

Practice Methods

Dr. Jack F. Cote, Chairman

Carla Carleton, D.V.M.
Guymon, Oklahoma

I hope you all can excuse me because I only found out about this six days ago. And as far as my preparations for it, they are pretty scant, but yet it is not a very difficult assignment. A lot of people up here have had multiple practice tips. I do feel a little bit awe-struck because as I look out here, having just graduated last May, I know a number of my professors and clinicians are out there. So please bear with me.

What we have here, which we have been using at the feedlot where I work, is a bilge pump. If you want to get one of these, they are very inexpensive and you can get them at most boating shops. What we have done is an adaptation to use it as a stomach pump. It has been of benefit to us just because of its ease of administration. It has decreased equipment costs, knowing how equipment sometimes in a feedlot is abused a very great deal by a lot of the doctoring crews. It is also very versatile.

A number of the younger lightweight calves that are sent to the hospital pens suffer from severe dehydration and anorexia. The bilge pump is a convenient way to administer greater fluid quantities and larger particulate matter, in a short time and with hardly any physical effort at all. We give these calves a mix of wheat shorts and milk replacer in a slurry. They get fluid and energy that gives them longer-term benefits than just IV fluids. I know someone up here was in a practice where they could go ahead and they could work with a cow for one or two hours. But I do not know of any feedlot where anyone is going to take longer than 5 minutes, if that long, on a steer that is coming through a treatment chute. It is just not going to happen because people do not have that much patience there.

The pumps cost approximately \$22, a lot cheaper than your stainless steel varieties. They can be purchased at any boat or marine supply. The stomach tube adapter that we have here consists of a \$0.39 hose clamp, \$0.29 for a 3/4 PCV pipe connection and \$0.64 of metal for our hose-to-pipe bib. The total additional investment on top of the \$22 is only \$1.37.

In spite of all the abuse we have had with these pumps in the feedlot where they do not get cleaned out immediately after use, we have never had any trouble with them plugging up and the longest one we have had there now has been in the feedlot for over two years and it is still working really well.

With one stroke up and down, a lot of times with

some of these smaller metal pumps you can pump your arm off and feel like you are not making much headway, especially if any large particles get in. You can put about a half gallon in, or almost 2 liters, with one stroke up and down.

Another major use that we have for this tube is for replacing rumen microflora. We have our beef kill in Guymon at the Swift plant and they have been very generous in letting us go over about once a week and we will pick up a bucket full of rumen content and we will take this back and also put it in a slurry and put that down the animal. A lot of your midweight cattle that have gone off feed for awhile will get started again. It will reinoculate them. There have been a few cases where laryngeal and esophageal ulcers are present and we have been able to maintain a steer when he has been off feed. It seems the tube introduction into them does not hurt any more than probably the ulcer does. This way, instead of being off feed until it can somehow manage to swallow enough, we do keep it fed and hydrated until such time as the ulcers begin healing.

Frank Mongini, D.V.M.
Cotati, California

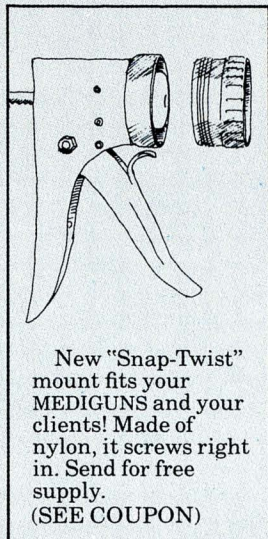
I come from a six-man group practice that is mixed and I would like to mention a few treatment tips first and then go into our business arrangement with our business manager.

I do the work for one of the bull studs in the area and we are required to do semi-annual health checks. At one of the checks, I was flushing out the prepuce to check for vibrio and trich. If any of you have done this, you know it gets to be a hairy experience when the bull is tethered with a nose ring and a rope around his neck and he is trying to pick you off while you are doing this! To prevent any injury in this area, what we do is put an ejaculator in the bull's rectum and turn it up just enough to tense him up so he cannot kick. On some bulls it is amazing! They can tolerate an awful lot of electricity there. But you can park those bulls like a dog pointing. Now, it will wear off with time. By leaning against them you can just feel their body relax and so you can give them a little more if you want. But once you get them like that

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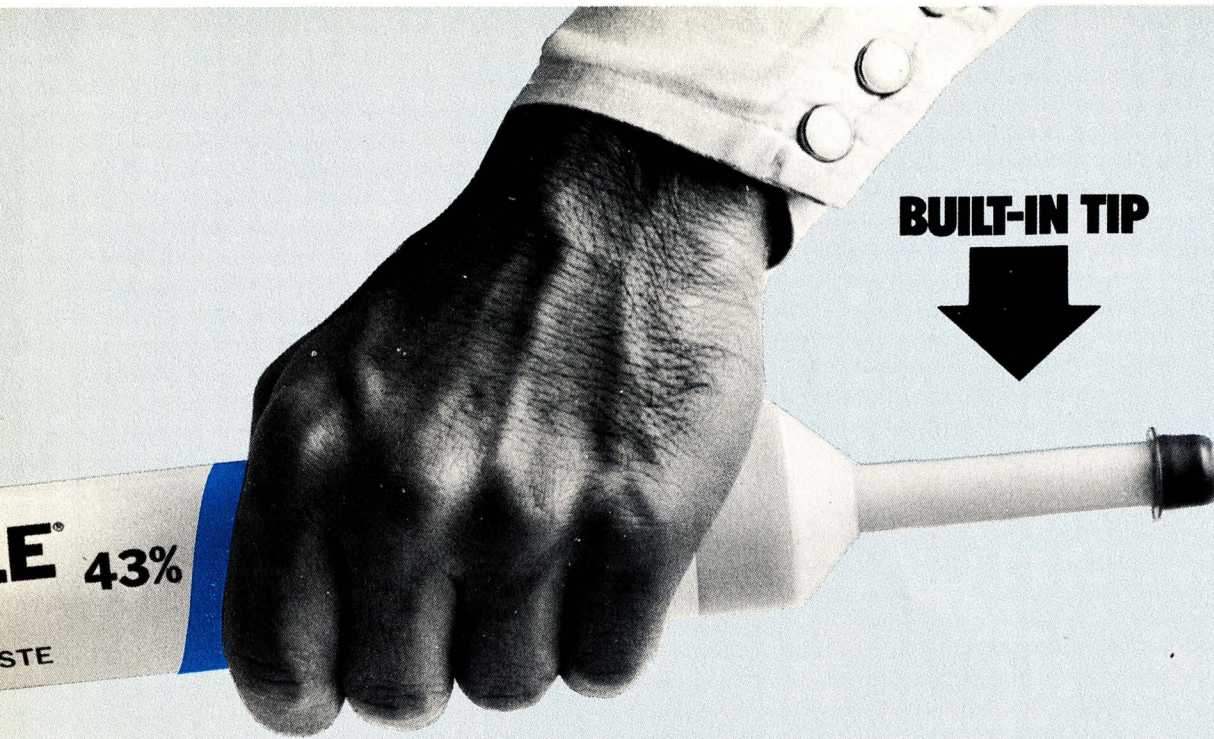
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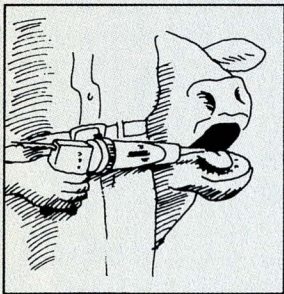
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Another tip is the retained placenta cow, the chronic metritis cow that becomes eventually the pyometra cow. We do not clean cows in our practice. The clients pill them. I have always questioned your packing them. We make our own boluses out of terramycin and 2 oz. gelatin capsules. We wonder just how much of this does go into solution and what contact you are getting. After the client pills the cow daily, usually they will clean in three or four days, we use a calf feeder and put a 10 gm pack of terramycin in it with 2 quarts of water and have them infuse the uterus. They can either take it in as they would a pill or you can even pass it through as a pipette when the cow is 10 days or 2 weeks postpartum. We get tremendous involution of the uterus on a 30-day postpartum check. It is amazing how much it comes down.

We post-treat an awful lot of cows post-breeding. On culture these cows are negative. We have tried everything. As a last resort, I have ended up using Lugols. My philosophy of treating has changed considerably the last few years. I used to treat a lot of cows with antibiotics and I am finding I am getting away from the antibiotics more and more and going back to basic Lugols. We use a 10% mixture. We dispense to the clients 50 cc of concentrated Lugols into a 500 cc bottle of saline or distilled water, and have the client infuse this 12 to 24 hours post-breeding, using 25 cc of this solution. The results have been dramatic. I know some of you probably shudder. You think about injecting the uterus at this stage, but I think that what we are seeing is almost a chemical curettage on some of these cows, because we get a lot of cows conceiving with this treatment. In fact, I am using this therapy also on postpartum checks. Cows that are re-checks, when we check them on our normal check, when they come in heat in between our check periods, I have the client infuse them at the time of heat with 50 cc of Lugols and we are getting a much quicker involution. I must say you want to label the bottle thoroughly. I had one client who had a chronic mastitis cow. He was drying her up and thought that the Lugols was some dry cow mixture! So he infused it into each quarter, and that worked better than silver nitrate.

My final tip is not a therapy tip at all, but in our practice we have a business manager. As I said, we are a six-man practice with a full-time business manager who serves a dual role of business manager plus a technician at times. This is something that has provided a real flexibility of practice to just deal with the professional aspects of practice and not the business aspect. This individual is a bookkeeper, receptionist, handles all the large animal scheduling, all the drug purchases, drug sales and all contacts with salesmen. Since I have been in practice, the only time we see a salesman is when they are going to take us out to lunch a few times. We never order drugs. We have a want list, he works out the deals with the salesman, he makes the arrangements with the clients. He works out the commissions or whatever.

We do not concern ourselves with that at all. We have weekly meetings to discuss policies, but it is his judgment. We supply him with a vehicle. He assists us in surgery, with our equine work. He handles all the employee relations. He does all the hiring and firing, if necessary. All the inter-office problems you know you have, that is his bag. He is really invaluable. If it came to the point where we had to drop somebody, I am sure we would drop a salaried veterinarian before we would get rid of him because it gives you the flexibility of not having to worry about the business part of practice. He works closely with the accountant and with the attorneys. As an example, we are a corporation and we were audited for the first time in 12 years about three months ago. All of us were shaking, wondering what was going to happen! But it worked out so smoothly. He took care of it. All we did was sign a few papers and the audit was over in three hours, and we were not involved at all. But I know, many of you ask, well, can you afford a person like this. When we were a three man practice we had this man. He was there before I started. His salary is covered through his drug sales. He pays his way through the drug sales alone, plus returning a profit to the practice. You can say, well, if you did not have him you might sell that amount of drugs, and that is true but you would have to take the time out to be involved yourself. So it is an arrangement that has worked out very well for us and something that I think some of you might think about.

Marshall Slingerland, D.V.M.
Altamont, Illinois

I am going to talk tonight on foot problems. Some of the problems I see in our practice are sole abscesses in dairy cattle. The first thing I normally do is to watch a cow walk. If not, I will use some hoof testers. Sometimes it is bad enough that you will have a whole necrotic area under the sole. On these we will dig out all the dead necrotic tissue and pack them with an ointment. I use an ointment by Beecham Massengill. I will put a 5x9 Johnson and Johnson sur-gipad and use a 2-inch tape. Tape it and then put a wooden block on the good toe if we have to. We see a lot of necrotic heels, just mainly because of the situation these cattle are in. These we normally will bandage using this same method. Foot rot, we normally do these the same way. We clean them up. I am sure all of you who go out to work on a foot, the first thing you note is how nice and clean they are! It normally takes longer to wash them up than it does to take care of them. But we will put a bandage on and normally take 4 or 5 wraps all the way around with this. This 5x9 bandage will fit right up between the toes and you will have enough to flap over in the front and the back. You run a good 4 or 5 wraps with 2-inch tape. Put a figure 8 around the foot about four or five times. Normally you use almost a whole roll of tape. A

heavier tape helps to immobilize the foot also. The biggest thing is reminding them to take it off. If there is a lot of swelling, they will come off on their own in three or four days. If not, some of them will stay on a couple of months. If they leave them on too long, then you have to re-treat the whole foot because it irritates this tender area.

L. D. Barker, D.V.M.
Snyder Animal Clinic, Inc.
Snyder, Oklahoma

In the last few years of practice I have become more and more aware of the economics involved in veterinary medicine. As a new graduate and with a philosophy in general from growing up on a farm, I had the idea that the longer and harder the individual worked, the greater things he could do, and the greater would be the rewards from his services. How untrue this is! I have found that while a person should be listening for new and better methods of diagnosis and treatment of disease conditions, he should be ever so aware of the economics involved in his practice, as well. There was a saying when I was in veterinary college that veterinary medicine is not a business but a practice. Fellow practitioners, if you do not treat it as a business, you will not be able to practice very long. I am not only talking to the practitioner that is self-employed but also to the associate veterinarian as well. He needs to be as aware as the veterinarian who employed him of the costs of doing business. Inflation has crept into every facet of our life and has made us aware that a daily consciousness of it is necessary for us to maintain not only the standard of life that we may have grown accustomed to or wish to achieve, but also to maintain the quality of practice we enjoy.

I am sure you all remember the year of 1973. Our practice was established in 1965 and grew yearly until 1973 where it peaked out. There did not seem to be enough hours in a day to meet the demands for veterinary services. We had not made any major increase in fees since 1965. When 1973 was over, we had a tremendous increase over the previous year in gross, but realized only a small increase in net. We realized for the first time what inflation meant!

A method of practice that has enhanced every facet of our practice that I would like to share with you is a computerized bookkeeping, billing and management service. Time does not allow me to explain the system thoroughly, which would require handouts, slides, and other aids.

The computer service that we are on services only the medical, dental, and veterinary professions. It has saved us a great deal of time from routine posting and making and mailing of statements. We have eliminated a space-consuming need of additional files for active and inactive accounts. Probably the greatest advantages of automated record systems relate to practice analysis. These systems are almost

unlimited in the amount of practice information available to the practitioner. We receive an analysis of accounts receivable monthly as well as a monthly and year-to-date breakdown of the services rendered as to the species involved. This breakdown could be done under the doctor rendering the service, but we were more interested as to what each species was contributing to our practice. From this report we can analyze each service rendered under each species as to the number of animals that service was rendered, what that service contributed to the overall gross of that species, and the average fee being charged for that service. From this information one can see what service is being rendered more and what it may or may not be contributing to the overall practice gross. With a consistent annual cost of living increase, upcoming minimum wage increase, and all the other factors involved in increasing the cost of doing business, we can see what areas may be due some changes and which would most affect our practice. We believe that through this automated system we can collect information that may be helpful for years to come as to needs and trends in our practice. With the use of this system, we have had an annual review of our fee structure and made adjustments to meet inflationary trends and other needs in our practice. We have found that it is best to have a small upward adjustment in fees annually than to wait several years and have a large sudden change. With a quick analysis of the information, we can tell that the demands of our practice have changed in relationship to what percent of the practice each species contributes. 1977 appears to be the first year with a comparable gross to 1973.

	1973	1977
Bovine	53.45%	33.4%
Equine	9.40%	27.4%
Canine	7.47%	11.3%
Feline	0.50%	1.5%
Ovine	0.35%	1.3%
Porcine	0.43%	2.5%
Retail Drugs	28.40%	22.6%

The percentage of bovine practice has been lower. For about the last year we have seen a gradual increase in bovine practice. With the optimism I have seen in the last few weeks, I am sure it will get better.

The cost of the service is very minimal when you take into consideration all of the services you receive from it. Other services that I have not mentioned that are available are a client reminder service and a collection service that is not directly involved with the computer service.

For the bookkeeping, billing and management service, there is a monthly fee of 26¢ per active account and 27¢ per statement. Also built into our monthly statement is a 1.5% interest or 50¢ minimal service charge per account over 30 days. In our practice this generally offsets the majority of the charge for the service.

There are many computer systems available. The one we use is Automated Management Services, Jackson, Mississippi. That sounds like a long way to send information. They have a representative located in the area who calls on us monthly and handles any problems that may arise, which are few. I do not believe we could get any better service if they were located closer. I know of practitioners that have been on and been disappointed with other computer programs, who have been very satisfied with this one. Secretaries, once oriented to it, love it.

I hope that I have not bored you. The economics of bovine practice has concerned me the last few years. Many a young veterinarian has been discouraged from going into food animal medicine. To me it is the most professionally rewarding, but why should it not be as financially rewarding as practicing on some other species? I want to challenge each of you to do a better job of practicing bovine medicine and surgery and to practice smarter, not harder.

When attitude is bad and service is poor—the amount of the fee cannot be ignored.

Paul Eness, D.V.M.
Ames, Iowa

One of the problems that we face, I guess one of the big frustrations that we see, is the downer cow problem and I will not pretend to have all the answers and I do not have very many answers, but maybe I have some that can be of help in some of these cases. I may be with the school but still not so academically-oriented that I will draw a blood sample from every down cow and analyze it before we treat them. But I do like to draw a blood sample before treating these cows if there is any doubt in my mind that she may be a problem cow. I draw a blood sample before treating and 9/10 of these may get thrown away, but if you have a cow that stays down for a few days, and does not respond the way you want, it is nice to have an unconfused pre-treatment sample to see if you were on base in your first treatment.

If the animal after treatment stays down and does not get up right away and maintains herself in normal sternal recumbency, I do not get in any real hurry about lifting this animal for the first 24 hours. We will have the owner shift her positions but if she is lying in normal position, just leave her there. If she is lying in stanchion or in an awkward position on poor footing, naturally, try and move her some place where she does have a chance of getting up on her own. The big problem when the cow is down and will not maintain herself in a normal sternal recumbency, I feel, is that if you do not try and educate your clients, they will just leave them. You treat her, she tries to get up and she gets back in this position and 12 hours later he calls and you go back. She has been in this position and you ask him how long and he says ever since you left. She tried to get up. And this frog-style position

or a prop position where she has her hind legs extended forward and out to each side—as we know, this trauma is rapidly self-perpetuating and I feel it is necessary to do something with this cow to lift her or try and get her legs in normal position just as quickly as we possibly can, so that damage is limited. This paralysis that we have all seen and known as obturator paralysis from time immemorial, we are told now is not actually an obturator paralysis but is actually of the lumbar branch of a sciatic nerve. But whatever it is, maybe calving paralysis is a better term anyway than obturator paralysis.

Very few of these cows will get up if they maintain this prop or frog-style position. And lifting a cow with that type of damage with hip clamps is not often rewarding. You get her up, you would like to have them all stand right there on their feet and get the numbness out and pretty soon they walk away. But as we know, many of them will not and very few of them that we find will ever get up. Many of these, when you do lift them, will try and stand or we will find that the damage is not bilateral but it does involve just one limb. They may seem to stand pretty straight on that one limb but have exaggerated flexion of the other and tend to knuckle down, swing off balance, throw that leg way out to the side, get off balance and back down they go. They take a big lunge forward and then end up in a heap and the next time they do not even put forth that much effort.

I have found that tying the legs together with a set of hobbles, or a short rope tied about 12 to 15 inches apart, will be quite helpful. Of course, as we all know that man on the tail is pretty important on these. This particular cow, we treated her, waited a little while, tried to get her up with a prod, she did get up, she swung, she had a lot of damage to the right limb, she swung off to the side and back down in a heap again. We got the hobbles, tied her legs together and then she stood up. I have been very surprised that many of these cows then will stand. Actually, what it does is stabilizes the leg. If you get one that wants to go cross-legged, it does not help quite so much, but even then, I think, tying these legs together, when she goes back down she is not going to throw those legs way out to the side or out behind her. They hold each other in place. If it is unilateral, the one limb will help support the other and stabilize the animal. We have left these on and I have used this more successfully on younger animals. I think that in two-year-olds we usually see this type of calving paralysis and we have left these on for a week. An animal will get up or down after the first day by herself and do really well. We think that she is going to be okay, take the rope off but she goes back where she was. We have gone back and tied the legs together and maybe some of these we have left on for 2 or 3 weeks and sometimes even longer.

The first cow that I ever saw this done on was a client of a friend of mine. I saw this cow with her hind legs tied together and she was getting along real well. She did not even take the slack out of the rope when

she walked. I asked him how long she had been tied together like that and, well, this was in the summer and he said since January. I asked what happens when you take the rope off? It did not look like that rope was doing a bit of good. He said we untie her legs and she cannot get up. Maybe we are giving this animal a false sense of security, but I have a feeling that of those that do get up after a few days with their legs tied together, many of them would never get up if it was not for tying the legs.

Sometimes we get some of these lightweight cows, or some cows that just will not tolerate the hip hoist. This is one we put the hoist on, buzz her and she will not get up. We just tried buzzing her without the hoist and with a man on the tail and she still would not get up. But on these animals the various kinds of slings will work. I have never had much luck with these in the big heavyweight old dairy cows. You are really faced with this problem quite often.

This is a little more sophisticated type of lifting device and is called a cow-walker. There are probably others made but the one I am familiar with is a cow walker. If you want to write for information it is Box 1141, Mansfield, Ohio. I talked to a fellow last week just to see if they were still making them.

Supporting devices, two belts with a ring at each end, are laid on the ground. You lay these beside the cow lying on her side. They have a nice little handy device with a hook on the end. You stick under, hook the D-ring and pull it under the cow. You know, sometimes this can be a problem too, getting these belts under. It has gone under the cow, one just behind the front legs and one just ahead of the udder. And then in this cow-walker, the frame of this is backed over the animal. There are two sets of winches. They operate on a track under a little roof. The hook on the winch is hooked into the D-rings in these two belts. The cow is simply lifted with this. So there is nothing unique about this. It just lifts the cow.

If you lift her, winch her up until you get her clearing the ground and then a cradle device is slipped under her feet. It is really not much more than a big heavy-duty stretcher, with holes in it for her legs to protrude through. I think one of the advantages of this is that it does support the animal more from side to side, so you are not compressing her laterally. Anyway, this is slipped under the cow and it is brought up into position. In fact, it is fastened onto the frame. Then she is let back down into the stretcher and winches are then hooked into the stretcher device. You can lift the front end a little or the back end higher. They operate independently so you can support this animal in whichever way she seems most comfortable. It does give a pretty general support under her ventral surface and will get the circulation back in the legs.

I know we have saved some valuable cows that were worth far more than the cost of the equipment. Now, one of the reasons it is out of production is that the person who is building them did not know if he could

sell them on the market and come out or not. But I think if he did have some interest in them that he would probably get back in production. They cost somewhere around \$1,000. These cows just need to be lifted up and supported for a day or two and I think it would probably be worthwhile. It could be put out on a lease arrangement or rented out to clients to save some of these valuable cows. I would like to say it is not going to work on all of them, but I am convinced that it will sure save some of your real problem cows.

Edwin Linder, D.V.M.
Dodgeville, Wisconsin

Thank you, Dr. Cote, and I want to give you all greetings from Wisconsin, particularly from southwestern Wisconsin.

The majority of our practice is family-owned farms, dairy herds, that range in size from 50 to 75 cows. So the majority of my practice tips will be dairy-related. In southwestern Wisconsin we have a lot of hills, extensive hardwood forests, and considerable pasture lands, although a lot of our farmers are going to dry lot feeding now. Wherever you have a lot of pasture land you have a lot of barbed wire fences. Every once in a while we find an old cow that jumps the barbed wire fence and tears open the subcutaneous abdominal vein or a subcutaneous vein on the udder. I used to jump right up and run out because the only way that I had was digital pressure and if I did not get out there soon, the farmer got fatigued and very distraught. So one night a farmer called up when I was eating dinner and since the "need is the mother of invention" and I needed nourishment at that time, I asked him if his wife had any snap clothespins and if she did, to take and snap that clothespin on to the area of hemorrhage. When I arrived on the farm, the farmer was busily milking and the cow was busily eating, undisturbed by that clothespin snapped to the ventral surface where she had torn open that subcutaneous abdominal vein. I have used that many times since and it works very well. Most farmers have the snap clothespins around and that way you can finish what you are doing and go out there and suture at your own pleasure.

Another problem that we have, at least in our practice, and I think in most dairy practices, is ulcers. That is that smelly problem that you find in the folds, in front of the front two quarters. We have used various lotions, sprays and liquids, and all of them have been questionable in their results. But about a year ago I was talking to Dr. Kruger from the Evansville Veterinary Service, and he told me about a foot rot gel that they were using and they liked very well. It was a formaldehyde gel containing 9.6% formaldehyde. So we obtained some of that and have been using it for that purpose and I am well satisfied with it. I was out on a farm one day and the farmer asked me what I could do about these smelly sores

between the udders. He had trouble milking those cows. I dispensed some of this hoof gel for the ulcer and much to my surprise, it worked! Through some experimenting I found that if you apply this four or five days, once a day, you will get a real thick, dark, hard scab that will form over the ulcer. In about two weeks that will peel off leaving pink granulation tissue. I usually dispense some methyl blue to put on this to keep it dry. Now, this product, from the Evansville people, came from Curt Labs. The friendly FDA closed them down because they had some stillbesterone on their shelves, I understand! They have asked Wisconsin Biological Supplies at 2609 Seafoot Road, Madison, to prepare some for them.

This is a practice tip I heard at a meeting. Again, the barbed wire fence problem and lacerations of the teats. I am not talking about the ones that penetrate into the canal, but just the ones where they tear a three-cornered piece of something off. They get hard and sore and they told of bandaging these teats. I had not had any success with bandaging teats until this came along. They use tubal gauze. I am sure you are familiar with this. Size 12, 1 inch by 50 yards and comes in a big roll. They make little applicators, and that was one of the problems I first thought I would have selling it to the farmers. But one thing that works very well as an applicator is an old milking shell. Most of them have an old one around and they will work as an applicator. You can put this tubal gauze over the top of the metal shell and the farmer can just twist it on the teat. He can bandage it night and morning after milking. You can dispense your favorite medication for the teat. It will keep the teat clean and soft. It will milk easier and the cow will not have near as much resistance to milking.

Another problem that I see five or six times a year is pyelonephritis. I have palpated kidneys to see if I could detect any change in consistency or size. In palpating the medial surface of the left kidney, I felt a band of tissue that ran transversely across the kidney. It would get as large as a couple of centimeters, about as big as my little finger. Some a little larger than that. It is a thickened ureter. I have found that you can determine if you have pyelonephritis, and also you can follow the course of treatment and if it is effective or not, by palpating that ureter as it crosses the kidney because it will reduce in size as the course of the treatment goes on. Most generally you cannot palpate this on a normal cow because it is embedded in the fat around the kidney.

In September of this year I attended a theriogenology seminar in Minnesota. I want to pass on a little information that I picked up there. At the end of the second day they had kind of a jam session in which they had several of the reproductive physiologists giving practice tips and answering questions. One of the questions that was raised was uterine medications and what they used as their policy in withholding milk. There was an extensive discussion following that with a lot of different treatments used and so forth. But one of the

reproductive physiologists said that he had done some studies on this and found that intrauterine infusions of tetracyclines did not contaminate the milk. Neither did he find therapeutic levels in the oviduct or even in the cervix. He said, however, if they administered therapeutic levels of tetracyclines systemically, they found therapeutic levels of tetracycline in all tissues; the milk, the oviducts, cervix and in the uterine walls.

I suspected that there were a lot more qualified people in my area to give practice tips than I, so I asked if anyone had any that I could present here. From the Veterinary Associates at Hazel Green, Wisconsin, Dr. Rossen and Reed and group suggested in a cow that is straining after you breed her or a rectal examination, if you massage the clitoris you will stop the straining. It also works on a cow that continues to strain after calving. I think we have all had those calls. They usually come in about 9 o'clock at night! They will say, "Doc, this cow is straining and you better come out and do something about it." They suggested that if you have the farmer go out and gently massage the udder and start the milking, this will stimulate oxytocin production and the cow will stop her straining, it will contract the uterus.

Dr. Wilson and his partner from Plain gave the following practice tip. Being in large animal practice I find it hard to remember everything I must do to small animals. I have developed this easy jingle and it also aids veterinary assistants. A veterinarian easily eludes the growling public. A stands for, check the anal gland. V from "veterinarian" stands for vaccinate for distemper and for influenza. E for medicate the eye with ointment before surgery and check the eyes. E in "eludes" stands for ears, cleaned with a water pick. T in "the" stands for teeth. Check the teeth and clean if necessary. G in "growling" stands for groom, trim nails and brush before going home. P in "public" stands for parasites. Check for fleas, worms and treat if necessary.

Gerald Honeywood, D.V.M.
Barrie, Ontario, Canada

Thank you, Mr. Chairman. It is a great honor for me to represent Canada here this evening, to speak to such a distinguished group of bovine practitioners. I have a couple of things I am going to try and cover tonight. One is the treatment of acute coliform mastitis with the drug Colimycin. And if we have time I want to say a few words about the use of sodium ascorbate or vitamin C in bovine practice.

Listening to the veterinarians that have preceded me reminds me of the wise old statement of Winston Churchill's when he said that many people stumble on the truth, but most of them get up, brush themselves off and walk away as if nothing had happened. And I think this little practice tip that I have to share with you on acute coliform mastitis fits into this group.

Just to give you a little background. In 1970 we were fortunate enough to buy an established practice in Barie. (It is 60 miles north of Toronto, the location of the 1980 Bovine Practitioners convention, so I will look forward to seeing you all there.) But this practice is mostly dairy, 75% dairy. When we purchased it, along with it we got a few clients that were trying to better their herds genetically and they were paying what are not exorbitant prices now, but they were up in the \$40,000 range for Holstein cattle. So it was a great pleasure to start off working there. One morning I had a call at 5 a.m. from one of these clients. One of his best cows had a temperature of 104° F, she was scouring, not eating, and looked pretty sick and he thought I should get right out there. I thought I probably should, too. He had just purchased her two months ago. She was a 7-year-old cow and she had calved just after he bought her so she was fresh at this time and milking 135 lbs. Upon examination, he was correct, she had 104° F temperature; he had seen some mastitis in the right front quarter the evening before. He had stripped it out and treated it with oxytetracycline and dextrose intravenously. He did not want to bother me the night before. This cow was very dull. She would get up with effort, but when she stood she was fairly steady on her feet. She was cold and I think you have a good idea that she probably had coliform mastitis. There was very little swelling in the quarter. The secretion from the quarter was milky but had fine mealy flakes. At this time in our practice we were sending our milk samples to a local hospital. We obtained a milk sample, even though he had treated her the evening before. I think it is still beneficial to get milk samples from these cows because sometimes you will culture. We took quarter samples. My treatment at that time, seeing he had treated her with oxytetracycline the evening before, and since we can use chloramphenicol in Canada, I gave her 10 gms of chloramphenicol, antihistamines, 2 gallons of intravenous electrolytes and a bottle of calcium, oxytocin and stripped the quarters out and treated all four quarters with a furacin penicillin preparation. He was instructed to strip the right hind quarter four hours later and treat it again. At 12 noon on the same day I went back. Her temperature was 104° F and there were no rumen sounds at all. This time I gave her 5 gallons of electrolytes on intravenous drip, 10 more gms of chloramphenicol, antihistamines and more calcium. She was still scouring, very dull, but could still deliberately get up. At 8 that evening her temperature was still 104° F, and at this time I gave her dexamethosone, getting a little frantic about the fever, antihistamines and more intravenous fluids. On day 2, at 8 in the morning she was still hanging on. She was dull. She rose slowly but deliberately. Still scouring, temperature was 102° F. She was completely dry, she had not eaten a thing for more than 24 hours. I again treated her with chloramphenicol, antihistamines and calcium. They had cultured an *E. coli* out of the right hind quarter. They still did not have a sensitivity. I could not think

of anything else we could really treat her with. At that time chloramphenicol and furacin were the best treatments we had for coliform mastitis. At noon her temperature was 102° F, her eyes were clear but watery and this was the beginning of a syndrome that I had never seen in a dairy cow before. I talked to a lot of veterinarians that never have either. And I am sure with the number of bovine practitioners we have here that possibly one of you has seen this. This cow must have had glaucoma because her eyes were very tense and watery. If you would get near her head she would shy away from you. This went on to lead to something else in the next visit. It was very evident that she had a lot of intraocular pressure. At 6 that night she did barely get up and at this time both eyes were filled with a murky, yellowish-brown fluid. I think it was mostly in the anterior chamber, but she was completely blind at this time. The sensitivity test showed that this cow was sensitive to a human drug cholimicin and another human drug that we now use, gentamicin. But this was back in 1970 and gentamicin at that time was not available for veterinarians, especially in eastern Canada. We knew we had to do something different from what we had been doing for the last two days. So, I called the pharmacy at the local hospital. They had 36 vials of cholimicin. It is 150 mg, 2.5 mg per kg so this cow was having 3 vials every 6 hours, intramuscularly. We gave her 12 vials a day. The cost of this drug is about \$10 a vial, so you know you do not use it on any ordinary \$400 cow, because the drug bill alone is over \$400. She had her first injection at 8 that evening. She was a tough cow. She was given 3 vials and they gave her 3 vials every six hours. I looked at her in the morning. The right eye was half cleared. This murky brownish-yellow fluid had come down half way. The next time I looked at her was at 12 and the right eye was completely cleared. She could see; the left eye was down half way. She went on from this. The next visit she was starting to ruminate and eat. The quarter swelling had gone and we could not find any other flakes in it. At 8 the next morning she was up eating when I walked in. This almost looked like God had been there. She was standing at the feed bucket eating. She was ruminating. The quarter looked fine. And in one week this cow had completely recovered. The right hind quarter was milking as heavily as the other quarters and she was back up to 100 lbs. a day. This cow was sent to market this past year at the age of 14 due to a breeding problem. She was superovulated. There had been some complications during it. But at the age of 14 she finally went to market, so I think she had a worthwhile life.

Since this cow we have treated 10 others with colimicin, and we have had full recovery in all of them. The last cow we treated, the quarter was very hard and watery and we thought there was no chance that we would ever get that quarter back. At that time we treated her intramuscularly with colimicin. We treated her in the quarter with 3 cc gentamicin for 3 days and this quarter came back 100%. So I think if

we have a valuable animal from which we can culture an *E. coli*, I would not go and use it on any acute mastitis because it could be a staph or strep, without the sensitivity because colimicin has a very narrow spectrum. It is for *E. coli* and *Pseudomonas spp.* but I am sure you would be throwing your money away on a staph or strep.

I just want to leave you with some of my feelings on sodium ascorbate. My family has been fairly interested in nutrition for the last couple of years. We found a cheap source of vitamin C or sodium ascorbate. We are in the metric system in Canada. I mixed up on pounds and kilograms! I ordered 50 kgs and ended up with 110 pounds of sodium ascorbate powder, so I had to do something with it. We had a couple of outbreaks of IBR that were very refractive to treatment. Usually with IBR you treat them once with steroids and antibiotics. Temperatures come down and they start eating and we hardly ever visit these steers anymore. But we ran into a couple of cases this fall that were very refractive to treatment. These steers just could not get back on feed. Their temperatures would not come down. They stayed at 106 and 107 and we always felt that if we got them eating that they would get along all right. But we could not ever get them eating. So kind of in frustration one day, I thought if vitamin C is good to prevent the common cold in humans, and I believe it does, that maybe it will do something for these steers. I mixed some of this sodium ascorbate powder in some distilled water. I ran 40 gms, which is quite a dose, into these two 600 lb. steers. I went back the next day and they were eating. Their temperatures had come down 3 degrees and I thought maybe there was really something to this. I treated them two days in a row and they were better than the other 50 in the pen. So I mixed some sodium ascorbate, I had to get rid of this stuff, into their ration so that each steer was getting 3 gms a day. Maybe they were going to get better anyway, but after 2 days the whole group looked a lot better and they have been carrying on like this for three weeks. I really thought that maybe it had helped them.

Another place we have used it is in virus pneumonia or enzootic pneumonia in dairy heifers. These 150 lb. heifers that have to survive in a dairy barn with the temperature change and ventilation that is poor and we get virus pneumonia.

We had two of these calves that were getting chronic. We had treated them with antibiotics 4 or 5 days in a row, taken them off and 3 days later we had them back on. The client was pretty keen on giving intravenous injections himself anyway. I gave them 3 gms and told him to give them another 3 gms that evening. His remark was that these calves really started to eat. These calves were spending a lot of time breathing and it's hard to get them eating what they should. But this was his one remark, that these calves really did start eating. I have found this to be true in most of the ones that I have treated. I have also used it on inappetent cows and cows with fat cow

syndrome. Also these cows that calve that do not get down with milk fever but you just cannot get them eating. I have used it on displacement cows that just do not recover after you do surgery. I feel that it has really helped them.

Harry Steinfert, D.V.M.
Blue Rapids, Kansas

It is a real pleasure to be here. I have been to two other of these annual meetings and I think three of our district meetings, and two or three meetings in the other districts. I do not know how much of a pleasure it is to give a practice tip, though. I have never done that here before.

In order to get started I would like a show of hands of people that are in a general practice, and that means that, by my definition, that you will look at a dog, or a cat, or a horse, or a cow, or a pig or about any other animal that somebody brings in. Just raise your hands. There are quite a few of you there. Now there might be a few of you that can glean a little something from this presentation. The rest of you I assume are probably specializing in one of the species, probably bovine since this is the bovine meeting, or you are attending a university as a student, or you are a teacher at a university or you are in extension, or you are working for the federal government, or maybe the state government, and I just do not know if I really have anything to contribute for you folks at all.

The topic I want to talk to you about is the most important thing that motivates me about everyday practice decisions and that is trying to determine what clients need. I have been in practice ten years and it amazes me how many clients do not want or do not know what they really need. My goal when I decided to go to veterinary school, and I was farming before I went to veterinary school, was that I wanted to do something which would be of service to the agricultural community and something that they wanted and something that they needed. Now, just to give you a little background. I went to a real small town in north central Kansas, 1100 people, and there had not been a veterinarian living in that town for twenty years. These people had been given good veterinary service, though, from the east and the west. The man that's from the east is sitting here right in front of me, looking me right in the eye. They knew what good veterinary service was. I would say that if he was not here, too. That was in 1968 and my wife and I went there and I would have to say that "we" set up practice, she answered the phone. We started taking the calls. The first year was real exciting. It was not real busy, but it was real exciting. We had about one or two real busy months, but it was exciting to get to know all these different people that we were working for and, you know, I regret that I did not keep a diary of everything that happened. It was exciting to see the practice grow. The next two years became busier. By the end of the third year, I was

ready to have somebody else come to the practice for some help or else I was ready to quit. Because by the third year I had started to repeat some of the things that I had done for clients the first year. Such as this. We had a client that had an outbreak of leptospirosis in his cows the first year that I was there. The third year he had another outbreak. And that just does not make sense to me. You know, if you have had one of those outbreaks and you are using the right products, if you have another one, it sure should not be because you quit the program that was outlined for you. This is not a swine meeting but I had a client that had an outbreak of erysipelas the first year that I was there. And in the third year, here I am back on that same place again explaining to him how to prevent erysipelas in his hogs. That is discouraging to me to know what these people need and they do not want it. So, I was not attaining the goal that I had set for myself, which was to provide a service that people needed and that they wanted. And you know something was wrong.

Now I want to give you an example in our area of a service that people need that we find hard to convince people to want. I am going to describe to you our cow-calf operations. We are primarily a grain producing area, we produce milo, dry land, but we have a lot of waste land and there are cow herds on them and they are small cow herds, most of them. From 25 to maybe 75 head in our area. We are on the northwest edge of the Flint Hills, so we are not working with very many people where a cow herd is their primary source of income. We have two breeding seasons there. Spring season and fall season. The spring season starts January 1 and ends July 15 and the fall season starts July 16 and ends December 31. When I got out of school I liked to do rectal exams and pregnancy testing and herd health work in dairies and so I just knew that this was a service that I was going to be able to provide for these people, that they needed and that they would really want. Have you ever examined a 25- or 30-cow herd that has a six-month spring calving season and tested them in the fall for pregnancy? You know, it does not make any difference what you find, that farmer can think up a million reasons why that cow should not be culled. If she is open, she probably just had a calf. And if she just did not have a calf, why, she is just going to have one. Even if you think she is open! Well, what kind of a service does this man really need? Does he need pregnancy testing? No. He does not need it at all. It does not do him a lick of good. Does he need a vaccination program for, say, vibriosis? And I think vibriosis is endemic in our area and so chronic in these types of breeding seasons you do not even know you have it. What can you do as a vaccination procedure in that type of a situation? You cannot vaccinate for leptospirosis. You are going to have to vaccinate every cow individually for vibriosis. I guess you could use some intranasal product for red-nose abortion. Red-nose abortion I think is the most common type of abortion that we see in our area. But in a cow herd,

maybe you will lose one or two cows usually. We found lots of different cow herds that had red-nose abortion in them but how are you going to protect for it? You know there is not a thing you can do right in that herd. Does it do any good to semen-check the bull in that herd? He would have to be one that you could eyeball that was a poor breeder not to breed 25 or 30 cows in 6 or 8 months. What does the guy really need? What the guy really needs more than anything else is a breeding season and he needs it badly. If he has a breeding season, then he can have a vaccination procedure so that he can get his heifers bred. Their heifers calved over a long period of time just like their cows. I think because they had vibriosis. You can vaccinate for red-nose and prevent some of these red-nose abortions. He can get some value out of pregnancy examinations, especially if he gets that breeding season down to 60 days, as he should, and then gets in there and pregnancy-tests 60 days. If we have bad summer and he could take advantage of some of these early weaning programs that some people are taking advantage of, where you run out of pasture in the summertime and you wean those calves when they weigh 250 or 300 lbs., it is easy to maintain the cow to the next year. It has been shown by some work at Kansas State that you can raise that calf just as economically as a cow can, as far as getting it to a certain weight at a certain age. You know, you have all kinds of options if you can just convince him to want what he needs.

I could cite you examples from our dairymen and from our swine people that would go right along this same vein. If only we could convince people to want what they really need.

Well, you know, that was in 1973 and I began this change in philosophy of trying to figure out how to get people to want what they need. So you say, well, how are you doing anyway? You got all these people geared up here wanting what they need and you got all these cow-calf people with short breeding seasons. How do you measure how successful you are in your practice? A lot of that goes back to where you set your goals. Lots of people want to measure the success of a practice by how much income they take in, what their gross income is, what their net income is. I am not really too crazy about doing that. We have one client that does as much work with us in a year as what I grossed the whole first year I was there 10 years ago. And if I looked at those figures, why, I would say I am pretty successful. But that was not my goal to start with. I think sometimes trying to measure a practice by how much money you make causes a cover-up and I think some people have quit growing, have quit shooting for some of the other goals that they had because they have attained a certain income level or their practice has grown so.

Several years ago in Kansas, at the state meeting they had Robert Lavoy speak on how to build a \$100,000 practice. He had a lot of good ideas on how to stimulate people to come to see you and a lot of these ideas are real good ones. But, you know, with infla-

tion what it is, a \$100,000 practice in a practice that does a little dispensing like we do, does not even pay the drug bills. So you cannot use that for a goal.

If I am going to assess how I have done in the 10 years that I have been in practice, I have to go back and look at that practice goal or that goal I had for even going to veterinary school. I wanted to provide something for the agricultural community, that is, something that they need and that they would want what they need. And I would have to say that I have

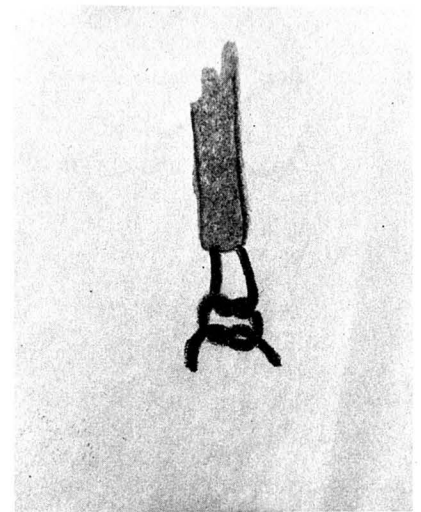
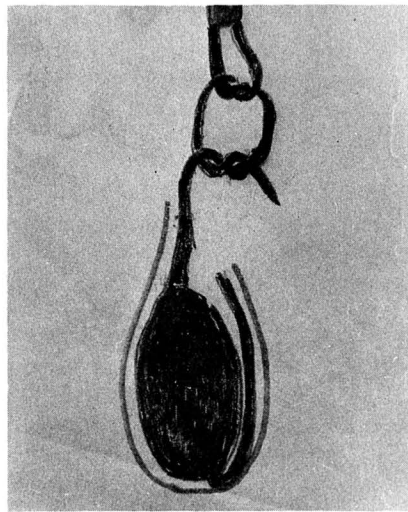
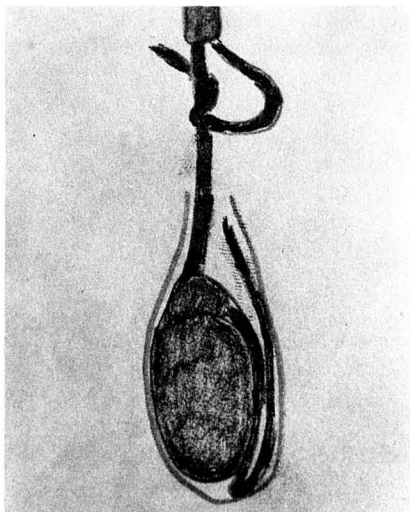
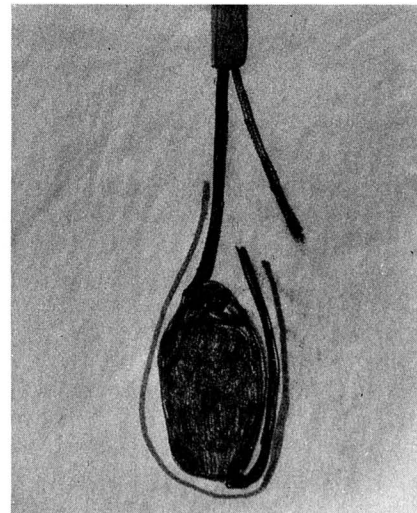
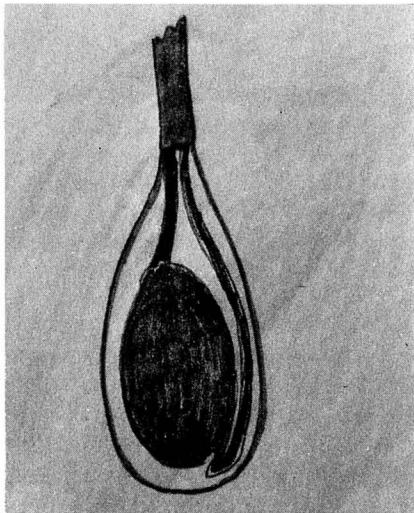
had moderate success. There are probably 12 or 15 people with whom the majority of the growth in our practice has been. It has been quite a large growth for the type of area that we are in. It would be very tempting for me to quit general practice and just work with those 12 or 15 people. But I think I will hang in there awhile and see if maybe some of these other people will not get to the place where they want what they need.

Cyril M. Brown, D.V.M.
Newton, Kansas

A simple method of controlling post-castration hemorrhage in the bull is to tie a knot in the tissues.

Open the scrotum in the preferred manner. Using closed technique strip the testicle out of the scrotum until the cremaster muscle breaks. Open tunics above

the testicle. Separate spermatic cord into two segments (vas and vessels), and simply tie these two strips of tissue together in a square knot. Emasculate the testicle.



George Beneke, D.V.M.
Hillsdale, New York

Good evening. I am going to give you some simple tips tonight that I hope you can take home and use.

The first one is a tip that my partner, Dr. Jenkins, gave me. We are in a dairy practice. Dr. Jenkins uses a small baby mastotome to remove extra teats from larger heifers, the ones that are two years old. He just crimps these extra teats off with a mastotome and then takes them off with scissors below that. There is no bleeding. It does a very neat and professional job, especially on show cattle. Be careful, though. Dr. Jenkins has been kicked between the eyes a number of times!

My next practice tip is, don't give practice tips. My practice tip is on giving large animal IV's—long-term, large volume IV's. I have seen veterinarians go through such contortions to hold the needle and the simplex or whatever they are using in that cow. The answer, gentlemen, is crazy glue. Simply put the needle in the cow's vein, and hook it up to the IV set and then crazy glue the whole thing right to the cow's skin. Once in awhile these tubes are going to smoke on you from the crazy glue, but don't worry about that. They won't burn too much, and they stay in. As a matter of fact, when you take an IV out of a cow or a calf, you take a little bit of hair right with it. Those IV's will stay in, gentlemen, and you don't have to go through any kind of suture techniques or cut-downs or anything else. They will stay in for 4-5 hours and you can walk away from them. What I do is set up my jugs on a cow and come back a couple of hours later and my biggest worry is that the jug might have emptied out. Again, you use the glue to hook up the needle and to hook up the IV right at the beginning. You take your simplex or IV tubing up on the pole and you glue it again and then you forget about it.

Now, the other thing that we do for calves that are down—and you cannot see their eyeballs anymore, and you want to give fluids and large volumes of fluids—is to simply tie all four legs together with a piece of baling twine and put these calves down on a 1x4 or 1x6 piece of board so that the calf's body is holding down the board. Tape the head in extension to the board. It stretches the neck out very nicely. You can clip the vein, but frequently you can hit the vein without clipping. The vein is exposed very well. The calf cannot move. The calf will lie there for a long time without moving.

That's also good for you who practice on small animals but very carefully, because you can remove some skin from small animals, also. You can very carefully use crazy glue, especially on long-haired dogs. Crazy glue those IV's right up to the back of the dog and then let him move around in a cage. Do not put it on the skin. I tore some hide off of one dog one time and it really is not very nice.

My next practice tip is a system that we use in our four-man practice. We decided that we were going to grade all the uteri that we feel on palpation and it has

changed our whole sterility program around and really improved it. Now all of us, except maybe the more sophisticated sterility men in our business, get around to saying the uterus is sloppy or slightly sloppy or it is large. That really does not mean anything. It does not mean anything to the farmer. It does not mean anything to one of your partners who happens to be checking the cow the next time. It does not mean anything to the artificial breeder. So, what we have done is classify our uteri and our C.L.'s according to a system that we have set up. The two articles that I think you should read are Dr. Studer's articles in VMSAC, October and November, 1975. Very good articles. They have really changed our practice around. The other thing is you cannot lie to yourself. If a cow is number 2 uterus, not ready to breed one time, you go back there and after all of your treatments she is as bad or worse, you cannot say to the farmer well she's coming. Because he knows by your numbering system that she is no better. And also you know. It is a good check on your treatments. The artificial breeder, when he comes into the barn, sees that a cow has what we think is a good uterus, a 0 or a 1, and he knows that he can breed that cow, without infusion. The farmer knows if the cow has a real good uterus there are no problems with cystic ovaries. That he is not going to have to use a \$2 bull and be reasonably assured that that cow will breed. So the whole system, whether or not you use Studer's system, which I think is good, or you develop your own system, I just wish that you would at least try to use it. It will help your practice.

The last thing is something I almost hate to talk about, but I would like you to think about trying, is using coffee on your right displaced abomasum cases. For those cows that are floating to the right, that are not in torsion (you would not want to use that if you have acute signs of torsion, right torsion), try using a pound of instant coffee, diluted in hot water as a drench. Frequently the next day the cow will no longer have that right displaced abomasum. Sometimes the cow will have an abomasal displacement on the left side the next day, which is for me a lot easier to work with. The only problem that we have is that the cost of coffee has gone up—the operation is almost cheaper!

William M. Kortum, D.V.M.
Petaluma, California

Dr. Winsor mentioned that there was one more practice tip, by a veterinarian whose name I am not even sure of, but it concerned the use of an indwelling uterine catheter.

I called Dr. Cote because in a way I am in an embarrassing position, to be in the market of selling these indwelling catheters. I apologize for that, but I put them on the market about eight years ago and went back into practice and rather neglected them. I recently took off and I have been phoning practices to

see how they are using them. And so, what I can transmit is a few tips that other practices told me about as to how they used these Fort Dodge indwelling uterine catheters.

I developed them in the practice for a multiple way of treating a uterus over a period of time, knowing full well that antibiotics only last about 18 hours in the uterus. I have a whole list of really interesting ways the practitioners are using the catheter.

I think I will just leave you with one thought. I think that a great majority of them, maybe not a majority but a large minority, are using it for its foreign-body effect only. I myself have used them in practice for years. I think I have used about 5,000 of them in this way and found them very beneficial. Now that I have a little time, I buried myself in the Davis, California, library to explain why possibly that is effective. There is a great deal of work being done in the human field on IUD. It is very exciting to put together the case as to why these things work just for their foreign-body effect.

So the practice tip would be that the next time you have that embarrassing cow that is absolutely nor-

mal—she has repeated on you four times but she has a perfectly normal record, cycles every 21 days and there is no discharge—you put a speculum in the vagina and find nothing coming out of the cervix. The two horns are of equal size and essentially you have used all that is human to diagnose why the cow is repeating and there is no reason that you know of. Many times I think we all dump some more antibiotics in that cow out of desperation, to be doing something. Some of us get a little braver and say we will try one more time. What I do in my practice is to put an IUD type of device into the uterus anytime during the first 3 days after heat and leave it in for 9 days and that is really empirical. Some of the practices that I called leave it in a couple of heat periods. Spilling over into the equine area, one person had an eight-year-old barren mare and sutured it in for 3 months and she conceived on her next heat when he took it out. Leave it in for 9 days and take it out. Do not medicate at all. If it has any debris on it then you have missed a chronic endometritis. If it is essentially clean go ahead and breed her on the next heat. She will probably settle.

BRIEF SUMMARY
(For full prescribing information, see package insert.)

Lasix® (furosemide)* Bol-O-Tabs® (2g)

A diuretic-saluretic for prompt relief of edema.

CAUTION: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATIONS

Cattle:

Lasix® (furosemide) is indicated for the treatment of physiologic parturient edema of the mammary gland and associated structures.

CONTRAINDICATIONS - PRECAUTIONS

Lasix® (furosemide) is a highly effective diuretic-saluretic which, if given in excessive amounts, may result in dehydration and electrolyte imbalance. Therefore, the dosage and schedule may have to be adjusted to the patient's needs. The animal should be observed for early signs of electrolyte imbalance, and corrective measures administered. Early signs of electrolyte imbalance are: increased thirst, lethargy, drowsiness or restlessness, fatigue, oliguria, gastrointestinal disturbances and tachycardia. Special attention should be given to potassium levels. Lasix® (furosemide) may lower serum calcium levels and cause tetany in rare cases of animals having an existing hypocalcemic tendency.

Although diabetes mellitus is a rarely reported disease in animals, active or latent diabetes mellitus may on rare occasions be exacerbated by Lasix® (furosemide).

Electrolyte balance should be monitored prior to surgery in patients receiving Lasix® (furosemide). Imbalances must be corrected by administration of suitable fluid therapy.

Lasix® (furosemide) is contraindicated in anuria. Therapy should be discontinued in cases of progressive renal disease if increasing azotemia and oliguria occur during the treatment. Sudden alterations of fluid and electrolyte imbalance in an animal with cirrhosis may precipitate hepatic coma; therefore, observation during period of therapy is necessary. In hepatic coma and in states of electrolyte depletion, therapy should not be instituted until the basic condition is improved or corrected. Potassium supplementation may be necessary in cases routinely treated with potassium-depleting steroids.

WARNINGS

Lasix® (furosemide) is a highly effective diuretic and, as with any diuretic, if given in excessive amounts may lead to excessive diuresis that could result in electrolyte imbalance, dehydration and reduction of plasma volume, enhancing the risk of circulatory collapse, thrombosis and embolism. Therefore, the animal should be observed for early signs of fluid depletion with electrolyte imbalance, and corrective measures administered. Excessive loss of potassium in patients receiving digitalis or its glycosides may precipitate digitalis toxicity. Caution should be exercised in animals administered potassium-depleting steroids.

Sulfonamide diuretics have been reported to decrease arterial responsiveness to pressor amines and to enhance the effect of tubocurarine. Caution should be exercised in administering curare or its derivatives to patients undergoing therapy with Lasix® (furosemide) and it is advisable to discontinue Lasix® (furosemide) for one day prior to any elective surgery.

CATTLE: Milk taken from animals during treatment and for 48 hours (four milkings) after the last treatment must not be used for food. Cattle must not be slaughtered for food within 48 hours following last treatment.

Lasix® (furosemide) is not indicated during the second trimester of pregnancy.

DOSAGE AND ADMINISTRATION

The usual dose of Lasix® (furosemide) is 1 to 2 mg/lb body weight (approximately 2.5 to 5 mg/kg). A prompt diuresis usually ensues from the initial treatment. Diuresis may be initiated with Lasix® (furosemide) Injection 5% and maintained by oral treatment following a 12-hour interval.

DOSAGE:

Oral: CATTLE

One 2g bolus daily.

Treatment not to exceed 48 hours postparturition.

Parenteral: CATTLE

The individual dose administered intramuscularly or intravenously is 500 mg (10 ml) once daily or 250 mg (5 ml) twice daily at 12-hour intervals. Treatment not to exceed 48 hours postparturition.

HOW SUPPLIED

Parenteral:

Lasix® (furosemide) Injection 5% (50 mg/ml)

Each ml contains: 50 mg furosemide as a diethanolamine salt preserved and stabilized with myristyl-gamma-picolinium chloride 0.02%, EDTA sodium 0.1%, sodium sulfite 0.1% with sodium chloride 0.2% in distilled water, pH adjusted with sodium hydroxide.

Available in 50 ml multidose vials.

Oral:

Lasix® (furosemide) 2g Bol-O-Tabs®

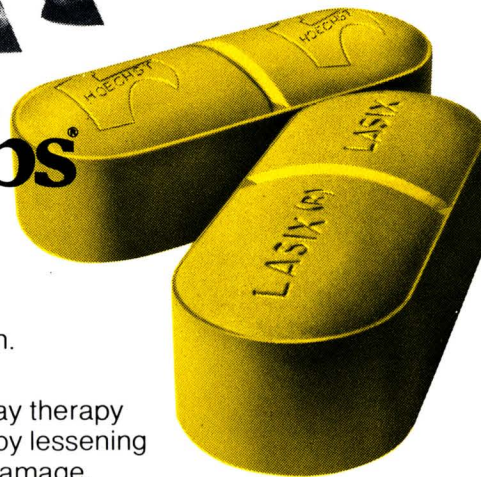
Each bolus contains 2g of furosemide: 4-chloro-N-turfuryl-5-sulfamoylanthranilic acid.

Available in boxes with 12 Bol-O-Tabs® each.

Now Treat Udder Edema Before Calving



Lasix® (furosemide) Bol-O-Tabs® (2g)



Safe- no risk of abortion.

Effective- two-day therapy rapidly relieves edema, thereby lessening the risk of permanent udder damage.

Convenient- simplified dosage regimen (generally one Bol-O-Tab a day for two days).

Economical- no adverse effect on feeding habits means no loss in milk production following "milk-out" period.

AVAILABLE ONLY FROM LICENSED VETERINARIANS

Lasix® (furosemide)
2g Bol-O-Tabs®
Manufactured By:
Hoechst-Roussel
Pharmaceuticals Inc.
Somerville, N.J. 08876

Lasix® (furosemide)
Injection 5%
Manufactured By:
Taylor Pharmaceutical Co.
Decatur, Illinois 62525

Manufactured expressly for:



National Laboratories Corp.
Subsidiary of American Hoechst Corporation
Somerville, New Jersey 08876

*U.S. Patent 3,058,882

Printed in U.S.A.

N175J-278

