

General Sessions

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Bovine Veterinary Education: Getting it Wrong and Getting it Right

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Abstract

The implementation of outcomes based veterinary medicine will allow our profession to close the loop between clinical practice and academic veterinary medicine. This will define best practices and identify areas in need of research. It will provide the data that validates our profession's contribution to society.

Résumé

L'adoption d'une médecine vétérinaire axée sur les résultats permettra à notre profession de boucler la boucle entre la pratique clinique et la théorie vétérinaire comme telle. Ceci permettra de définir les meilleures pratiques et d'identifier les besoins de recherche. Cela nous fournira les données qui valideront la contribution de notre profession à la société.

Introduction

My intent is to challenge you as individuals and the AABP organization to take action and define the future of bovine veterinary medicine through evidence-based medicine/outcome-based medicine (EBM/OBM).

Getting it wrong and getting it right. I picked this title after listening to my minister tell a story about an aging woman looking into a mirror and lamenting to her husband about the challenges of aging: the wrinkles in her face, the double chin, the flabby arms, and the graying hair. The husband responds, "Well there is nothing wrong with your eyesight." This is getting it wrong.

This story made me look in the mirror and think of our veterinary profession in the food supply chain. It is easy to define many challenges:

- We are lacking numbers of practitioners in the rural areas.
- Students are predominately from urban backgrounds.
- Cost of education is going up.

- Tuition is providing a disproportionate part of the college budgets and the result is discouraging students from entering veterinary medicine.
- Student debt to salary ratios are out of line, driving graduates to pursue better paying jobs outside of the food supply chain.
- Research funding for animal agriculture is flat at best.
- Abuses occur in some animal production units.
- Some common husbandry practices are considered unacceptable by society and practices must be acceptable to society to remain sustainable.
- HSUS and others are critical of the veterinary profession for not addressing animal welfare issues in agriculture.
- Many graduates are lacking technical competency superior to many lay providers.
- Food animal jobs are not available where people want to work.
- Roughly half of the food animal graduates leave this type of practice within five years.
- Our profession widely professes to be the bridge between animal and human health, but public health colleges are aggressively claiming this interface.
- The Farm Bureau, cattlemen and others are pushing to remove many of the commonly accepted veterinary practice from state practice acts.
- Teaching hospitals are very expensive to operate and the food animal component has been very challenging to maintain.
- It is not possible to provide the case management experience in a teaching hospital for most common food production experiences.
- The abuse of antibiotics in agriculture animals has created public health issues with the development of antimicrobial resistant organisms such as salmonella in dairy animals.

- Over the counter distribution of antibiotics eliminates most accountability for antibiotic usage in livestock.

Please don't say my eyesight is good. That would be getting it wrong.

Veterinary medicine has a great history of service to the food supply system and remains a valued resource for the production of safe, affordable, and available animal protein. Food supply veterinary medicine is at a crossroad and our profession needs to "do it right" by setting a direction and positioning itself to assume the authority for such things as oversight of antibiotics, animal welfare and husbandry practices, animal identification, and other animal health related issues. Simply stated, graduate veterinarians must be prepared to help establish and maintain best practices in health management of food producing animals.

To avoid seeing life as just one damn problem after another, we must realize that we are part of what makes things what they are today. We are both the source and victim of the problems we are encountering today in bovine medicine. Many of our challenges will never be truly resolved. So why even try? You could ride it out doing what you are doing, let the next generation live with the consequences, and just go fishing. Hopefully, bovine practitioners are willing to meet the challenges and commit to enhancing the relevance of the food animal practitioner to society.

We must maintain a sustainable presence and relevance in rural America, and to do that while we are addressing these seemingly overwhelming challenges, we need to stick with the principles that earned our profession the respect of the society we serve:

- As health professionals, we must demonstrate servant leadership by maintaining our presence on the farm.
- We must often stand for what is right, even if it is unpopular. We must not turn our head when abuses occur in conventional animal agriculture if we are to maintain our integrity with society.
- We need to look in the mirror and honestly document how what we do contributes to human welfare, and specifically why our profession should be the ones doing it.

Some academic leaders feel our profession has been trapped in the old bovine practice concept. I have heard some say, "Let others have the responsibility for pregnancy testing, embryo transfer, and other actions included in most state veterinary practice acts; sell knowledge not product."

American Association of Bovine Practitioners will need to decide what is worth making the effort or taking the risk to accomplish. If we get it right and correctly approach the many issues that are presently being decided, food animal practitioners will be given increased

opportunities to serve the public and significantly increase the profession's value to society.

Societal Changes Influence Veterinarian's Role

About a decade ago, the former CEO of Burger King thought it was the craziest thing he had ever heard of that McDonald's wanted to serve eggs from happy chickens. He got it wrong. The new CEO thought it was a great idea and got it right.

Animal husbandry practices need to be acceptable to society to be sustainable. Urban population rose from 29% of total in 1950 to 46% in 2000 and 50% in 2008.²¹

- By 2050, the global population is expected to increase by 45% to around 11 billion people.
- 70% will be living in urban communities.
- Virtually all future global population growth will take place in cities, especially in Asia, Africa, and Latin America.
- Today's fastest growing cities are growing four to five percent per year, and will double in population in 20 years.
- By about 2030, four out of five of the world's urban dwellers will live in the developing world's towns and cities, particularly in Asia and Africa, signaling a major shift from rural to urban populations.
- It is estimated that in India, from 1950 to 2014, over 800 million people will have moved from villages to cities.
- Only 13% of China's population was urban in 1950; it is projected to be 73% in 2050.

Unavoidably, what happens to the human race has a major influence on society's needs of veterinarians. This worldwide urban transformation is claimed to be the most important social, political, and cultural consequence of globalization. The urban transformation implications are profoundly impacting political, social, economic, cultural, and psychological events, and we as bovine practitioners will have a critical role in determining whether we get it wrong or get it right. As cities evolve, human nature takes over. Their residents want what others have. We cannot expect the emerging world not to strive for the clean water and electricity, and the safe, affordable and available food that the developed world takes for granted, along with the air conditioning, merchandised transport, and everything else. Providing food for these masses in a socially acceptable, sustainable way is something that we must get right. Getting it wrong is not an option.

Urbanization brings a different view of the world and changes the understanding and comfort with what is wrong and what is right. In the lecture entitled *Possible Urban Worlds*, David Harvey stated that every city now has its share of concentrated impoverishment and

human hopelessness; of malnourishment and chronic disease; of crumbling or stressed out infrastructures; of senseless and wasteful consumerism; of ecological degradation and excessive pollution; of congestion; of seemingly stymied economic and human development; sometimes bitter social strife, and large populations of hopelessness.⁸ These changes in society are redefining what services graduate veterinarians need to be prepared to provide, what opportunities will be afforded to them, and where they will be located.

A fellow dean and I were visiting about some of these issues and he made me stop and think when he said, “*Out there, veterinarians must compete with quacks, over the counter sales, and direct delivery of pharmaceuticals and biologics.*” It is absolutely imperative that the decision makers understand what is going on “out there”.

Our profession, including the academic community, has a responsibility to position veterinary medicine and veterinarians in appropriate areas of authority relevant to the health and well-being of society and animal health. This does not mean accepting everything from the past or always being in agreement with conventional agricultural thinking that has more aggressively responded to extremists, who according to American Farm Bureau Federation, “want to drag agriculture back to the day of 40 acres and a mule”. It will be critical to continue our close working relations with conventional agriculture, but we must maintain our self-identity as a credible, unbiased health profession working for the betterment of society’s health and well-being.³

Our profession values the way it is viewed by the general population as one of the most trusted of the health professions. Maintaining society’s trust is a challenge essential to our future. It means that our profession has to be able to ask and give a satisfactory answer to the question of how does what we do contribute to the common good? This is why closing the loop between clinical practice and academic veterinary medicine must occur for us to sustain our integrity with society. We must be working for the benefit of the common good, and if we are going to get this right, we must know what the needs are “out there”.

We must remain aware that sustainable animal agriculture will require practices deemed acceptable by an urbanized society. Our educational process must prepare graduates to assist in establishing, communicating, and revalidating these practices in veterinary medicine.

Bovine Veterinary Education

Four important components of bovine veterinary medical education are: who is teaching; who is taught; how is it taught; and what does it cost.

Who is Teaching?

The Food Supply Veterinary Medical Coalition attempted to address many of the questions surrounding the future of food animal veterinary medicine.⁷ In my opinion, the report was fairly accurate in determining the top 10 actions that could eliminate the shortage of food animal practitioners. The results give clear guidance on who should be teaching. What is lacking is the definition of a food supply veterinarian. Many in academia assume a title for “food supply veterinarian” without a true understanding of what it takes to be professionally successful in the private sector. The top 10 actions from the study are:

1. Student debt repayment and scholarships for service in areas of need.
2. More involvement of food supply practitioners in training students.
3. Mentoring initiatives for students and those starting a food supply career.
4. Appointment of more food supply faculty at veterinary colleges.
5. Expanded post-graduate fellowships in food supply areas.
6. A paid summer externship requirement in food supply medicine.
7. Expand the Centers of Excellence concept.
8. Marketing lifestyle opportunities of food supply careers.
9. Expanded paid work-study programs for fourth year students.
10. Expanded job placement services for food supply veterinary areas.

The bottom line is reduce the cost of the education to the student and get instructors who are connected to the food supply industries, have assessment skills, and practice EBM/OBM while providing the students with experience in the livestock industry. It is a matter of prioritizing the funds and getting it right or getting it wrong.

Prioritizing food supply veterinary faculty over small animal and research faculty is a difficult sale within most colleges of veterinary medicine. It is easy to see why since 80% of the students attending most colleges desire to go into small animal practice. Supporting teaching hospitals financially is very challenging and for some, small animal specialties are the only way to acquire enough funds to “float the boat”.

Recent articles advance the idea that the perceived shortage of rural practice veterinarians may be created by the lack of retention of veterinarians. Emergency duty, time off, salary, practice atmosphere, and family issues were cited as the most common reasons people were leaving rural areas.²⁰ This may reflect the fact that graduates do not understand demands of rural practice or the lifestyle. Mentoring of graduates by people who

are fully engaged in the food supply system and providing students experience in the private sector prior to graduation is critical. This is a way to get it right, yet in many cases, many seem to continue to get it wrong.

Articles have been written and studies conducted on what the core competencies should be for large and small animal graduates. The key to addressing core competencies is to have faculty knowledgeable about what it takes to service industry's needs and be professionally successful, "out there".

Every student should have a portfolio to document the clinical skills they have successfully performed that demonstrate their strengths and deficiencies. This provides excellent guidance for the student and reference for future employers.

Who is Taught?

The vast majority of students entering veterinary colleges are from urban backgrounds with little to no experience with livestock production or rural lifestyles. Opportunities need to be provided that will educate students to both, similar to the Swine, Beef, and Dairy Production Immersive Knowledge Experience (SPIKE, B-PIKE, and D-PIKE) programs offered at the Iowa State University College of Veterinary Medicine.¹²

It has been proposed that a college devoted exclusively to food animal medicine should be established. This didn't sound realistic to me, but it does sound intriguing after reading about the Jichi Medical School (JMS) in Japan.¹⁰ This is a medical school for rural areas. It has a unique funding support system and very successful recruitment and retention records. Student recruitment from rural areas has been an essential policy relating to rural practice. Funding for living and tuition is provided as a loan that will be forgiven after a specified number of years of service in rural communities.

A medical school in Northern Norway reported on the 'homecoming salmon' hypothesis that claims a practical way to gain qualified people in rural areas is to educate young people familiar with the area. They feel at ease there and will find it natural to live and work in that environment. I have always used the fact that they know where the best fishing spots are located.

US colleges of veterinary medicine need to continually evaluate and improve the selection process to recruit the students most likely to develop into health professionals willing to meet the ever changing demands of society. Attracting the brightest minds to the profession is critical to our future. We must get this right. Presently, a high percentage of animal science undergraduate students are interested in veterinary medicine. It appears that a significant number of high quality students are being recruited into graduate programs in animal science where they will be paid, as a graduate student,

nearly what they will be paying to attend veterinary college. The cost of a veterinary degree is discouraging some very highly qualified individuals from applying as they weigh the value of the degree against assuming major debt.

What Does a Veterinary Degree Cost?

Are they paying too much for their tin whistle? While in grade school, I remember a promotion that for so many Cracker Jack box tops you could get a tin whistle. I really wanted that tin whistle, so I bought Cracker Jacks and encouraged everyone in our family to do the same. I finally got enough box tops and sent them off. I impatiently checked the mail box for the whistle. Significant time passed but finally it arrived and I hurriedly opened the package. The disappointment from the sound of the whistle is a lasting memory. The whistle wasn't worth the cost.

A key question is, are people paying too much for the veterinary degree? Without radical changes in the curriculum, the only way to change this scenario is to decrease the cost of the degree with increased governmental support. Another option is to increase the value of the degree.

Veterinary student debt is a major challenge to our profession. In 1980, the average starting salary of an ISU graduate was \$20,000 and the average indebtedness was \$5,000. In 2009, the average salary was just over \$60,000 with average indebtedness of approximately \$135,000. We've gone from a four to one salary to debt ratio to a two to one debt to salary ratio.

Factors leading to the increased debt include higher tuition; an increase in the average number of years in college from seven to nine; a student lifestyle that for many is not as frugal as it was 30 years ago; the veterinary curriculum does not accommodate students working to pay for their education.

A few months ago a string of emails from the AABP list serve got my attention. It discussed veterinary students living beyond their means. An ISU graduate, who had been out two years and practicing in rural southern Iowa, informed the list that he had eaten macaroni and cheese through veterinary college and felt the comments about students living beyond their means was inappropriate. He went on to explain that he did not feel his income and debt repayment were going to allow him to successfully stay in the rural area. It sounded like he had paid too much for his tin whistle.

I contacted the graduate. His income was slightly above average and his debt was right at the average level for veterinary graduates. I had just been reading about the income-based loan repayment plan (IBR) for student debt and felt this individual just needed to get the facts, so I scheduled a time that we could all meet with the Financial Counseling Clinic at Iowa State

University and go over the IBR repayment plan. I was soon convinced that the IBR was not his answer and that a debt forgiveness program, like the Veterinary Medical Loan Repayment Program, provided him the best advantage. It also became apparent that many different types of expertise are necessary to address this type of issue.

We pulled together the Office of Student Financial Aid, the experts on income-based loan repayment, a tax professional, and the Financial Counseling Clinic. We pretty much determined that each case has to be analyzed individually and solutions individually crafted. From this experience, it is clear that students (and graduates) need guidance in dealing with large debt loads, finding good consolidation companies, and understanding how consolidation works. Students need assistance in understanding the variation in available loans, such as term, payoffs, and interest rates, at the time they enroll in college, not after the debt has been established.

Students also need to know that there are clear financial advantages for food animal practitioners that have been demonstrated when cost of living was considered. Previous reports describing the incomes of species-defined categories of veterinary practitioners underestimated the degree of income differences among categories of veterinarians because they did not consider costs of living. Food animal exclusive, food animal predominant, and mixed animal practitioners experience significantly lower living costs than companion animal exclusive colleagues. This became obvious to me as I evaluated this graduate's opportunities for acquiring the practice. We need to make sure to consider incomes adjusted for cost of living when evaluating the value of the veterinary degree. This may help encourage more to become rural veterinary practitioners.¹⁹

I am convinced that this type of material should be included in a required, for-credit course for all veterinary students at the start of the program for loan information and at least one semester prior to graduation for repayment plans. This will help students become more knowledgeable and smarter business people. However, it has been reported that faculty feel this type of competencies should be developed outside the professional veterinary curriculum.¹⁴

To reduce the cost to the student, we need to be able to reduce tuition and this will require increased state support. One alternative we might consider is a tax on animal health products and veterinary services directed to support of veterinary education.

What is Taught?

To this point, society has looked at veterinary medicine and seen us "at our best". This appears to be changing with a number of issues that are engaging

many segments of society. Included are concerns that small animal health care may price itself out of reach by much of society; welfare questions; antibiotics use; veterinary colleges' inability to address the shortage of large animal veterinarians; public health colleges taking an activist role in health issues between animals and humans; and some farm organizations working to take many large animal practices out of the state veterinary practice acts. If we allow these concerns to be addressed without data and science-based input from our profession, we will be doing it wrong.

We have been central to these issues in the past and we need to take responsibility for steering them into the future. This is how we can get it right. I learned years ago that the best way to change direction of a movement is to get on the bus and take the steering wheel. Presently other people, companies, and organizations, including colleges of veterinary medicine, are steering and they are using food supply veterinary medicine's contributions or lack of contributions to further their agendas and demonstrate their relevance to society.

Veterinary medicine has earned the trust of society through extraordinary efforts and selfless service. Our profession's identity in the public eye is what our forefathers developed over years of on-the-farm service to the needs of animals and their owners. The profession is now being painted something we are not.

We have been passive in our attempt to communicate our contributions to the well-being of animals and animal owners. In most cases we have lacked objective data to validate our contributions and this is allowing our profession to be viewed not at our best.

Society will demand higher quality and accountability from veterinary medical services in the future. I define quality as exceeding the expectations of those being served. It requires continual monitoring and improving. It requires that you know Who your customer is; What they need; How you will meet the need; How you know you have met the need; How you compare to your peers. Evidence based/outcome based medicine, EBM/OBM, is our profession's guide to best practices and quality veterinary care.¹⁷

Some in academia are discovering the concept and naming it other things, but in the end the principles are the critical pieces. EBM/OBM must become the foundation of veterinary education and continuing education programs, and become the process that closes the loop between clinical practice and the academic community for the validation and revalidation of best practices.

Evidence based/outcome based medicine requires utilizing the most current scientific data, the best clinical experience, and client's expectations in the management of a case. Our challenge is to engage students, faculty, and all veterinary professionals in outcomes assessment, identifying best practices, and continually

improving the quality of veterinary health care. That's how we get it right.

The student educational program must lay the foundation for this essential approach to veterinary practice.¹⁸ Engaging students with producers and utilizing real production data have allowed students to learn EBM/OBM principles by actually applying them to production medicine issues. Getting this EBM/OBM experience early in the professional program has proven to be an effective way of maintaining interest throughout the four years and providing confidence-building student experiences.¹⁶

It has been stated that half of what a veterinary student is told in school will be disproven within 10 years of graduation. Yet the traditional veterinary education is structured to tell our students what they need to know. If they can regurgitate it back with a certain amount of accuracy, we graduate and license them. This needs to change. Our colleges of veterinary medicine and related organizations need to be held responsible for providing the opportunities for us to stay current, and this will improve our relevancy to society.

Graduates prepared to employ, evaluate, and determine best practices will be critical to improving the quality of veterinary medicine. In most enterprises, improved quality equates to increased value, which should translate into increased monetary return to the veterinary practitioner and benefits to the consumer of veterinary services.

I have heard it said that, "It is impossible to change an organization from within." I feel this is true with the veterinary medical education process. It will take external forces to bring change. The critical control point for universal change in the veterinary curriculum is with the AVMA Council On Education (COE). Its essentials clearly state that the curriculum is the purview of the faculty. However, if an expectation for demonstrated inclusion of EBM/OBM in the curriculum was included in the outcomes essential, it would have a transformational impact on veterinary education and our profession.¹ AABP membership needs to have representation on this council if it wants to influence change in veterinary education. This is how we get it right.

A number of leaders in academic veterinary medicine claim we only need a very small number of veterinarians to serve animal agriculture. This is absolutely wrong if veterinarians are given the authority and held accountable for addressing critical issues such as antibiotic distribution, disease traceability, and welfare assessments.

Some animal health companies are training animal science graduates to be health managers for animal production units. The wildlife health professional positions in the federal government are being filled with biology graduates and trained on the job. Some animal

science departments are preparing individuals to perform embryo transfer, pregnancy evaluations, and other techniques identified in most state veterinary practice acts. Couple these activities with chiropractors, equine dentistry, and others and it is obvious that our professional identity is under attack and eroding.

Many people are working to change the practice acts with the help of livestock commodity organizations and special interest groups that are not satisfied with how veterinary medicine is meeting their needs. It is almost certain that those needs will eventually be met with or without veterinarians. To get it right, it is time for food animal veterinary medicine to embrace the model of a physician assistant working with a licensed veterinarian to maintain on farm presence.

Our profession must go beyond evidence-based medicine and develop an outcome-based appraisal for establishing best veterinary medical practices that will ensure our future relevance to society. Taking action is not something for the next strategic plan or foresight analysis. This deserves action today. It is the practice of quality medicine and it has as much or more relevance to the companion animal veterinary practitioner as it does for the food animal practitioner. At the present time, Banfield is leading the profession in EBM/OBM.

Veterinary medicine has historically followed human medicine by about 10 to 20 years. EBM and OBM have been evolving in human medicine for much more than 30 years. It is time we catch up. To get it right, academic and private veterinary practice need to form an alliance for gathering feedback on outcomes and for establishing the research direction. Veterinary medicine must become proactive and not remain reactionary to such things as the California Proposition 2 or the 2008 Pew Report on industrialized animal production. If we do not participate in a process to satisfy our society, we will be doing it wrong and we will be replaced.

Academic veterinary medicine is facing huge challenges and will fail unless we forge new relationships with the practice community and change the mindsets and views that each holds of the other. We are going to be required to partner between veterinary colleges to better leverage resources. This will allow educational centers to evolve, similar to the Great Plains Veterinary Educational Center, that are capable of providing species-specific learning experiences for students from across the country and for the successful implementation of shared educational opportunities similar to the certificate or masters program currently being offered at Iowa State University.¹¹

The need for better and measurable outcomes of animal agriculture production practices are calling for promoting the integration of EBM and OBM and for reducing barriers to their use. We make errors of fact and errors of judgment. We have blind spots in our

vision. We are forced to steer by guesswork or go with our gut. Our profession needs to embrace broader data collection and use.

OBM Knowledge Data Bases should be established with a consortium of academic institutions. Synergizing with the National Animal Disease Network and other data sets, the consortium would have the responsibility of ensuring that management/organizational research is rigorously assessed, made widely available in usable forms for animal production units and veterinary clinicians, and effectively linked to other evidence-based management and medicine repositories.

The national consortium would assess gaps in knowledge and suggest areas for further research attention for funding agencies and the research community. Of particular importance is the need for meta-analyses and syntheses of organization-wide interventions and initiatives to improve the uptake of evidence-based clinical guidelines and practices, increase safety, and improve the overall quality of veterinary medicine and animal agriculture.

Antibiotic Distribution

A CDC-supported study, published in the *Journal of the American Medical Association* (October 17, 2007), estimated that methicillin-resistant *Staphylococcus aureus* infects more than 94,000 people and kills nearly 19,000 annually around the country.¹³ The total cost of antimicrobial resistance to the US health care system was nearly \$5 billion in 1998, and experts believe the true costs in 2009 numbers may be \$50 billion. It is a real challenge and it is a major health problem that we do not have the answers for . . . yet.

Dr. Dan Upson and other members of The Association of Food and Drug Officials approved a "Model Veterinary Drug Code" on June 24, 1987.¹⁵ It was resisted by many in the livestock and pharmaceutical industries and wasn't implemented. Over the counter antibiotic distribution has been abused since it started and should be stopped. Proper management of these products has been and remains one of the primary contributions veterinarians make to the health and well-being of animals and society. Veterinarians need to be given the authority and held responsible for distributing, monitoring, and evaluating antibiotics and their effectiveness. The current recommendation by the FDA on antibiotics use in livestock would place the veterinarian in a position of responsibility.⁵ Dr. Upson had it right and now it appears the FDA will get it right.

The AVMA, AABP, AVC, and AASV all agree with the position of the FDA on veterinary oversight. These organizations remain committed to regulation based on data rather than expert consensus. This sounds like we need EBM/OBM to me.

It is essential that veterinary medical education prepares graduates to provide professional oversight and assist in establishing best practices for antibiotics. This will again require cooperation between clinical practice and the academic community. This is how we get it right.

Animal Disease Traceability Program

The title of this program just seems to call for veterinarian management. The livestock industries have been wrestling with disease traceability in the USA for a long time. John Morrel at Sioux Falls, South Dakota stated in 1987 that they would not buy any more hogs that were not traceable back to the farm of origin after a date in 1989. Nothing happened in 1989!

The recent change in direction by the Secretary of Agriculture to go from a standardized national animal ID program to allowing each state to construct their individual ID program appears to be another curve in the process. The new framework replaces the National Animal Identification System (NAIS) that was strongly opposed by numerous livestock industries and associations.

Organizations⁴ are requesting that the process should:

- Be controlled by animal health officials and kept confidential,
- Utilize present infrastructure,
- Be solely for disease identification and surveillance,
- Fully comply with the World Organization for Animal Health (OIE) and Codex Alimentarius Commission international standards for animal identification and traceability,
- Not interfere with the present branding programs.

It is very obvious to me that veterinarians need to be in charge of any animal disease traceability program. The infrastructure of private veterinary practitioners that is still in place should be utilized to provide this program. Our bovine veterinary education programs should prepare graduates with the ability to utilize data from a disease traceability program to assist in establishing best practices through EBM/OBM.

The benefits of preconditioning feeder cattle have been challenged since the practice was first initiated in a statewide program in Iowa during the 1960's. Looking over current publications, we are still getting it wrong by trying to justify its benefits as solely financial.

Joe Beemer allowed me to work his cattle every so many years. One year I had the nerve to ask who worked his cattle those other years. He said he didn't bother working them when the prices were high because buyers will buy everything. He wanted to put chrome on them when prices were low and they were really picky.

I would argue that feeder cattle preconditioning was one of the first beef animal welfare programs designed for disease traceability. However, where is the data? Preconditioning is a great example of an outstanding program with a major design flaw; it did not incorporate an outcomes loop in the process for continual improvement provided through scientific justification.

Placing the value of preconditioning only on financial return is getting it wrong. Getting it right is tracing preconditioning records to the farm of origin. This could greatly assist in identifying sources of persistently infected BVD herds, and in providing outcomes related to welfare, morbidity/mortality, and production. Again, EBM/OBM needs to be utilized in establishing best practices and closing the loop between clinical practice and academic veterinary medicine.

Animal Welfare

Urbanization has helped create support for changing many animal husbandry practices. Those in animal agriculture appreciate the process subjectively and lack the distance necessary to appreciate the romantic response viewed by many of the urban population.⁶

Pamela D. Alexander, director of Animal Legal Defense Fund's animal law program, says that students are demanding courses on animal law.² "A lot of it is coming grassroots, from the students. More and more students are going to law school because they want to fight for animals," she says. "Animal rights is one of the greatest social justice movements of our time. It's captivating and alluring to students to get involved in this, to recognize that the human-animal bond is not reflected in the law as it is in society." I am not going to attempt to answer the animal welfare issue except to say that abuses occur. They always have, and laws are not the answer. Just read the newspaper and listen to the news about abuses of all kinds related to humans against humans with laws upon laws to control behavior.

"The Death of Common Sense: How Law is Suffocating America" by Philip K. Howard,⁹ shares that the law of government controls almost every activity of common interest; fixing the pothole in front of the house, running public schools, regulating day care centers, controlling behavior in the workplace, and cleaning up the environment. Animal welfare abuses occur and laws are not the answer.

Bovine veterinary education needs to prepare graduates with the knowledge and skills to assist in evaluating and establishing best welfare practices, utilizing shared data bases from a broad population, and using EBM/OBM principles. This is doing it right!

Conclusions

My challenges to the AABP and you as individuals are to:

- Develop influence with the AVMA COE and push for mandated inclusion of the practice of EBM/OBM in accreditation criteria.
- Include EBM/OBM in your publications and presentations for CE.
- Assist in defining the role of the paraprofessional in food supply veterinary practice working with the licensed veterinarian.
- Respond positively to the FDA comment on antibiotic usage and veterinary oversight. Yes, we will have enough food animal veterinarians, if they provide us with this opportunity.
- Assist in placing the animal disease traceability program under the supervision of licensed/accredited veterinarians.
- Document and share welfare contributions. Society needs to know we are in the parade.
- Be innovative and engaged in how to fund veterinary education and support debt forgiveness programs.

Will You Step Up and Meet the Challenge?

Change has come to veterinary medicine. We have an opportunity to redefine the rural practitioner's role in animal welfare, antibiotic distribution, animal disease traceability, and the role of paraprofessionals in food animal practice.

This is the time for those who are prepared to exploit opportunities. Opportunities come and go. If we get it wrong, our profession will lose relevance with society, identity will further erode, and we will be replaced. If we get it right our profession will gain many opportunities to better serve the health and well-being of society and our efforts will leave future generations indebted to our efforts.

Establishing best practices through quality veterinary medicine directed by the EBM/OBM process will position the profession to fully demonstrate our value to society.

This is a defining moment in the future of bovine medicine. National and state veterinary medical organizations need to rally to one of the profession's great moments of opportunity and I challenge our profession to seize the moment, don't miss it. As we look in the mirror, let's be sure that we can face ourselves and say we did it right!

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