

Public Health Aspects of Small Animal Veterinary Medical Practice

WILLIAM O. MAY, Jr., D.V.M., M.S.P.H., DONALD C. BLENDE, D.V.M., M.S.,
and WILLIAM F. McCULLOCH, D.V.M., M.P.H.

VETERINARY medicine is as old as recorded history, and veterinary practices of some type are probably as old as civilization itself (1). Veterinary medicine is a major health profession possessing a preventive philosophy

Dr. May, a major in the U.S. Air Force Veterinary Corps, is stationed at the U.S. Air Force Medical Service School, Sheppard Air Force Base. Dr. Blenden is an associate professor at the University of Missouri Department of Veterinary Microbiology, section of epidemiology and ecology. Dr. McCulloch is a professor and director of continuing education and extension at the university.

This study was done in partial fulfillment of requirements for the master of science degree in public health.

Tearsheet requests to Donald C. Blenden, D.V.M., University of Missouri Department of Veterinary Microbiology, Columbia, Mo. 65201.

needed in the deliberations of the health care crisis in the nation. Protection of the public's health is a major objective of the veterinary medical profession, and large animal practice makes unmistakable contributions related to the nation's food supply. Companion or small animal practice is an essential part of urban living (2), but it seems to be particularly vulnerable to criticism since, allegedly, there is little return to the taxpaying public that subsidizes the cost of education. We shall try to explain why there is a lack of justification for such a critical evaluation.

The purpose of this report is twofold. First, our time-function study of several small animal practices in Missouri documents the time each practitioner spent in various functional categories associated with such a practice. Second, we report the percentage of the total practice workload devoted directly or indirectly to functions with specific public health implications (enhance-

ment of the health of persons in the family or community).

The literature contains reports of studies of human medical practice, but most are not true time-function studies. An analysis of physicians engaged in general practice in North Carolina was reported in 1956 (3). Studies of medical practitioners in England were discussed in 1965 (4). A mail survey of English physicians was conducted and reported in 1966 (5). A time-function study of 25 general medical practitioners in Missouri was conducted in 1967 (6). A time-function study of large animal veterinary medical practitioners was reported in 1969 (7). We used several of these studies (4,6,7) to establish the methods for our time-function study.

Methods

We studied 13 small animal practitioners in both group and solo practices in three Missouri

cities (Columbia, Jefferson City, and St. Louis) and used the 1970 American Veterinary Medical Association Directory to arbitrarily select them from 137 small animal practitioners in Missouri. If the veterinarians selected were in a practice with two or more men, we made an effort to study as many practitioners as possible in that group practice in order to measure the total output of the practice. It was not always possible to study all the veterinarians in each group practice.

The ages of the practitioners ranged from 26 to 54 years, and all were married. They had graduated from veterinary schools from 1941 to 1968; eight graduated from the University of Missouri, two from Kansas State University, and one each from Iowa State, Purdue, and Auburn Universities.

A day of study was prearranged with each practitioner. The day was to be a typical day, with no special or extra work scheduled. To assure that the practitioners did not influence the day with cases related to public health, this ramification of the study was not explained to them before the study of their practice was completed.

Each practitioner was observed during normal working hours. Each was telephoned the following day to ascertain if he had had any emergency office calls or had a telephone conversation with clients after closing hours. The time required for emergency treatments or telephone conversations with clients was recorded in the proper category, according to information the veterinarian supplied.

Each of the small animal practices was studied for a 24-hour period during April, May, or June 1970. Observations were

made on Mondays through Fridays only.

Five categories (administrative, diagnostic, treatment, preventive medicine, and "other") were selected to cover the basic professional and ancillary activities that are routinely conducted in a small animal practice. Activities were appraised subjectively in assigning them to a category, and the activity and time devoted to it were recorded under the proper category.

Within these five basic categories, every function that the veterinarian performed which had a specific public health ramification also was timed and recorded. The following activities were considered as being related to human health: diagnosis and treatment of zoonotic diseases (diseases transmitted between animals and man; for example salmonellosis, leptospirosis, or ringworm), immunizations for zoonotic diseases, and guidance and counseling given to clients about any disease or condition with human health implications such as rabies.

Clipping of animal nails was considered to be related if a client specifically requested that the nails of a pet be clipped because family members had been injured by scratching or clawing. Fevers of unknown origin or other undiagnosed conditions of animals were not counted as being related to public health. Mental health implications for the client and family were not considered even though a major public health component of small animal practice was ignored (8).

Some major functions in administrative activities included taking inventory, stocking drugs and supplies, talking with drug salesmen, ordering drugs, banking, instructing employees, corresponding, collecting fees, estab-

lishing objectives and policies, and making appointments.

Diagnostic activities included taking animal histories; performing physical, laboratory, and radiological examinations; and exploratory surgical procedures.

Treatment activities included surgery (all but exploratory); administration of medications; repairing fractures; cleansing, debriding, and suturing wounds; applying dressing; and nail clipping.

Preventive medicine included immunizations for rabies, distemper, hepatitis, and leptospirosis; observation of rabies suspects; issuing health certificates; and general information given to clients concerning the care and welfare of their animals. Counseling of clients regarding the public health aspects of any zoonotic disease of their pets, such as rabies, also was included.

Other practice-related activities included functions not readily assignable to the four major categories, such as talking with other veterinarians, reading professional papers and journals, conversing with clients by telephone, and preparing instruments or clinical equipment. Also included was "polite" conversation with clients.

Results

The total work time per 24 hours for the practitioners ranged from 2.90 to 13.83 hours. The total work time per 24 hours directly related to public health ranged from 0.87 to 3.33 hours among the practitioners.

How practice time was divided among the five categories is shown in table 1, which gives the average practice time per 24-hour day, percent of total hours, and the range of percentages among the 13 men, by category.

Average time spent in public health-related activities, percent of total public health time, and the range of percentages in the group, by category, are given in table 2. The average work time for the 13 was 7.86 hours (actual working time), and the average public health-related time was 1.85 hours.

A summary of the time-function and public health-related activities of these small animal practitioners is presented in table 3. The total work time for all 13 was 97.8 hours for 13 practice days, and the total public health-related time was 24.1 hours, or 24.6 percent of the total time.

The hours shown in all tables reflect only the time that a practitioner was actively engaged in a practice-related function. All percentage calculations in this study were rounded off to the nearest 0.1 percent.

The total practice time of the veterinarians for a 24-hour period ranged from 2.90 to 13.83 hours. Neither extreme was considered a typical day. The day one practitioner worked only 2.90 hours was inclement, and appointments had been cancelled. Although marked extremes occurred in the length of workdays, the average practice day of 7.86 hours was considered typical for the small animal practices in the study.

Administrative activities required 18.5 percent of total hours (table 1). It was surprising to learn that the small animal practitioner spends approximately one-fifth of his time in administrative tasks that perhaps could be better and more economically accomplished by a management service. The time spent in this category ranged from 10.2 to 35.6 percent. The practitioner spending the largest

percentage of time on administration was the one with the shortest workday because of inclement weather. He used the free time to catch up on some of his administrative duties.

Time devoted to administration related to public health amounted to 2.9 percent of the total work time; the range varied from none to 9.8 percent of the total.

The diagnostic category had

the second highest proportion of total work time (21.8 percent), with a range of 13.5 to 28.7 percent (table 1). During a routine office call, more time was usually spent on diagnosis than on treatment, but all practitioners devoted the most time to treatment (32.5 percent of total hours) because of the large volume of elective surgery performed and the surgical treatment of traumatic injuries. The range of time spent

Table 1. Time-function study of 13 small animal practitioners in Missouri, April-June 1970, by category

Category	Average practice hours per 24-hour day	Percent of total hours	Range for individual practitioners, percent
Administrative.....	1.73	18.5	10.2-35.6
Diagnostic.....	1.64	21.8	13.5-28.7
Treatment.....	2.45	32.5	16.9-45.1
Preventive medicine.....	.67	9.0	4.8-18.0
Other.....	1.37	18.2	14.2-31.7
Total.....	7.86	100.0	

Table 2. Practice time related to public health activities, 13 small animal practitioners in Missouri, April-June 1970, by category

Category	Public health practice time per category		
	Average public health hours per practice day of 7.86 hours	Percent of public health time	Range of public health time for individual practitioners, percent
Administrative.....	0.22	11.9	0.0- 9.8
Diagnostic.....	.64	34.6	4.3-13.0
Treatment.....	.23	12.2	.4- 9.8
Preventive medicine.....	.55	30.0	2.9-18.0
Other.....	.21	11.3	.7- 5.5
Total.....	1.85	100.0	

Table 3. Summary of time-function study of 13 small animal practitioners in Missouri, April-June 1970, by category

Category	Total practice time, in hours	Total public health time, in hours	Total working hours in public health, percent
Administrative.....	18.13	2.88	2.9
Diagnostic.....	21.30	8.34	8.5
Treatment.....	31.84	2.94	3.0
Preventive medicine.....	8.76	7.22	7.4
Other.....	17.84	2.73	2.8
Total.....	97.87	24.11	24.6

on treatment was 16.9 to 45.1 percent.

Diagnostic and treatment activities together accounted for 54.3 percent of the practice time of the 13 practitioners (table 1). One would normally expect that these two categories of direct animal care would comprise the greatest bulk of practice time.

Treatment activities related to public health took 3 percent of the total practice time. The range in this category varied from 0.4 to 9.8 percent.

Time spent in diagnostic activities related to public health was 8.5 percent of total practice time—the highest percentage of public health-related time in any category (table 3). All animals that initially entered any of the clinics possibly could have been listed in this category; however, only those that were brought for a public health-related treatment or were subsequently found to have a public health-related problem were included. This large proportion of time was largely accumulated through taking histories, physical examinations, and laboratory procedures for zoonotic diseases.

The least time was spent in preventive medicine, 9 percent of the total working hours, with a range of 4.8 to 18 percent. Public health-related activity in this category (7.4 percent of total hours) was almost as great as the total time spent in the category because most of the practitioners gave combination vaccinations for distemper, hepatitis, and leptospirosis. The range of time spent in preventive medicine related to public health was 2.9 to 18 percent.

The "other" category covered all practice-related functions that were not readily assignable to any of the four major activities.

Other practice-related activities required 18.2 percent of the total work time of the 13 veterinarians; the range was 14.2 to 31.7 percent. Much of this time was devoted to telephone conversations.

Public health-related time in the other category was the least of the five—2.7 percent of the total work time. Activities included telephone conversations with clients regarding quarantine for rabies or about public health aspects of a disease or condition that the veterinarian discovered after a client had left an animal at the clinic. The range of other activities related to public health was 0.7 to 5.5 percent.

Discussion

It is important that bias be removed or defined in a study to insure the validity of the study. We designed this study to keep bias to a minimum. Biases that must be considered in the interpretation of these results, however, are the practices studied including the willingness of the veterinarians to participate, the method used to select or eliminate practices for the study (for example, commuting distance for the investigator was a factor), the time of the year that the study was conducted, and whether or not the day that each practice was studied was a typical day for that practice. An enlarged study utilizing a greater number of randomly selected practices would eliminate much criticism of bias.

Additional opportunities exist for veterinarians in small animal practice to give animal or public health-related education to clients; for example—

1. Explaining the dangers of keeping wild animal species as pets

2. Keeping pets from contact with wild animal species

3. Discussing vacation plans in terms of indigenous zoonotic diseases that are often associated with recreation

4. Issuing a health certificate, not just a routine duty but an opportunity for client education

5. Objectively discussing the emotional or behavioral interrelationships between the client, the family unit, and the pet

Dorn (9), in a study of the utilization of veterinary medical services between 1954 and 1965, found that 6.4 to 48.9 percent of dog owners and 13.2 to 73 percent of cat owners had never used veterinary services. One might wonder what the percentage of public health-related practice time of small animal practitioners might be if all these potential clients had chosen to use the services of veterinarians. With the increasing population and urbanization of our society, the role of the small animal practitioner in protecting the health of the community will become increasingly important.

The third report of the Joint Food and Agriculture Organization and World Health Organization Expert Committee on Zoonoses (10) summarized the increasing public health importance of small animal practitioners to our society. This report states: "Of the ecologic factors involved in the transmission of zoonoses, opportunity for exposure of man and animals to each other's infective agent is basic. Societies are now developing in such a way that we can expect, in the future, much less contact between man and most animal species, perhaps with the exception of pets. It would be wise, therefore, to learn as much as possible of the infective agents harboured by pets."

History tells us that man will not decrease his interest in animals in the foreseeable future.

REFERENCES

- (1) Smithcors, J. F.: Evolution of the veterinary art. Veterinary Medicine Publishing Co., Kansas City, Mo., 1957.
- (2) McCulloch, W. F., Dorn, C. R., and Blenden, D. C.: The university and the city: Proceedings of the 107th annual meeting of the American Veterinary Medical Association. JAVMA 157: 1771-1776 (1970).
- (3) Peterson, O. L., et al.: An analytical study of North Carolina general practice. J Med Educ 31: 5-165 (1956).
- (4) Bevan, F. M., and Draper, G. F.: Sampling problems in studies of general practice. Med Care 3: 168-179 (1965).
- (5) Eimerl, T. S., and Pearson, R. J. C.: Working-time in general practice: How general practitioners use their time. Brit Med J No. 5529: 1549-1554 Dec. 24, 1966.
- (6) Parrish, H. M., Bishop, F. M., and Baker, A. S.: Time study of general practitioner's office hours. Arch Environ Health 14: 892-898 (1967).
- (7) Price, F. J.: A time-function study of twelve large animal veterinary medical practitioners in mid-Missouri. [Master's thesis.] University of Missouri, Columbia, 1969.
- (8) Levinson, B. M.: Pets, child development, and mental illness: Proceedings of the 107th annual meeting of the American Veterinary Medical Association. JAVMA 157: 1759-1766 (1970).
- (9) Dorn, C. R.: Veterinary medical services: Utilization by dog and cat owners. JAVMA 156: 321-327 (1970).
- (10) Joint Food and Agriculture Organization and World Health Organization Expert Committee on Zoonoses: Third report, WHO Technical Report Series No. 378. Geneva, 1967.

MAY, WILLIAM O., Jr. (University of Missouri Department of Veterinary Microbiology), BLENDEEN, DONALD C., and McCULLOCH, WILLIAM F.: *Public health aspects of small animal veterinary medical practice. A time-function study. HSMHA Health Reports, Vol. 86, October 1971, pp. 910-914.*

A time-function study was conducted of the practice time devoted to five categories of activities by 13 small animal veterinarians in Missouri. Each practitioner was observed over a 24-hour period. The time each devoted to a certain activity was recorded under five categories. Results were administrative 18.5 percent, diagnostic 21.8 percent, treatment 32.5 percent, preventive medicine 9 percent, and other practice-related activities 18.2 percent.

Each function that had specific human or public health ramifications also was timed and re-

corded as an additional measurement within each category. By utilizing this technique, the percentage of practice time devoted specifically to public health-related activities was measured. Emotional interrelationships, admittedly highly important, are hard to quantitate and were not considered. The study indicated that 24.6 percent of total worktime of the 13 veterinarians in small animal practice was devoted to public health-related activities. The average workday was 7.86 hours, and the average total time spent in public health activities was 1.85 hours.