greater volume of clinical cases. Although species-oriented practitioners are now commonplace, increasing numbers of veterinarians are limiting their practice to a single discipline, often in one species. The need for postgraduate education is obvious when we consider the species and discipline-oriented veterinary specialities that have already become well-established in the profession without any formal instruction being generally available. This need is probably the most urgent problem confronting the veterinary profession and the clinical departments of veterinary schools.

Lastly, staff members in clinical departments are appropriately expected to conduct research on clinical problems and diseases in veterinary medicine. Applied research that evaluates new drugs or techniques is eagerly sought and requested by practicing veterinarians and the public. Presently this can only be done adequately in clinical departments or by drug companies, as private practitioners generally do not have the laboratory support necessary for an in-depth scientific study. In recent years, the development of sophisticated advanced techniques has dictated their application in clinical research in order to obtain approval of new drugs and biologics by the FDA and other regulatory agencies. Sophisticated clinical research is now necessary for approval of new drugs by the FDA or other regulatory agencies. Broadly-trained, clinical veterinary scientists with laboratory and basic science support are necessary for interdisciplinary teams to work on field problems that need to be solved rather than on projects that are invented on the campus. Clinical departments should be the spearhead of advancing knowledge and its application in veterinary medical practice.

Thus veterinary college clinical departments are required and expected to perform multiple functions including: modern training for increasing numbers of veterinary undergraduates, interns, residents, graduate and post-doctoral students, and continuing education for practicing veterinarians and animal owners; maintaining a large, modern teaching hospital and clinic capable of competently handling referral patients; and producing needed, significant, practical, "mission-oriented" research necessary for veterinary medicine as a profession to survive and advance.

In consideration of the forementioned responsibilities and obligations, it is understandable why the small underpaid staffs of clinical departments in most veterinary colleges are overworked, unable to provide needed services, proper insturction, or to perform adequate research. This leads to a life of frustration for the conscientious, scholarly clinical teacher. Proper understanding and active sympathetic and material support by university and college administrations of clinical departments is imperative at the present time.

Since most college clinical science staffs have only 10 to 18 experienced teachers and limited support, it is obvious that most clinical science departments must have a marked increase in professional staff, facilities, personnel, such as technicians, caretakers, office and records staff, and in laboratory and ancillary support. To adequately staff a veterinary clinical department (Table I) to provide both disciplinary specialists and species-oriented generalists, a clinical staff of 40 or more skilled and experienced instructors is needed in each veterinary college. Research monies are sorely needed for research on animals, under field conditions since many of these conditions involving large numbers

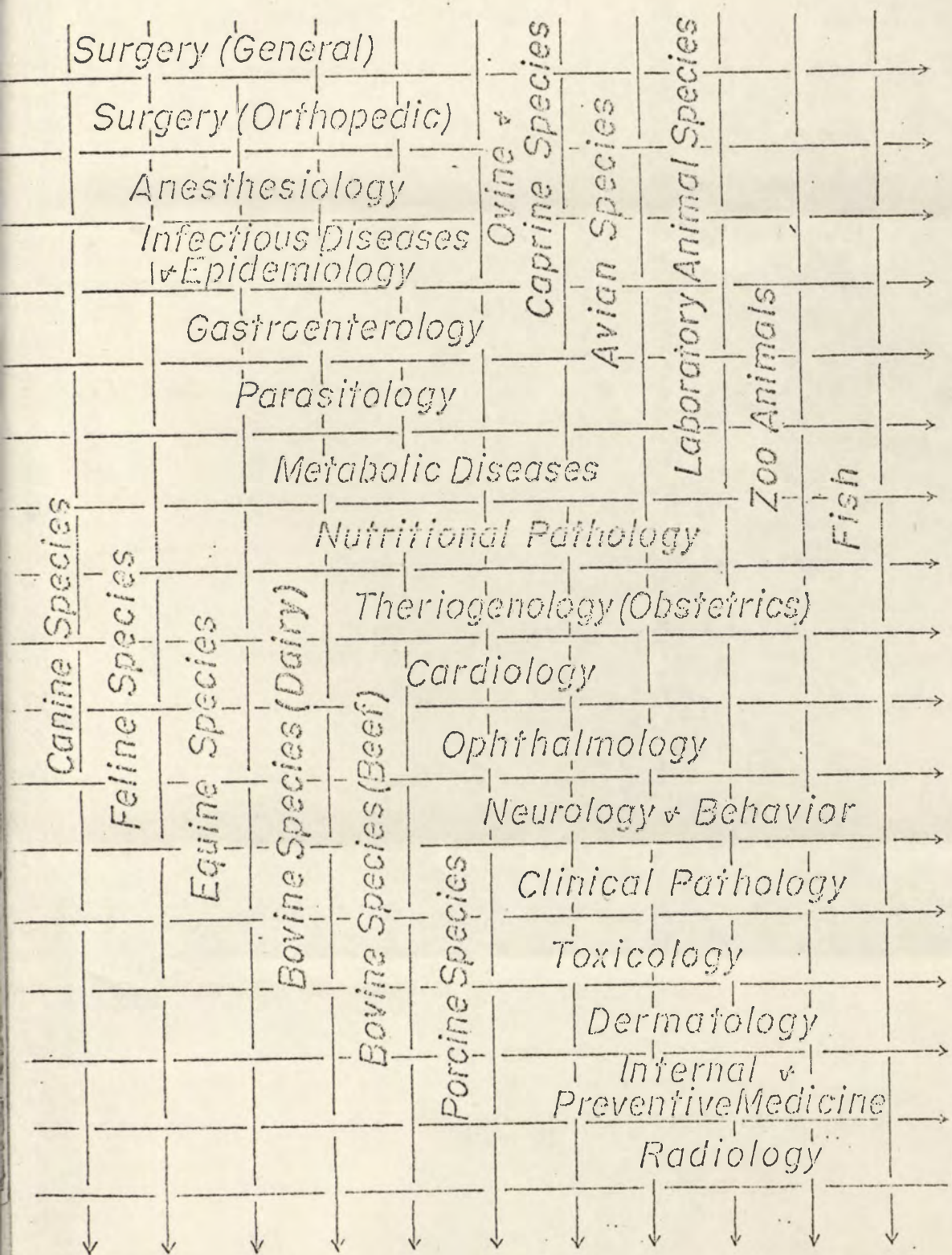
of animals cannot be duplicated in the laboratory. In the past 20 years much federal research money was supplied for basic biologic research and research on human medical problems but comparatively miniscule amounts were granted to clinical veterinary departments for research on the many diseases of food-producing animals that are the major source of protein for our human population.

Presently, veterinary college and university administrations are unable to bring about needed improvements and greatly increased support of clinical science departments. It is imperative, therefore, that veterinary practitioners; species-oriented groups, such as the AAHA, the AAEP, the AABP and others; the clinically-oriented disciplinary speciality groups; the various state and regional veterinary societies, and the AVMA, including the Council on Education and the Council on Veterinary Services, unite to obtain the needed increased state and possibly federal support, although the latter "soft money" is tenuous and uncertain. Such urgent requests for increased support of clinical departments must be documented and proposed to the presidents and deans of the universitites and veterinary colleges and to state legislatures and then vigorously supported. If the clinical departments of veterinary colleges are seriously understaffed, having an excessively high student to teaching faculty ratio, their facilities are outmoded and clinical material deficient, those colleges should be placed on probation by the Council on Education of the AVMA.

Missing or weak threads, defects, or gaping holes have no place in the fabric that forms a complete, well-integrated, strong clinical science department. As the clinical departments go so goes the practicing veterinarian and the veterinary profession.

Table 1

EMERGING FABRIC OF THE MODERN VETERINARY COLLEGE CLINICAL DEPARTMENT



DISCIPLINE-ORIENTED SPECIALTIES PRIMARILY FOR RESIDENTS, M.S. & PH.D CANDIDATES AND COLLEGE OR BOA CERTIFICATION (RESEARCH)

SPECIES-ORIENTED SPECIALTIES PRIMARILY FOR VETERINARY STUDENTS,