Question: Is there any advantage in vaccinating cows for colostral antibody?

Dr. Mebus: For about three years now we have vaccinated in several herds with an inactivated rheo virus vaccine. The cows have been vaccinated approximately 60-90 days prior to calving. In these herds we have had pretty good control of the rheo virus infection. Actually, we have not found a rheo virus infection in these herds in which the cows have been vaccinated. One disadvantage of the cow vaccine that we are only getting passive protection and how long this antibody is being secreted in the milk, I do not know. This has not been looked into. You have to remember with the passive antibody infection though, the calf does have to go through an active infection at some time in order to become immune. This spring, actually, we are starting to vaccinate right now approximately 16,000 cows that will be vaccinated with a combined and activated rheo-corona virus. It will be interesting to see what happens. On the rheo vaccine, Norden Laboratories are handling it, and you would have to go through Norden Laboratories. On the inactivated rheo corona virus, due to government regulations, we are pretty much restricted to using it only in the state of Nebraska.

Question: Where do these calves develop or get the rheo infection?

Dr. Mebus: We only have circumstantial evidence on the source of the infection and that is the evidence indicates that there must be carrier animals in these herds in which periodically they shed virus and then there are susceptible calves around to start the infection. This evidence comes from the fact that some herds that have been sold essentially as groups of animals and have gone through to another premise 40 or 50 miles away had the same problem in calving as they did on the home ranch. Apparently the cows took it with them. Once it starts, these calves will have a virus titer in their feces, meaning that you can dilute this stuff a million times and still have infectivity. So, once you get the first calf scouring, there is plenty of virus! The initial infection apparently must, we suspect, come from a carrier animal. Is this limited to beef cattle? The dairy industry does have it—we had worked primarily with beef calf operations. Rheo vaccine last year was used in some dairy herds and the results from the rheo vaccine was only 15% in the dairy herd. What does the laboratory need for diagnosis? We have been asking for fecal material collected from calves shortly after the onset of diarrhea. The fluorescent antibody (FA) method that we use for the rheo virus agent is only a herd diagnosis and, therefore, we ask that six, eight or ten samples be submitted and these must be collected during the first five or six hours after the onset of the diarrhea into small jars and frozen and shipped frozen to us.

Question: Should you start fluid therapy right after the onset of diarrhea?

Dr. Mebus: I would say right after the first couple of calves and you see how the thing is going. If they were mine—beef cows it is hard to do—I would take them off of milk but if you could take them off milk and support them with fluid therapy until the diarrhea stops and then introduce them back to milk. That would probably be the desirable way of doing it.

Panel Discussion

Introduction: Dr. Robert Miller, Moderator

The members of this panel are Dr. Herb Lloyd of Belle Glade, Florida, who is a mixed practitioner and an Auburn graduate; Dr. Barry Allen, Rotan, Texas, who has a very mixed practice of cow-calf, dogs, cats, feedlot and everything else; and Dr. Robert Jackson, Lancaster, Wisconsin, who we had on the program here yesterday so I know you're all well acquainted with him. We will start this by having each man say a few words about his practice so that you will all get in your own mind what their problems are and then we will try to get a good question and answer session going. I would like to start out with Dr. Allen.

Dr. Allen: I think you would probably call my practice as diversified as any practice can be. We have the backyard farmer with one milk cow and on the top end we have one rancher with 200 sections of land and 6,000 cows, plus everything in between. So, we will attack this problem from all angles and maybe we can give you some pointers on how we handle it in our part of the country.

Dr. Lloyd: My practice in Florida is relatively new and I purchased it about two years ago so I cannot say for the practice that it is an old one. It is an old practice but I have not been in it very long! I worked five years full-time as resident veterinarian prior to that so I had a little insight into that type of practice. In our area, we are going to larger and larger ranch operations and less and less of them, yet we still have some small ranch operations. Currently, we have a full-time small animal practice except that I have an associate that takes care of that part of it right now. He has, this

year, and he will next year if he stays with me and if he does not, I may sell it to somebody! Anyway, I am trying to work my way into a cow-calf type practice.

Dr. Robert Jackson: I thought when I came here I knew what kind of practice I had but I am not so sure now. I think it is a pet cow-calf operation! I had never heard that term used until the other day and it fits us! It is a mixed up practice and that can be taken either way you want. It is, I suspect, a near 60% dairy cow operation but we treat anything that the law allows and we have had quite an increase in the cow-calf work over the last ten years. The largest cow-calf herd now is about 300 head but most of them fall into the category of 75 to 100 head of beef cows.

Moderator: This is just as hard on the moderator as it is on the speakers. What we have been talking about has been herd health practices or what we are doing on this type of operation and/or how we are encouraging these ranch workers. I know that the big problem is that the bigger operators tend to do almost everything themselves. It is a little harder to break into this type of operation but do you have suggestions? Have you certain methods that you have used or did you just go along and it happened?

Dr. Allen: In the first place, when these people come to you they are asking for help on a herd basis rather than on an individual basis. I know that 20 years ago when I started practicing, it was strictly the conventional type practice—milk fever, calving problems, retained placentas, etc., and very soon we recognized that particularly to large operators, this one cow did not mean a whole lot. They were interested in what that meant to their herd. You will tone your views to thinking of the entire herd. In other words, do not wait on one animal—sure we want this one animal for diagnosis —but use the overall picture. They know what they are talking about and they are interested in a herd problem more so than in this one individual. That is the way that we basically started out. When these people came in, we soon realized that they did not want help with just this one calf—they wanted help for the whole herd. Leptospirosis, for example, is a herd problem, not an individual one. Sure we want to treat this one cow, but they are much more interested in these other cows in the herd rather than this one sick cow. Almost any problem they bring to you can usually be put on a herd basis and that is what makes sense to them. They are interested in protecting the entire investment.

Moderator: We have practitioners here from all over the country and it would be a good idea to find out what may be some of the disease problems. I am just wondering what the people in Wisconsin, Florida, or Texas are doing about vibriosis as a routine problem. Do you consider it a continual problem or just in individual herds?

Dr. Lloyd: Several years ago in our particular area we did not see much indication of vibriosis but as you get into some other herds and their problems, you can understand the variations between let's say pregnancy examinations and calving and begin to recognize that they were not getting what they should have been getting. Then we delved into it and found that we had a few herds involved. At first, it was my thinking to recommend vaccination only on the basis of isolation by picking up reproductive tracts and carrying them about 200 miles to the diagnostic laboratory and going on this basis. Every time we tried this, we could not find it so then I changed my thinking and began to go ahead and recommend vaccination. I found out that on some of these herds where we recommended vaccinations, where we had not isolated vibrio, we could have actually improved live calf rate somewhat in those herds, so now if there is much variation at all between the conception rate or the palpation rate and the calving rate, then we usually consider, amongst other things, vibrio, at least on a one or two year basis. I realize this is an expensive way to do it but so far I have not had any failures, yet where we have recommended the use of vaccination based on little history. I think it is becoming or going to become something big within the profession in the near future. I would be interested at least in some of your ideas and your concepts with regard to the use of lay technicians in your practice. I know that I trained several when I was a resident veterinarian with a ranch. We trained any number of them and the majority are still working at the ranch. I still have a good relationship with them. We work pretty much hand in hand with regard to the ranch problems on a consulting basis now. They do the work and I tell them more or less what kind of program we are going into. It has worked out very well. Recently I have had two herds that I did not particularly care to get involved with. One herd of about 50 cows which is a small purebred operation and another one probably has 100 to 150 head of brood cows. They are the type of owners that do not really know a lot about the cattle business—whether it is a pet project or what it is! They are involved in this particular operation and they want some help and are willing to take whatever we can give in the way of guidance or consulting work on

what type of management or whatever kind of help they can get. I have been toying with the idea of taking one fellow that is working for me and letting him handle this as long as the Practice Act does not catch up with me. I will let him handle these calls if they have a call from this ranch where it is something simple. Let him go ahead and do it because they are small enough that the men handling the cattle are in charge of the operation. If I put him on a consulting basis, then the cost in a small operation like that is probably not going to pay for my time to go down there on a fee basis. So, thinking of it from his point of view, the cheapest way would be if I had a technician do it; yet, I would still work with the ranch and this would be on a consulting basis as far as the overall problem was concerned on that ranch. I use two or three other operations where I have people that I have trained and put in there and they are working on the ranch full time. Honestly, it is the only way I find that I can get the work done which needs to get done because I could not do it myself. I still have clients that I do the dystocia work and whatever happens to be needed. I try to limit it and I found out that I am charging more and more for doing that type of work in order to have the time for other problems.

This problem is looking us in the face more and more every day. On the problem of lay technicians and whether or not we should begin to actively participate now in determining how we are going to control them, or legislate them, or what the situation may be, if any of you have any comments I would personally be interested in hearing them. I am just posing some questions. I am not satisfied that I am giving the two herds a good service because I just do not have the time to take care of their individual calls. I have not had time to get in there and do justice to the herds and I cannot see that I have the time right now to handle them on a call basis. One fellow is about 20 miles away from the office and for me to drive down there and back would take $40 or $50. If we decide to do this in certain areas, how can it best be handled? I am sure all of you know of some fellow that you call the quack or whatever name you apply to him, who is doing this to a certain extent now. He is not advertising or anything else but it is pretty well known that he will handle a lot of your routine technician type services. These people are not doing a good service for the most part, but they are doing a service that is a lot cheaper than what we are doing, and, as I see it, I would rather have someone that is properly trained who knows when to stop and call for help and who is on my side of the situation. I have the control as to whether he goes or does not go and if he goes, what he does. Again, looking at the client and his overall situation, he is not willing at first to pay for the cost of putting a veterinarian in there (that is talking about the small operation) and I will be honest with you, I have less experience or less ideas with regard to how this should be done in a small operation. I have enough experience in a large operation to know what happens and how it is done, etc. I have a lot better feeling about that situation. Maybe the small operation—small area—should be left alone for the time being and maybe this is the reason if you are going to have technicians, that they should be licensed. Let them operate only under the direction of a veterinarian regardless of whether they are employed at a ranch or not and if you have them licensed your client knows that the man is working for you and maybe he works full time for the client. At least he has a rapport with you that is workable.

Moderator: It might do the group a lot of good to know how many people have employees who could be classified as animal technicians—someone you have trained yourself or whether they were school trained. (A show of hands indicated about a fourth of the members present.)

Dr. Jackson: To address the original question first, vibrio problems. We are plagued with probably the same thing as everybody and that is trying to diagnose it positively in the laboratory. We gave up on it. We diagnose it primarily by symptomatology and in the few herds that we have vaccinated we are quite pleased with the results. Our problem is that a good deal of our cow-calf operations are small purebred herds which have a good reputation and depend a lot upon bull sales in our tri-state area. I suspect they would believe us if we could get a positive laboratory diagnosis of vibrio but the last thing they want to believe is that they have it. They will rationalize every way they can to avoid what sometimes is inevitable for the simple reason that they do not want to voluntarily go back and collect a bull that they may have used on their own cows and then sold to somebody else as a breeder. They do not want this reputation to get around. Our biggest problems are communications and education.

To the second question about animal technicians I would say we are not qualified in our practice to evaluate the situation. Our animal technicians are still our owners. We fought for years to get rid of a few quacks we had in the immediate area and they finally died off or just decided the work was too hard for them and quit.

Animal technicians certainly have a place but it has to be approached very carefully. However, what applies to one particular part of the country may not apply to another. For the time being, at least in our practice, we are taking the attitude that we would sooner educate the client. Most of our people have been in the cattle business long enough that they should know when it is time to call and when it is not time to call. They know what they should be able to do themselves because, Lord only knows, they are going to give it a whirl and we are just now getting to the point where we are getting a little outside money coming into the area—buying land and putting in cow-calf operations on that land. When they do that, we are fortunate enough to have them approach us and ask our opinion as to the type of manager they should hire, what type of background, etc. We have even had them come to us before they hired the man. We would sooner help them there to hire the right kind of manager who can do a good job rather than go the direction of an animal technician at this time. I am not saying that in time it may not reverse itself and we will find ourselves on the other side of the fence, but right now we are taking this stand.

Moderator: Now that this is out in the open it is going to be here whether we want it or not. I think that this organization and the AVMA should be positioned to make recommendations to the people who are training them in order to get the kind of training that we want. I do not think a junior college or someone else telling the veterinary profession what it needs as technicians. The veterinary profession should be telling the schools what we want. Let us get back to vibriosis. You can say something about technicians if you want to and you may get into semen evaluation and see what this has done to your practice.

Dr. Allen: Surprisingly enough, we found some time ago that vibriosis was the No. 1 breeding problem in our cattle. Some years ago we had a group of yearling heifers bred for the first time. Ranches were beginning to use Angus bulls on Hereford heifers in an effort to decrease the incidence of dystocia. These bulls had been used before for breeding and in one group of heifers that we had palpated some 40 days after breeding, only 100 were bred and 300 were open. That was dramatic evidence that we had something wrong and the trouble in diagnosing vibriosis is the fact that you know the old method of control was sexual rest so we let these heifers rest for a couple of heat periods. We need them when they are actively cycling and being bred in order to diagnose it. Even then it is hard if you are some distance from the laboratory. To make a long story short, we did secure positive diagnosis of vibriosis and, meanwhile, these bulls had been turned in with the cow herd to finish breeding the cow herd, so the only thing to do was to vaccinate the entire herd and we were talking now of about a herd of 2000 cows. Through palpation for a number of years we had increased the calf crop in this herd of cows to 95% to 96% which we considered adequate on range conditions. The first year after vaccination we jumped to 98% and two weeks ago, one rancher who has been on the program for 18 years, had 800 cows in the lot to palpate! We checked 240 cows and found one open cow so we turned open the gate and let the rest of them out! These cows had been vaccinated for vibriosis every year along with another vaccination program. We have been using IBR and BVD in these cows before breeding. I know of three herds of 2000 or more where we have had 99+% crop in the last four years. I would say from experience that anytime you find the calving season extended, you have late calves. Cowboys say that every time they go to pasture they must be getting a good calf crop because the bulls are out working! That is not when you are getting a good calf crop because if the bulls are out working, the cows or heifers are not settling. We have been grouping these calves so that the majority of the calves come in a 20-day period. It is nice to see a uniform bunch of calves. As far as technicians go, perhaps we take a different approach. We encourage the farmer and small operator to bring his animals to the clinic. We have facilities to handle them. One veterinarian at the clinic can take care of 15 cows while you are making one call. This is maybe the answer to the technicians. Now, we have had an individual work for us for 20 years and he helps in preparing the calf, putting cattle into the chute, drawing blood samples, and other things under my supervision in the clinic. The two of us can turn out those calves pretty fast. Most ranchers and farmers in our area have trailers and it is not much trouble to run them in. We can handle 15 cows at the clinic while we make one call and we may be going about this the wrong way—it might be that we need facilities to handle these cattle and they will bring them to us and one person can see many more cattle this way.

As far as training personnel to go into the field, I think this would be defeating our purpose. That is strictly my opinion and we might mention one other thing along with the cow-calf program. We breed naturally in our area. There is very little artificial insemination. Fertility tests in bulls has

given us an opportunity in many of these herds to set up herd health programs of pregnancy diagnosing and recommending changes in nutrition. There are all kinds of ways that we can help these people. Basically, in the Southwest, we used to be cotton seed cake, grass operators. In other words, we are in the cotton country where cottonseed cake was available. They fed a little cake in the wintertime; they would eat this dry grass but we are deficient in our area in energy. Cottonseed cake is a pretty expensive form of energy! In counselling with these people we have advised changing to grain and other forms of energy; feeding the cattle before breeding them to get them in better shape; and semen evaluation of the bulls that they are going to use. You can do these people a good job and when they see what you can do, the neighbor who is sitting there watching will soon be coming over for help also. We have not gone to the people in our area—they have come to us simply because they have seen what we are doing for their neighbors. Don't think these farmers do not get together and talk about their problems. If some man is benefitting, his neighbor is going to know about it.

Question: Are you satisfied or have you changed your vibrio vaccine over the years? When you routinely check bulls, do you fertility test bulls and check for trichomoniasis etc?

Answer: We started with Norden's vibrin. Maybe we are not supposed to use brand names but that is what I am familiar with and I think that is what you would like to know. At different times, the product was not available and we have used others. "Vibrin" is a one-shot vaccination and is the vaccine of choice as far as we are concerned. It has done the job for us and we still stay with it as long as we can get it. Now, I am not familiar with other types which have only been out the last year or two. Let's say that when I find a product that is working, I am reluctant to change. I routinely wash out the sheath of each bull and check for trichomoniasis. Also, I expel the penis if it is not expelled normally during the collection cycle to check for areas of irritation or any type of venereal disease.

Question: What kind of laboratory diagnosis are you using for vibriosis?

Dr. Allen: We collect mucus samples from the cervix, pack it in dry ice and send by plane to Colorado State University for diagnosis. We use very few laboratory diagnoses at the present time unless it is a registered herd or some place we are having trouble. We suggest that we load up two or three cows and take them to the diagnostic laboratory. That is the most sensible solution. With the modern trailers, we can carry cattle to a diagnostic laboratory and there is no doubt about the possible outcome there.

Dr. Lloyd: Maybe I can bring up something else controversial. I would like to get your comments on two things. One of them is lepto and whether or not you are seeing more of the different types? Do any of you see the types other than *pomona* in your areas? You do. My next question is, "What do you do if you get *hardjo*? Do you just do nothing or stand around and hope that next year it will go away. That is probably what you have been doing because that is what I have been doing and if you have an answer, I would like to know about it. There are one or two companies now working on a *hardjo* vaccine and I have two herds now in which we have this problem. There are one or two now on the market that are different. My rule of thumb is that if I palpate, I assume that I am going to be pretty accurate on my palpation and probably will hit the national average on errors. When we start calving, either that or picking abortions in the pasture, some of these ranchers are good about picking up the abortions. Then we use a lot of serological work where we go back into these abortion animals. I have one ranch where we have had a mixed abortion problem. This has been going on for about two years and this year I am going to be the hero. We are going to get them all tacked up to the wall if someone puts out the hardjo vaccine and we will be in pretty good shape on that herd.

I do not see what I call the sick cow that drops dead or loses weight or has acute lepto. If I see it, I do not recognize it and I do not believe I see it.

We have herds with vibrio where the owner would stop vaccinating or we might go for two or three years and would pick up the problem again. I find the problem with vibrio in our area is diagnosis (a positive confirmed diagnosis) and for awhile I had an erroneous idea that I could take a sample to the laboratory. As it was pointed out here earlier, if you do not take that sample close to the time of breeding, you are not successful. That is all there is to it. So, we go into the herd where we feel there is a problem as soon as we can and if there is a long breeding season, we go in while the bulls are still there and pick up some open cows, enough that we can go to slaughter with them. Otherwise, if we take the bulls out during a short breeding season and then go in and palpate those cattle at 30-45 days and try to pick up some open ones, send them to slaughter and take the tracts directly from the slaughterhouse to the laboratory

for culture, we have had three positives in the last couple of years by this method. I would like to mention, if you are agreeable, another semi-controversial point, and this is on the handling of drugs in your practice. I guess I am a rogue again in the way I handle my drugs. I have two or three clients that are on a consulting basis and I do not mark up on their drugs at all. If I get a 2% discount and they pay me right away, they get the full discount. I have made it up to them across the board and I use drugs in those practices mainly as a means of justifying what he is paying me on a retainer or consulting basis, whatever you want to call it. I have the client for whom I do his bull and pregnancy work as well as most of his herd health work. I do a lot of work with this man. In this type of practice I usually mark drugs up to cost plus 10% and then for the other client who walks in I will go up 30 and 40% or whatever I have it marked up to and make a respectable profit on my investment. I just wondered if any of you had any ideas about this situation. I know there was a little conversation on the ethics of peddling this way and it is getting to where there are a lot of faults. I am wondering if any of you have any ideas on it.

Moderator: I imagine that last one has about 75 different sides to it! I never ran across two veterinarians who had the same idea on dispensing drugs or mark-up. Some dispense everything but narcotics and others will not handle anything and some give them away. My personal opinion is that it depends upon your individual philosophy in the practice—what you are trying to do and what you are trying to develop in the practice. There is no right and wrong way.

Dr. Jackson: I think drug dispensing in our practice area is pretty well handled the same way by everyone. We have several people that we work for on an hourly basis. We are not about to charge them on an hourly basis and then charge him too much of a mark-up on the drugs but we do charge them a little bit. I do not know if there is any standard answer and aside from that, we do not use a standard mark-up on every drug. I wish you had not remembered my name!

Moderator: Talking about these different strains of lepto. We used to get these tested at the National Animal Disease Laboratory at Ames. Then they would not test them and they did not want to develop a demand for the product because manufacturers have to demonstrate a need for the products before they can get a license among other things. We could not get them done there any more but this was four years ago. I believe all members of an organization should know what the organization is trying to do for them and this is something you will find out about six months from now, but the Board of Directors of the AABP did decide this week to try to exert what influence they can to get the *grippotyphosus* and *hardjo* strains of lepto on the market without such stringent requirements. The problem that I heard was that they cannot get any potency checks on this because the organism will not grow in laboratory animals so they cannot prove their potency. We have a lot of bacterins that we have been using for a long time. Everybody is satisfied with them but we have never proved how well they work. I just wanted to let you know about that development.

Dr. Allen: Dispensing is probably up to the individual. I know that we have had in our area on the border of the feedlot area. You think that drug salesmen are something, you should see it in our area! I will guarantee that they can sell a product for less than you can buy it. On every item that goes out, there is a mark-up for the simple reason that some of these outdated products are returned by the ranch, and you do not get credit on it. I think you have to protect yourself on that but where you have a person under a total herd health program, you have a cost plus basis in marking their drugs. On individual sales we have another formula—we use cost plus 15% on our larger customers and a mark-up of 30 to 40% to our other customers. We are in a different area than some of you but there are more drugs moved in North Texas, Oklahoma, and the New Mexico area by lay salesman than probably goes through all the veterinarians. They take the truck right into the feedlots and the ranches and they deliver on the spot at prices that make you pull your hair out!

Question: Have you run across many bulls with trichomoniasis?

Dr. Allen: No, we have not at the present time. We have probably checked 400 or 500. We are in a hot, dry area in the summertime. Temperatures of over 100 are very common and I understand this is not inducive to trichomoniasis. Actually, the ranchers in our area turn over bulls at a younger age, which would also tend to hold down the development of not only trichomoniasis but vibriosis in carrier bulls, etc. It has been pointed out in the past that the older bulls with more crevices in the prepuce are natural carriers for these organisms and on the range there is usually a complete turn-over of bulls every three years so it is not a problem in our area.

Moderator: How many people within the past year have checked bulls for trichomoniasis? The problem is that there is not too much use in it

unless it would be a virgin bull. Checking bulls before the breeding season would probably be the best time if you did not know the history of the mature, older bull and it is coming into the herd.

Something else happened this year. We have been getting some of these positive leptos in our areas and never any *pomona* but we have been getting *L. hemorrhagicae* in cattle. I do not know why but this is the first year that we have had lepto for several years. It is probably the weather conditions because we have seen a lot of it this year.

Question: At what point in pregnancy can you give steroids and not cause abortions? How late can you give them without causing abortions?

Answer: Up to the last third. So, apparently you give it up to six months—up to the 180-day period.