Commentary

One Health continuing medical education: an avenue for advancing interdisciplinary communication on One Health issues

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Centuries ago, prominent members of the medical community recognized the link between the health of humans and that of other animals. Although there was considerable collaboration between practitioners of human and veterinary medicine in the late 19th century, particularly with regard to education and research, there are limited collaborative efforts in place today. Globalization of economies, emerging infectious diseases, and bioterrorism are rapidly changing the needs of public health and medical education. Of particular concern to both the human and veterinary medical professions is the threat of zoonotic diseases from livestock, companion animals, and wildlife. The encroachment of housing developments into rural areas has brought people and domestic animals into greater contact with wildlife diseases. With a growing number of US households owning at least one pet, millions of families are placed at further risk, albeit limited in proportion to the risks of other contagious diseases. Via contamination of the food and water supplies with pathogens such as Cryptosporidium and Giardia spp, close contact with live animals is no longer required for humans to develop zoonotic diseases. Millions of consumers in the United States are at risk of developing serious health problems from improperly handled meat, poultry, and egg products.

Many zoonoses are preventable through public education programs that target simple measures to reduce disease transmission, such as proper hand washing after handling pets, vaccination of dogs and cats against rabies, routine screening of pets for zoonotic parasites, and observation of leash laws. However, it can be difficult for veterinarians to provide appropriate guidance for several reasons: appointment time is often too limited to discuss all relevant issues with clients, certain pet owners may never seek veterinary care for their animals, and the public does not generally perceive veterinarians to be a source of information on human health. In a research study of parents’ and pediatricians’ knowledge of pet-associated hazards, most parents obtained information regarding animal disease from magazines, newspapers, and television, whereas only 5% (11/231) sought advice from a veterinarian. Physicians and nurses may therefore be the only sources of accurate information on zoonoses that people can access, but as determined in another study, health-care workers typically felt uncomfortable discussing animal issues with patients or believed the burden of education is the sole responsibility of veterinarians. The physicians in that study even disagreed with veterinarians about pet-related diseases that posed the greatest threat to patient health.

As of 2006, there were approximately 23 times as many physicians and nurses as there were veterinarians in the United States. By encouraging greater participation of human medical professionals in tandem with veterinary medical professionals in the dissemination of educational materials, reduction in the incidence of zoonoses in the general population would be enhanced. The main barriers to overcome with this approach are the lack of veterinary public health training in medical or nursing school curricula and the difficulty of changing education to meet emerging needs. There seems to be little interest in providing elective courses on animal-related diseases for medical students because schedules are already overcrowded with the basic requirements for medical licensing boards and many students believe that the ecology of zoonotic pathogens is irrelevant to their future specialty. Furthermore, the 663,000 practicing physicians and 2.5 million registered nurses would be excluded from reforms that only target primary medical education programs. Novel approaches to bridging the educational gap and encouraging active, ongoing communication between the human and veterinary medical professions must be developed.

The AVMA and the American Medical Association recently launched the One Health Initiative to promote increased communication and collaboration among physicians, nurses, veterinarians, and other health scientists and allied medical personnel and thereby improve the health of humans and other animals. One potential approach is through the framework of continuing medical education (CME) that every healthcare provider in the United States is required to participate in after graduation to maintain licensure. A brief search through some of the major online physician and nursing CME providers revealed that few, if any, courses dealt with veterinary public health concerns. A One Health CME program would be an ideal opportunity for veterinarians to reach out to the medical community and provide valuable resources for physicians to improve the quality of patient care.

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Importance of the CME Approach

Physicians and nurses are in the unique position of being able to educate millions of people about zoonotic disease prevention. However, their general lack of knowledge about veterinary medical issues poses a considerable barrier to dissemination of important information, which may be difficult to overcome with just reforms to primary medical school curricula. Only 5% of 112 surveyed pediatricians reported regularly educating parents about salmonellosis and toxoplasmosis, and only 17% discussed dog bite prevention. Physicians are knowledgeable about the health status of their patients and can therefore provide appropriate guidance to families with special circumstances. Immunocompromised patients need accurate advice to minimize their risk of zoonotic diseases, but < 10% receive correct information from their doctors. This lack of communication is reflected by the lack of general public knowledge. Among 231 pet-owning parents, approximately 50% were unaware that certain diseases, such as salmonellosis and meningitis, can be passed from reptile pets to humans and 23% believed that there are no health risks associated with owning reptiles. Reptile owners were 1.5 times as likely to be aware of salmonellosis risks as nonowners. Among the 231 parents in the same study, 21% were never informed about the dangers of Toxoplasma gondii transmission to pregnant women associated with removal of cat feces from litter boxes and the importance of precautions to avoid exposure. If One Health CME does nothing but convince more physicians of the need to make educational brochures on animal-associated disease transmission available in their offices, then the program could be considered a success.

If appropriate educational opportunities are provided, physicians are likely to be willing to learn new information that helps them in practice. For example, the Fort Worth Public Health Department assessed the role of physicians in detecting, reporting, and responding to infectious disease outbreaks or public health emergencies. Among 465 physicians, approximately 91% reported fair to poor knowledge of these subjects, but 83% favored access to more training opportunities. Despite the fact that pediatricians rarely discuss animal-related issues with patients and their parents, 86% of 112 doctors in one survey believed that educating parents about pet health hazards is worthwhile and 73.7% of 266 pediatricians in another survey routinely enquired about exposure to pets in the home. Of the 266 pediatricians in the latter survey, 89% also reported wanting to learn more about environmental health risks to children but cited time and cost as the major deterrents. Small educational interventions, such as CME courses, provide opportunities to influence the manner in which physicians and nurses approach animal-related issues in practice.

Continuing medical education is an integral component of postgraduate medical training and can serve as a valuable avenue for dissemination of new information. In just four hours of CME training on guidelines for reduction of circulating cholesterol concentrations that were completed over a two-year period, general practitioners improved the quality of patient care to a level similar to that achieved at specialty clinics. Patients had a 10% reduction in circulating cholesterol concentrations when their doctors received more extensive CME training on the guidelines, whereas patients of doctors in the control group had no change in cholesterol concentrations. Furthermore, enrollment in appropriate CME programs has been shown to reduce job stress and dissatisfaction. The likelihood of professional burnout among practitioners in Denmark was higher for individuals who were not members of CME programs, compared with their colleagues who regularly participated in relevant training.

Sixty-one state medical boards in the United States require physicians to undertake CME for licensure re-registration (mean number of credits required is 66 over each 2.2-year period). Most CME courses are rated at only a few credits each, so the chances of a physician undertaking veterinary medicine–themed public health courses that relate to their work should be relatively high. Completion of online CME courses is an effective alternative to attendance of live lectures for practitioners seeking information. Through pre- and posttest surveys administered to participants in an online pharmacotherapies accreditation course, it was determined that those participants were equally as prepared to manage opioid dependence in patients as were attendees of live lectures. Moreover, the participants of the online course rated its structure very highly. Results of another investigation indicated that physicians undertaking Internet-based courses were significantly more likely to treat high-risk patients according to the course guidelines than were physicians taught in small, interactive workshops.

Inclusion of nurses in veterinary public outreach programs is a crucial step in disseminating information to patients. One of the most frequent activities undertaken by nurses is to educate patients on health topics such as proper hygiene and interactions with other family members. Moreover, because there are almost four times as many nurses as doctors in this country and the former spend considerably more time with patients, nurses have comparatively greater opportunity to broach the subject of zoonotic disease prevention. One study revealed that patients often prefer to consult with specialist nurses about medical conditions because they perceive that nurses would have more time to discuss issues and do not want to bother busy physicians with what might be viewed as trivial questions.

Framework for Implementation of One Health CME

A logical place to develop One Health CME courses is at institutions with medical, nursing, and veterinary medical departments. Any university that is licensed by the Accreditation Council for Continuing Medical Education to provide CME courses for health-care professionals could offer veterinary public health CME courses. The first step would involve establishing a committee of clinicians and faculty from the various medical schools to discuss mutual public health concerns. Potential topics could include prevention of toxoplasmosis complications in pregnant women, post-rabies exposure prophylaxis, avian influenza, foodborne...
pathogens, companion animal parasites, transmission of antimicrobial-resistant pathogens between pets and people, and a variety of other emerging zoonotic diseases. Collaboration with other professions will ensure that courses are of sufficient relevance and caliber to attract professional interest. The committee can also serve as a forum for development of other creative approaches to enhance awareness of zoonotic disease prevention.

It is also important for professional schools to conduct research to assess the impact of health reform and to provide key indicators for improvements in training. The most straightforward marker of One Health CME success would be enrollment statistics. If the topics are of sufficient concern to practicing physicians and nurses, there would be an expected increase in enrollment over time and people would register for subsequent courses. Brief surveys can easily be administered with online courses to provide valuable insight on prior veterinary public health knowledge and to evaluate the effectiveness of One Health CME in improving overall awareness of veterinary public health issues among physicians. Follow-up surveys can be requested at a later time point to investigate the impact of One Health CME on the participants’ everyday work habits and communications with clients. Evaluation of the overall effectiveness of the program in preventing zoonotic disease is more challenging because of the dynamic nature of disease transmission.

Overview

The development of new CME courses within the One Health framework provides a low-cost, high-impact venue for disseminating information about zoonotic disease transmission. By forming strong relationships between the medical, nursing, and veterinary medical schools at universities throughout the United States, One Health CME can eventually serve as a paradigm for collaborative programs at many other institutions. The main objectives of the project are to identify mutual concerns in veterinary public health through stronger channels of communication, provide relevant and informative CME courses to practicing medical professionals, encourage increased patient education about zoonoses, and use course feedback to gauge prior knowledge and strategies for improving the efficacy of One Health CME. With courses designed for general practitioners in human medicine as well as ones focused on relevant fields of specializations, major improvements in public health would be achieved.

References