



# Promoting Global Health Through Pathology: Initiation of the Global Health Pathology Network

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In today's globalized world, it is essential that every organization be prepared to embrace opportunities at locales near and far. The volume of goods and services crossing international boundaries is at an all-time high and accounts for 12.5% of the global gross domestic product (GDP), with this global GDP growing at a steady 3% per year, largely as a result of cross-border trade.<sup>2</sup> Today, people from anywhere in the world have access to the highest quality goods and services at the best possible price. This has been a boon for consumers and the economies of the emerging markets, bringing hundreds of millions of people around the world out of severe poverty.<sup>10</sup> The seminal event in this trajectory was the initiation of the World Trade Organization (WTO) in 1995, which solidified and codified the strict criteria by which national governments could act as gatekeepers to commercial flows. The institution of the WTO took a potentially political process, in which governments could approve or deny trade based on potentially mercurial state relations and regularized it, so that international trade of goods and services could proceed apace, and now the global highways are filled with traffic in goods and services.

The American College of Veterinary Pathologists (ACVP) is an organization with considerable member expertise, which can be put to great use in various locations around the world. Veterinary pathologists are well positioned to take advantage of the globalization phenomenon, participating in activities with colleagues in other lands and to be leaders in global health efforts. Internationally, there are 2 large realms in which veterinary pathologists can readily contribute. One is in capacity building, that is, aiding resource-constrained or less developed countries in the enhancement and support of local and regional animal health systems. This can be through providing training and infrastructure for basic surveillance and diagnosis of animal diseases, especially focusing on those for public good and with transboundary potential. The second is in supplying technical expertise in research and diagnosis, through virtual or in-person connections. Each of these is covered in greater detail below.

## Enhancing Animal Health Systems Through Capacity Building

The WTO framers recognized that security from health hazards, both human and animal, was (and continues to be) an important safeguard in global trade. To this end, they wrote certain provisions and assigned existing intergovernmental organizations with creating extensive standards to be used in an assessment of compliance with the provisions.<sup>13</sup> For trade in animals and most animal products, the standards of the WTO Sanitary and Phytosanitary (SPS) Agreement were developed by the World Organisation for Animal Health (OIE; formerly the Office International des Epizooties).

The OIE has a prescribed set of standards for the operation of a national Veterinary Services (VS), which serves to control the diseases of public good—that is, those that affect the overall national economy such as transboundary animal diseases (TADs) and also those that affect public health such as serious zoonotic diseases.<sup>11</sup> To engage in cross-border trade and take advantage of export possibilities, each VS must conform to the SPS standards prescribed by the OIE. Without conforming to the standards, a country's products can justifiably be excluded from export, which is economically compromising. To compete globally, a nation must have a viable framework for national management of livestock health and disease—in other words, a sustainable national VS. To this end, ensuring that a



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country's VS is functioning optimally is a very sustainable improvement that can be made by visiting and collaborating with the host nation's animal health specialists. In this arena, veterinary pathologists from the developed world have a great deal of expertise to offer, including enabling basic diagnostic techniques and evaluations; improving assessments of disease in the field; promoting low-cost methods of diagnostics; training in recognition and control of the TADs; enhancing interpretation of gross and microscopic lesions; encouraging cross-talk with other private/public veterinary, wildlife, and human medical counterparts; and education of policy makers and general public in transboundary and zoonotic diseases.

Many veterinary pathologists seeking to donate their time in building VS capacity in a developing country might wonder where to start. Fortunately, there are roadmaps for those seeking to engage. The OIE has a series of country-specific evaluations and recommendations for improvements needed to enhance the VS. The Performance of Veterinary Services (PVS) and Gap Analysis programs are 2 assessments done by international specialists that give a prescriptive and detailed analysis of the current status of the VS in that country. Many of these documents are available on the OIE website.<sup>11</sup> For those that are not publicly available, the head of the country's VS, the chief veterinary officer (CVO), often is willing to share. Contact information for every CVO can also be found on the OIE website. Often the remedies described in the PVS and Gap Analysis reports involve aspects to which a veterinary pathologist could readily contribute, for instance, enhanced recognition of TADs, improved skill in field necropsy, promoting expertise in histopathology interpretation, or supporting overall passive surveillance.

A related area for contribution is in wildlife health. For numerous developing countries, tourism is one of the largest business sectors, especially for those on the African continent, where 80% of tourism revenue is oriented to wildlife.<sup>12</sup> Keeping the wildlife healthy can help the national economic outlook. There is also the problem of disease transference from wildlife to humans, as emerging or endemic zoonoses. Approximately 60% of disease-causing pathogenic illnesses in humans originate in animals and pose considerable public health, environmental, and economic problems.<sup>3</sup> Veterinary pathologists can provide training on how to improve monitoring of wildlife health and that will promote public and economic health for the developing nation.

In addition, the Global Health Security Agenda, begun in 2014 and funded by numerous US government agencies as well as other international partners, is a multisectoral effort to improve capacities to detect and respond to disease occurrence. Numerous programs implemented throughout the developing world, most with a One Health focus, could benefit from veterinary and diagnostic expertise.<sup>4</sup> A key part of global health is in combating malnutrition, which robs people and children of an optimally productive life. Recent research findings on the prevalence of cognitive stunting due to lack of animal-source foods in diets underscore the need for maintaining health and off-take of food-producing animals as a cornerstone of lifelong

population productivity.<sup>1,6,8</sup> Veterinary pathologists, with their abilities to diagnosis disease for promotion of herd and flock health, can readily contribute in this realm.

## Expanding Veterinary Pathology Service Provisions

Export of services represents a dynamic segment of international trade, more than quadrupling over the 20 years since the WTO began.<sup>9</sup> In the United States, export of services presents a significant growth opportunity, to offset some of the manufacturing exports that have now gone to other parts of the world.<sup>7</sup> Rapidly declining telecommunication costs and the ever-expanding bandwidth of Internet services offer a marvelous recipe for successful engagement of veterinary pathologists with researchers and diagnosticians in foreign lands. Admittedly, many aspects of service in veterinary pathology cannot be effectively exported, for instance, necropsy. However, numerous image-intensive aspects of the discipline (eg, examination and interpretation of gross photographs, histopathology, impression smear, blood smear) can increasingly be exchanged with high fidelity and in real time between distant sites. As the costs of slide scanners and other imaging systems decline, these will be more easily provided; however, their utility will depend further on reliable regional power sources, Internet, and equipment maintenance. In the realm of human medicine, this "offshoring" of service delivery in image analysis has proceeded slowly and mostly moved in the direction of having well-trained and qualified individuals in the emerging market economies provide limited interpretation of images sent from the developed world.<sup>5</sup> But there has been a surprising lack of professional services from the developed world being used in resource-poor areas. Probably much of this poor growth is due to the necessity of payment, with the fees in the developed world being out of the range of colleagues from resource-poor nations. However, a large niche that could be developed and expanded by veterinary pathology is supplying a certain amount of pro bono interpretation on research or diagnostics from afar. Veterinary pathologists wishing to engage with colleagues in diagnostics or research programs, but who do not have the time or funding to actually travel to another country, could connect and collaborate in this way. In addition, veterinary pathologists often have extended absences afforded by their employers, such as sabbatical programs, that can be used to enable short-term in-country assignments should a pathway be available to optimize this time availability.

## The Global Health Pathology Network

The Global Health Pathology Network (GHPN), initiated in 2015 at the request of then-president Dr Mark Simpson and Council, was created as a possible mechanism for veterinary pathologists to more readily engage in the activities listed above. Through the organization's first year, the vision ("Engaging veterinary pathologists in Global Health"),

mission (“facilitates ACVP and its members in providing resources and guidance to enable sustainable, suitable and relevant efforts to global health”), and preliminary strategic plan were developed. A mini-symposium at the 2016 ACVP Annual Meeting served to introduce diplomats to the network and the concept. The GHPN aims to be an inclusive network, with a nimble web-interactive presence, that will connect people, projects, and places. It will not be a grant-seeking organization but rather more akin to a clearinghouse of activity, potential institutional partners, and vetted resources. For instance, a researcher in developing country X needing veterinary pathology expertise might go to the GHPN website and submit a request for help or advice. Or, a US-based veterinary pathologist wishing to donate time and effort in a specific part of the world might search the site for connections to begin communications for collaboration in that geographic area. Finally, it will be helpful for pathologists to augment the institutional network and resources available through personal experience and connections. The website also will contain background information on national animal health systems, intergovernmental organizational oversight of animal health development, educational systems as they exist for veterinary medicine and pathology across the world, and key references pertaining to intercultural competence. The GHPN core group will function to ensure information is current and accurate. The desired end result is for the ACVP to become a more globally effective organization, with a larger footprint in the international arena, and, for those members who wish to become involved internationally, a more facile mechanism for participation.

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