Development of an Animal Health Surveillance Infrastructure in Bosnia and Herzegovina

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Abstract

Since 1996, Bosnia and Herzegovina (B&H) has made significant efforts to enhance its national veterinary infrastructure to improve animal health, public health, and food safety. Many international agencies and donors have invested substantial funds to rebuild the livestock industry which was devastated during the last war. However, improvements only became apparent after the State Veterinary Administration for B&H was established in December 2000. Recent World Trade Organization accession negotiations and efforts to comply with Sanitary-Phytosanitary (SPS) agreements have underscored the need to further address animal health and disease issues at a national level in B&H.

The Animal Health Economics Center of the Veterinary Faculty in Sarajevo has collaborated with the Animal Population Health Institute (APHI) of Colorado State University since 2001. Since this cooperation began, many activities have been initiated to develop and establish an effective national veterinary infrastructure. Training programs and technical workshops supported through USDA:APHIS funding have been organized in B&H, and topics covered to date include: animal health control programs, surveillance, national disease prioritization, food safety, and the initiation of regional cooperation. National surveillance systems are now being developed and implemented for diseases targeted as a result of a disease prioritization workshop.

The objectives of this presentation are to: (1) present animal health data collected through the national disease reporting system from 1996 through the end of 2005, (2) review the progress made in the development of the national veterinary infrastructure through the cooperation established with international partners, and (3) describe future activities proposed based on the experience gained.

Introduction

To understand agriculture production in Bosnia and Herzegovina (BiH) the enduring consequences of the war from April 1992 to November 1995 must be borne fully in mind. These consequences include a substantial decrease in the human population, massive outward migration and widespread social problems related to refugees. BiH is also a country in transition from a communist regime and suffers substantial weaknesses in public administration, taxation and its general economy. The Dayton peace agreement did not provide a legal framework for a ministry of agriculture at the state level and instead delegated the responsibilities for most of governmental functions including agriculture between its two Entities, the Federation of Bosnia and Herzegovina (FBiH) and Republic of Srpska (RS) and the independent district of Brcko (BD). This, coupled with a distinct lack of coordination between its three parties, has presented a major handicap to the country's development during the post war period.

With respect to veterinary services, the lack of a central level administration and a national disease control and surveillance plan during the period from 1995 to 2003 created a negative influence on the animal health situation and isolated the country from regional and international markets as well.

Reliable animal disease data were almost non-existent during the immediate post-war period. Initially, disease information was passively acquired, and collection was sporadic and most commonly initiated in response to public pressure. The usual response to a disease outbreak was meted through a policy of test and removal of positive animals, but even this was hampered by a lack of sufficient funding.

Improvement in animal disease surveillance and control only became possible once the State Veterinary Administration for BiH (SVO) was established in December 2000. However, the SVO became effective only after a state veterinary law was adopted in October, 2002. Recent World Trade Organization accession negotiations and efforts to comply with Sanitary-Phytosanitary (SPS) agreements have underscored the need to further address animal health and disease issues at a national level in BiH.

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Development of Surveillance Infrastructure

Animal disease reporting system in BiH

The livestock population in BiH was substantially reduced as a consequence of the devastating war that occurred in the early 90's. As reported previously (Fejzic et al. 2000), there was a decline in the animal population by more than 60% in a large part of the country. Unfortunately, exact population data still do not exist, and available studies provide conflicting figures. A cattle identification and movement control scheme has been in existence since 2003, however, currently only about 50 % of the cattle population has been registered. According to current estimates BiH has approximately 400,000 cattle, 1,000,000 sheep and goats, 400,000–600,000 pigs, 17,000-31,000 horses and 3,000,000 poultry (Anonymous, 2003).

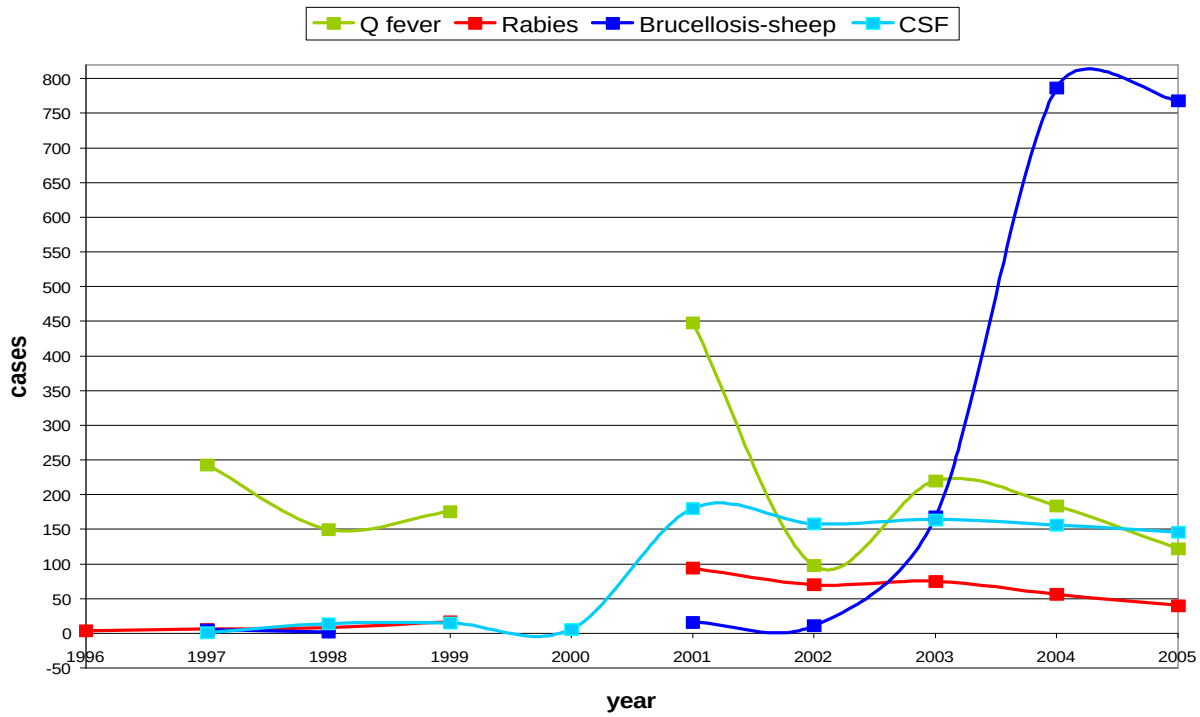
Animal health care is primarily provided by a network of public and private veterinary practices. Disease surveillance is achieved through a complex arrangement, as laboratory samples are submitted by multiple sources, including veterinary practices, producers, and animal health institutions. Laboratory diagnosis is organized through a network of eight animal health diagnostic labs. However, all of these labs essentially provide identical levels of services. There is a need to develop specialization within the laboratory system, to facilitate developing expertise in the individual labs.

During the period 1995 to 2003, the disease reporting system was organized exclusively at the entity level and data were compiled from various independent sources. Data were collected through a passive system and rarely exchanged between agencies and stakeholders (Fejzic et al. 2003). The following diseases were reported by sources from entity veterinary sectors:

Table 1. Animal health data in BiH from 1996 to 2005.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Leptospirosis	**124**	**197**	**275**	**106**		**106**	**93**	**18**	**34**	**10**
Q fever		**243**	**150**	**176**		**448**	**98**	**220**	**184**	**122**
Rabies	**4**	**6**	**8**	**17**		**94**	**70**	**75**	**56**	**40**
Brucellosis-sheep		**5**	**2**			**16**	**11**	**168**	**787**	**768**
Trichinellosis	**1**	**14**	**15**	**6**		**180**	**158**	**164**	**156**	**146**
CSF					**1**	**57**	**119**	**109**	**29**	**247**

A central disease reporting system was introduced in May, 2003 and improvements were made in the collection of data from both the entity administrations and through laboratory sources. Targeted action on improvements in the reporting of diseases such as brucellosis, bovine leptospirosis and classical swine fever (CSF) illustrated the importance of developing scientifically based surveillance. However, the previous lack of scientific approaches to disease surveillance and current undetected disease occurrence has escalated the number of cases of sheep brucellosis and, consequently, the number of human brucellosis cases. Currently available data, indicate rabies, CSF, Q fever and brucellosis may be endemic in the country (Graph 1). We are not able to explain the increase in sheep brucellosis cases, as none of the disease data were collected actively during the reported period.



Graph 1. Reported cases of the most important animal health evidences during observed period

Steps taken and progress made within international cooperation

International efforts were initiated in 2000 to assist the country in developing capacity in its animal health infrastructure. It was clear that due to its lack of domestic resources, the BiH veterinary community needed a transfer of external knowledge on the epidemiology of infectious diseases and surveillance strategies. An initial mission was conducted in BiH by a team from the APHI of Colorado State University in spring 2001. A plan was then created to address institutional/administrative development and approaches/ options for significant animal health issues. This plan was presented at all governmental levels and to all stakeholders. It placed emphasis on the initiation of educational and training activities, and it made strong

recommendations for the establishment of a central veterinary body and developing coordination plans between veterinary agencies. In accordance with this plan, these activities were conducted during the period from 2001 to 2005:

- In September 2001 a joint USDA-APHIS: CEAH and CSU: APHI seminar was conducted in Sarajevo on Animal Health Control Programs.
- A workshop on Animal Disease Surveillance was held in Sarajevo in September 2003. This was also a joint USDA-APHIS: CEAH and CSU: APHI project.
- A workshop was conducted on animal disease control prioritization in Sarajevo in October 2004.
- A workshop was conducted on "Food safety solutions: status and perspectives in Bosnia and Herzegovina," in Sarajevo in May, 2005.
- Two young professionals from the Veterinary faculty Sarajevo successfully completed a master's degree in Preventive Veterinary Medicine (MPVM) and a MS degree at the University of California at Davis and CSU, respectively.

International efforts catalyzed development in the animal health infrastructure and during the following period several important objectives were achieved:

- A functioning State Veterinary Office was established under the Ministry of Foreign Trade and Economic Relations (MFTER) in December 2000.
- A State Veterinary law was adopted in October, 2002.
- An Animal Health Economics Center was established in 2003 as joint effort of the veterinary faculty Sarajevo, Animal Health Population Institute of Colorado State University and USDA/APHIS.
- Compilation and distribution of monthly epidemiology reports to domestic and international veterinary authorities and trading partners began in May 2003.
- In fall 2004 an agreement was made with neighboring countries to create a regional task force to develop a regional animal disease surveillance program.

Current and future challenges

Work must progress towards accession to the world trade organization (WTO), and this will require a substantial commitment from the veterinary services. As well, work must continue towards harmonization with the EU economic space, another project that will require a significant contribution from the veterinary sector. A major goal will be to reassess the current disease information system and adjust it to prevailing surveillance requirements. The resulting system must involve participation of all agencies within the veterinary services of B&H. This project will include the design and implementation of monitoring and surveillance plans for important infectious animal diseases. Accordingly, a disease prioritization exercise for significant animal diseases has been conducted (table 2).

A prioritization working group first selected criteria they considered to be significant factors in prioritizing disease surveillance activities in this country. Once this was accomplished, each evaluating criterion was weighted according to its relative importance. The group then decided that each of these criteria would be ranked on a scale of one to three (with three being the highest importance) for each evaluated disease.

A discussion was held to determine which diseases would be evaluated by this system. Rabies, brucellosis, Q fever tuberculosis, classical swine fever, BSE and bluetongue were selected. Once the ranking of each disease was established in accordance with each of the evaluating criteria, priorities were determined. An overall score was tabulated for each disease by taking its score in

each category and multiplying it by the weighting factor for the respective category. These scores were then totaled for each disease across all categories. These totals determined the individual disease ranking. Final evaluation of these diseases considered other factors such as costs and the feasibility of conducting surveillance on multiple disease agents within a single surveillance system. Brucellosis and BSE were identified as the most important diseases, followed by TB, Q fever, rabies, classical swine fever and blue tongue.

The establishment of scientifically based surveillance for diseases identified as the top priorities will result in reliable, complete and timely acquired data and will be a key factor for gaining entry into the WTO and harmonizing with the European Community. A related goal will be to develop future coordination of activities between animal health and public health agencies. As mentioned earlier, an agreement has been reached with neighboring countries to create and implement a regional task force to develop an animal health reporting system.

Ranking/weight		Public health	Interest to region	Impact on production	Impact on export		Feasibility of control	Cost of control	Public opinion
					Animals	Products			
		5.0	**3.0**	**3.0**	**1.0**	**2.0**	**2.0**	**4.0**	**2.0**
High	3	R, B,Q	TB	CSF	CSF, B BSE, BT	CSF,BSE	TB	R,BSE,Q	R,TB,BSE Q
Medium	2	TB,BSE	R, CSF,B BSE, BT	B,TB	Q	B	R,B,BSE	CSF,B,TB BT	B
Low	1		Q	BT,BSE,Q	TB	TB,BT,Q	CSF,BT,Q		CSF,BT
No	0	CSF,BT		R	R	R			

Table 2. Disease prioritization matrix for Bosnia and Herzegovina

Currently there is a lack of effective monitoring of slaughter and food processing plants. One goal will be to develop and implement a verifiable, coordinated program for government oversight of slaughter and food processing facilities. This will enhance food safety for domestic production and strengthen the prospects for export of animal products to other countries.

Conclusions

It is evident that transitional and developing countries face great challenges in meeting international requirements for animal health, public health and animal welfare. However, international cooperation and support focusing on the transfer of knowledge on epidemiology and surveillance activities could be very helpful in meeting this goal. Our work demonstrated that the improvement of the animal disease reporting system is requisite for the establishment of a surveillance infrastructure. Future activities might be focused on more specific training for surveillance and control of diseases identified as national priorities, improvement of diagnostic capabilities and the identification of appropriate funding for surveillance activities.

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