

ORIGINAL RESEARCH

Survey of New York Veterinarians to Assess Needs for Public Health Preparedness Training

June Beckman-Moore, MPH; Millicent Eidson, MA, DVM, DACVPM;
Lindsay Ruland, MPH, CHES

ABSTRACT

Objective: Because most bioterrorist disease agents are zoonotic, veterinarians are important partners in preparedness. New York State is a prime port of entry and has a network of health and emergency management agencies for response. However, knowledge and participation by veterinarians has not yet been assessed.

Methods: A 25-question survey was mailed out to approximately half (1832) of the veterinarians licensed in New York State. Participants were asked about past emergency preparedness training, likelihood of participating in future training, preferred training topics, and their relationship with their local health department (LHD).

Results: Completed questionnaires were received from 529 veterinarians (29%). Most (83%) reported that they were likely to participate in emergency preparedness training, but in the past 2 years, only 14% received training in zoonotic disease outbreaks and 12% in emergency preparedness. Only 21% reported having a relationship with their LHD, but 48% were interested in having one. Lack of time was the biggest obstacle to involvement with the LHD (40%). Most (69%) of those responding to the survey said they would participate in training once per year or more often.

Conclusions: Inducements, such as earning continuing education credits, or the development of active networks of preparedness organizations, state and local health departments, and veterinary schools are needed to deliver emergency preparedness training and information efficiently to veterinarians.

(*Disaster Med Public Health Preparedness*. 2010;4:300-305)

Key Words: emergency preparedness, veterinarians, needs assessment

Veterinarians are important partners in public health emergencies, especially those involving zoonotic diseases and natural disasters. The promotion of public health is part of the Veterinarian's Oath.¹ Although courses in public health are included in the curricula of most schools of veterinary medicine, continuing education is necessary for veterinarians who wish to serve as volunteers or for those who may be asked to respond in an emergency.

Almost all of the diseases categorized by the Centers for Disease Control and Prevention as Category A, B, or C agents for bioterrorism (BT) risk are zoonotic (eg, anthrax).² Recognizing potential cases of zoonotic disease in an animal or animal's owner and reporting them to the local health department (LHD) is another way that a veterinarian may participate in emergency preparedness.³ The veterinarian may assist in diagnosis, collection of samples for laboratory submission, isolation or quarantine, and epidemiologic investigation to identify risk factors. Other potential emergency preparedness and response activities for veterinarians include the depopulation of herds or flocks for disease eradication and surveillance and control to ensure the security of the food supply. Diseases of concern include foreign animal diseases and emerging diseases such as highly pathogenic avian influenza and hoof and mouth disease. With

large outbreaks of vaccine-preventable diseases such as smallpox or influenza, veterinarians may be vaccinated as members of response teams and may serve as vaccinators of exposed or at-risk individuals.

A survey of 229 licensed veterinarians in Hawaii found that 12% had prior BT training but 90% were willing to provide assistance in a BT emergency.⁴ In rural areas of northern Texas with no county health departments, 16% of 121 veterinarians had prior BT training.⁵ The New York State (NYS) study expands on this work by addressing veterinarians' attitudes about emergency preparedness training and obstacles that prevent them from obtaining training. In addition, because of heavy trade, NYS can be a focal point of entry for zoonotic diseases with effects on humans, wildlife, and agriculture. West Nile virus is 1 example.⁶ Finally, NYS has an extensive system of local and regional health departments and an active state emergency management office.

METHODS

To successfully target veterinarians and tailor training to maximize their effectiveness as partners in emergencies, the NYS Department of Health (NYSDOH), in conjunction with the University at Albany Center for Public Health Preparedness, conducted a needs assessment survey of veterinarians in NYS (see Supplemen-

tary figure at http://www.dmphp.org/misc/vet_survey.pdf). During the development of the survey questionnaire, a focus group of veterinarians was convened in the summer of 2006. The veterinarians were from 3 NYS counties and included large-animal veterinarians (those specializing in livestock), small-animal veterinarians (those specializing in pets), and a field veterinarian employed by the state agriculture department. The purpose of the focus group was to obtain initial information about the veterinarians' interest in emergency preparedness training, the specific areas in which they wished to be trained, and their involvement in local response organizations. We used the information gathered from the focus group to aid in the development of the survey tool.

The 4-page survey questionnaire consisted of multiple-choice questions. Respondents could expand some of their answers and include additional comments at the end. The first section of the survey addressed veterinarians' perceptions of the risk of a BT event or zoonotic disease emergency in their community and in NYS. The second section addressed veterinarians' previous emergency preparedness training and future interest, including feedback on specific training methods. The third section addressed veterinarians' relationship with their LHD and obstacles to having a relationship with the LHD. The final section included demographic factors (ie, sex, age, and practice duration, type, size, and county).

The NYS Education Department maintains records of all of the veterinarians licensed in NYS, which included 3685 veterinarians in 2006. A random sample representing approximately half (1832) of the licensed veterinarians was selected. All 62 NYS counties including the 5 boroughs of New York City (NYC), were represented in the sample. The survey questionnaire was mailed in September 2006 with a cover letter and self-addressed stamped return envelope. No identifying information such as name or practice address was requested. Veterinarians were informed of their rights as survey participants in the cover letter and were given contact information in case they had any questions about the survey. All of the surveys that were returned by February 1, 2007, were included in the analysis. Surveys that were returned for incorrect address (14 surveys) were re-sent when the correct address could be located. No other follow-up contacts were conducted with nonrespondents. The survey questionnaire, cover letter, and survey method received approval from the NYSDOH and University at Albany institutional review boards before implementation.

SAS version 9 (SAS Institute, Cary, NC) and Epi Info version 3.5.1 (Centers for Disease Control and Prevention, Atlanta, GA) statistical software were used for data analysis. The denominator for percentages was calculated using the number of individuals who responded to specific questions (excluding missing answers).

TABLE 1

Demographic Characteristics of New York State Veterinarian Preparedness Survey Respondents (N = 529)

Characteristics	Number	Percent
Gender		
Female	267	51
Male	253	49
Age group		
<40	169	33
40-59	266	51
60+	82	16
Specialty		
Small animal	437	87
Large animal	68	13
Work setting		
Large city	154	30
Small city	259	50
Rural	106	20
Number of years licensed		
<1	16	3
1-5	83	16
6-15	134	26
15+	288	55
Number of patients seen per day		
<10	82	16
10-30	353	71
30+	65	13

RESULTS

Veterinarians returned 529 completed surveys, for a response rate of 29%. Survey respondents were split almost evenly between women (51%) and men (Table 1). About half (51%) were 40 to 59 years old. Most (87%) reported that they work with small animals. Eleven veterinarians reported that they were retired or working in research, teaching, or other aspects of veterinary medicine. Fifty percent of the respondents identified their work setting as "small city." Fifty-five percent had been licensed veterinarians for at least 15 years. Seventy-one percent reported seeing 10 to 30 animals per day, which is considered a medium-sized practice.⁷

Only 10% reported that they "always" or "very often" thought about BT attacks or zoonotic disease emergencies in their own communities (Table 2). However, veterinarians were significantly more likely to be concerned about BT or zoonotic disease emergencies in NYS (odds ratio [OR] 2.13; $P < .0001$). There were no significant differences in concern by practice type (large vs small animal). Veterinarians in NYC and Long Island (LI), the areas closer to previous NY terrorist attacks, were significantly more likely to "always" or "very often" think about a BT attack or zoonotic disease emergency in NYS (OR 1.85; $P = .009$) and in their community (OR 2.36; $P = .004$) compared to veterinarians who practice elsewhere in the state. Almost all of the respondents (91%) said that emergency preparedness training was "very" or "somewhat" important.

TABLE 2

Perception of Risk Among New York State Veterinarian Preparedness Survey Respondents (N = 529)

Risk Perceptions	Number	Percent
Think about BT attack or zoonotic disease emergency in community		
Always	6	1
Very often	46	9
Sometimes	221	42
Rarely	205	39
Never	48	9
Think about a BT attack or zoonotic disease emergency in NYS		
Always	9	2
Very often	91	17
Sometimes	263	50
Rarely	148	28
Never	16	3
Importance of BT attack or zoonotic emergency training		
Very important	269	51
Somewhat important	212	40
Somewhat unimportant	37	7
Unimportant	7	1

TABLE 3

Previous Emergency Preparedness Training and Interest in Training Among New York State Veterinarian Preparedness Survey Respondents (N = 529)

Training Issue	Number	Percent
Training participation in past two years*		
Biological terrorism	34	6
Radiological terrorism	5	1
Chemical terrorism	10	2
Zoonotic disease outbreak	76	14
Emergency preparedness	61	12
Likelihood of participation in emergency preparedness training		
Very likely	194	37
Somewhat likely	239	46
Somewhat unlikely	70	13
Unlikely	20	4
Frequency of anticipated emergency preparedness training		
Never	42	8
Less than once a year	121	23
Once a year	285	55
Twice a year or more	73	14
Specific training needs*		
Proper use of PPE	382	72
Procedures for decontamination	436	82
Signs and symptoms of the following exposures:		
Chemical	427	81
Biological	446	84
Radiological	414	78
Treatment for animals exposed to the following agents:		
Chemical	448	85
Biological	452	85
Radiological	432	82

* Multiple answers permitted.

Veterinarians who responded that they at least “sometimes” think about the possibility of attack in NYS were 4 times more likely to report that they would participate in emergency preparedness training (OR 3.70; $P < .0001$).

Only a small proportion of respondents reported having participated in training in the past 2 years, with the largest proportion receiving training for a zoonotic disease outbreak (14%) or emergency preparedness (12%; Table 3). However, most (83%) reported that they were “somewhat” or “very” likely to participate in future trainings; only 4% reported that they were “unlikely” to participate in future training. When asked how often they would attend training sessions, most (69%) reported that they would participate at least once per year, whereas 8% responded “never.” Veterinarians reported needing training in all of the specific areas surveyed, with the lowest amount of interest found in the proper use of personal protective equipment (72%) and the highest amount of interest in treatment for animals exposed to biological or chemical agents (85%). When asked to select 3 preferred methods of receiving new information about emergency preparedness issues (from 15 choices), veterinarians most often picked e-mail (48%), conferences (40%), meetings (36%), and journals (34%). Respondents were least interested in receiving new information via tabletop exercises (2%), committees (3%), posters (5%), and computer simulations (8%).

Most respondents did not have a working relationship with their LHD (60%) or were unsure whether they had such a relationship (19%; Table 4), even though 75% reported assisting in identifying a potential case of rabies. Twenty percent had assisted in identifying other zoonotic diseases such as anthrax ($n = 3$), West Nile virus ($n = 24$), and eastern equine encephalitis ($n = 7$). Of those who stated no LHD relationship, 48% were interested in working with the county. Forty percent of those who reported no LHD relationship reported lack of time as an obstacle, whereas relatively few reported concerns about liability (16%), risk (16%), and cost (13%). When asked about participation among 6 health and/or animal response organizations, 14% reported that they were involved with the NYSDOH Health Provider Network, 6% worked with the Animal Incident Notification and Tracking System, and 5% with the County Animal Response Team (CART).

COMMENT

Although the rate of response to the survey mailing was relatively low (29%), the sample of respondents reflects the sex and age distribution of veterinarians nationwide and in NYS. The response rates for the Hawaii and Texas surveys were higher (59% and 35%, respectively), probably resulting from follow-up of nonrespondents with postcards in Hawaii and a second questionnaire in Texas. It is also possible that veterinarians with prior training were less likely to participate.

With about half of our survey participants being women and 40 to 59 years old, our sample appears to be similar to US vet-

erinarians⁸ and to the overall membership roster maintained by the NYS Veterinary Medical Society (NYSVMS). Among our respondents, half are located in small cities, and more than half had been licensed for at least 15 years. The majority of our respondents works primarily with small animals and works in medium-sized practices, which is similar to the NYSVMS overall database. About one-quarter of respondents practice in the 7 counties of NYC and LI. The population of this area accounts for about 57% of the population of NYS.⁹ Thirty-three percent of NYSVMS members practice in these 7 counties. Therefore, veterinarians from this area of the state were underrepresented in our survey.

It is not surprising that veterinarians in NYC and LI think about a BT attack or zoonotic emergency in their community more often than those practicing in the rest of the state. After the September 11, 2001, attack on the World Trade Center, New Yorkers in general and those living in and near NYC in particular have an increased awareness of the possibility of some sort of terrorist attack. Future studies may benefit from addressing this issue in more detail by separately assessing concern for BT attacks and zoonotic emergencies.

Although NYS veterinarians reported that they would be likely to participate in training, relatively few had participated in terrorism, disease outbreak, or emergency preparedness training in the 2 years before the survey. This result is similar to that found in Hawaii and Texas, where only 12% and 16% of their respondents, respectively, reported having prior BT preparedness training. Our survey asked about specific types of prior training, with 6% reporting training in biological terrorism in the previous 2 years.

Among our respondents there was interest in all areas of training, including signs and symptoms of exposure, treatment of animals, decontamination, and use of personal protective equipment. Similarly, the authors of the Texas study reported that the majority of their respondents (67%) would be interested in future BT preparedness and response training. Their preferred training methods were CD-ROM (40%), the Internet (37%), and audiovisual materials (33%).

Three-quarters of the respondents said they would participate in training programs at most once per year. In spite of expressing interest in being trained, the time they are willing to commit to training may be limited. Besides e-mail and journals, veterinarians prefer to receive new information about preparedness issues in person at conferences and meetings. Although veterinarians are willing to use newer technology to receive new information, this technology may be limited to e-mail.

Veterinarians can be called on to help LHDs identify potential zoonotic disease outbreaks.³ Because a zoonotic disease emergency would most likely be detected at the local level, it is important to know whether LHDs can rely on veterinarians for help with disease identification. More than half of the respon-

TABLE 4

Attitudes About and Participation With Local Agencies Among New York State Veterinarian Preparedness Survey Respondents (N = 529)

Local Agency Issue	Number	Percent
Current relationship with local health department (LHD)?		
Yes	108	21
No	313	60
Not sure	101	19
If no relationship, interest in working with county		
Yes	140	48
No	44	15
Not sure	108	37
If no relationship, obstacles to working with LHD*		
No time	124	40
Concern about cost	42	13
Concern about risk	51	16
Concern about liability	49	16
Current involvement with*		
NYS Health Provider Network (NYSHPN)	76	14
NYS Animal Incident Notification and Tracking System (NYSAINTS)	31	6
County Animal Response Team (CART)	28	5
Medical Reserve Corps	12	2
Veterinary Medical Assistance Team (VMAT)	9	2
Veterinary Medical Reserve Corps	6	1

* Multiple answers permitted.

dents in our survey had no relationship with their LHD, which referred to having an agreement or working relationship with the LHD or assisting with animal rabies or other potentially zoonotic diseases. Almost half of those without a relationship were interested in working with their county. More than 90% of the Hawaiian respondents were willing to provide assistance to their state's BT response and control efforts, whereas only 38% in Texas were willing and available to assist their state health department in the diagnosis and treatment of a BT case.

Lack of time was the primary obstacle for working with the LHD. However, three-quarters reported that they have assisted their LHD in responding to a potential case of rabies, so veterinarians may underestimate the degree to which they already work with their LHD. Recognizing how veterinarians already contribute to public health activities should be used to encourage veterinarians to become more involved in emergency preparedness. In NYS, veterinarians are reimbursed by the LHDs for their costs in preparing animal rabies specimens, but cost was not reported as a major obstacle to working with the LHD on other preparedness issues.

The Health Provider Network, a computerized NYSDOH surveillance system, was the locally accessible system with the highest level of veterinarian participation (14%). Six percent of surveyed veterinarians reported involvement with the NYS Department of Agriculture and Markets NYS Animal Incident Notification and Tracking System, used for veterinar-

A Veterinarian Preparedness Needs Assessment

ians' reporting of animal diseases, which is still being developed and publicized. Veterinarians reported less participation in other preparedness organizations, such as CARTs and the Veterinary Medical Assistance Teams (VMAT). In CART training held throughout NYS, veterinarians have been encouraged to participate in other types of preparedness activities. The American Veterinary Medical Association (AVMA) has provided publicity about VMAT, particularly in response to large disease outbreaks and recent hurricanes. With time reported as the most significant obstacle to working with LHDs (40%), it will be challenging to identify ways to engage busy veterinary practitioners.

The initial focus group provided some anecdotal information on the perceptions of veterinarians in NYS. They reported a lack of uniformity in emergency response protocols and poor relationships with LHDs and physicians. Some veterinarians said that not all NYS counties have organized CART and VMAT activities and that veterinarians may not be recognized as potential first responders to a disaster or disease outbreak. They mentioned the need for some type of state-approved status or certification for responders. Because emergency risks may vary geographically, the veterinarians suggested training suited to different regions. For example, heavy snowfall and ice storms are common in the northern and western parts of NYS, whereas hurricanes and flooding are more likely on LI. The veterinarians also reported that they would prefer training that is targeted specifically to veterinarians, not training adapted from materials developed for physicians.

NYS has infrastructure and training for veterinarians who wish to participate in preparedness activities. The Empire State Animal Response Team¹⁰ is a group that works with CARTs at the local level to respond to animal emergencies. It is a public-private partnership that works in conjunction with local emergency management agencies and provides training for members who may include but are not limited to veterinarians. Training topics include specialized animal rescue, recovery, and sheltering, and other activities that may be useful in emergency response. The New York Consortium for Emergency Preparedness Continuing Education (NYCEPCE)¹¹ is another organization that has provided emergency response training to veterinarians. NYCEPCE is a federally funded organization whose goal is to provide emergency preparedness training for health care professionals in NYS and NYC.

In 2006 and 2008, emergency preparedness training workshops were provided by the Center for Public Health Preparedness and funded by NYCEPCE. The 2006 workshop, for example, was conducted with support from the NYS Capital District Veterinary Medical Society and was attended by 75 veterinarians, licensed veterinary technicians, and CART members. Grant-funded training workshops such as these offer veterinarians an introduction to emergency preparedness and an opportunity to start or continue to be part of the emergency response effort in their communities.

Some states such as Michigan¹² and Illinois¹³ are actively training veterinarians in emergency preparedness and disaster response and channel training activities through their departments of agriculture. In addition, professional associations can be used to disseminate emergency preparedness materials. AVMA provides many resources on its Web site for veterinarians who are interested in participating in preparedness activities and emergency response. In addition, AVMA has a memorandum of understanding with the US Public Health Service that established VMAT as a public-private partnership. Academic entities can also become part of a network of training organizations. For example, Purdue University offers a graduate certificate program in veterinary homeland security.¹⁴ Although there appear to be many training resources available to individual veterinarians, NYS veterinarians need to be part of a network with similar response and disaster planning organizations.

The Pets Evacuation and Transportation Standards Act (PETS Act, PL 109-308),¹⁵ signed into law in 2006, requires that states and localities address the needs of pet owners and those requiring the assistance of service animals during emergencies. To comply with the PETS Act, state and local emergency plans must include provisions for animals, such as emergency sheltering. This legislation may encourage states and localities to use veterinarians as response partners and create positions in which veterinarians can share their expertise in identifying potential disease emergencies and responding to animal emergencies.

Veterinarians work more independently and their practices are in general not supported by government agencies in the way in which human health facilities may be supported. Veterinarians also tend to work in smaller practices that are not affiliated with larger organizations. Because of these differences they need to be targeted differently than human health providers for emergency preparedness information and/or training. As with other studies, the present study indicates that more work needs to be done to encourage veterinarians to participate in preparedness training. There seems to be little incentive for veterinarians to make the commitment of time to obtain training, and the need for training appears to be of limited concern to the veterinarians surveyed. Therefore, inducements (eg, continuing education credits) and active networks with preparedness organizations, state and local health departments, and veterinary schools are needed to develop and deliver training and information. Uniform disaster response protocols developed by local preparedness organizations may also encourage more participation from veterinarians. The importance of small-animal veterinarians in companion animal rescue and disease identification should not be underestimated. Organizations and individuals responsible for training programs must continue to develop materials and training modules geared specifically to veterinarians. Finally, online training may increase veterinarian participation in all geographic areas, particularly in rural areas where travel distances for in-person training may be a barrier.

Additional surveys should be considered to update the evaluation of training availability and success. The results can also be used to advise veterinary schools on possible additions to their curricula. Focus groups can provide more specific information from veterinarians that cannot be gathered using brief questionnaires. It also would be valuable to conduct a needs assessment of veterinary technicians using information from the NYS Education Department.¹⁶ The impact of the somewhat low response rate in the present survey (29%) is unknown, but the veterinarians who responded to the survey appeared to be similar to veterinarians nationwide and those with membership in the state veterinary medical society. These results may represent an upper limit of current and future interest in preparedness training if those with an interest were more likely to respond to the survey.

CONCLUSIONS

A 2006 mail survey of NYS veterinarians with a 29% response rate indicated that most veterinarians think about a BT attack or zoonotic disease emergency, although they think about it occurring more often in NYS than in their own communities. Most indicated that training is important and they are interested in participating, but no more often than once per year, and a lack of time is the greatest obstacle to participation. Although NYS is fortunate to have in place organizations, computerized reporting mechanisms, and training, considerable additional work must be done to find ways to identify and meet veterinarians' needs and incorporate them into preparedness planning from the beginning.

Author Affiliations: Ms Beckman-Moore is with the New York State Department of Health; Dr Eidson is with the Office of Public Health Practice, New York State Department of Health. Ms Ruland is the Training Project Coordinator, Center for Public Health Continuing Education, School of Public Health, University at Albany.

Correspondence: Address correspondence and reprint requests to Ms June Beckman-Moore, Bureau of Environmental & Occupational Epidemiology, New York State Department of Health, Flanigan Square, 547 River St, 2nd Floor, Troy, NY 12180 (e-mail: jxb23@health.state.ny.us).

Received for publication March 2, 2009; accepted September 24, 2010.

Author Disclosures: The authors report no conflicts of interest.

Acknowledgments: The study was supported in part by the New York Consortium for Emergency Preparedness Continuing Education. The authors thank Bryan Cherry, VMD, PhD, Bureau of Communicable Disease Control, New York State Department of Health, for assistance in study design and execution; Elizabeth Ablah, PhD, MPH, University of Kansas School of Medicine-Wichita, for questionnaire review; and Marta Gomez, MS, Bureau of Environmental and Occupational Epidemiology, New York State Department of Health, for manuscript review.

REFERENCES

1. American Veterinary Medical Association. Veterinarian's Oath. http://www.avma.org/about_avma/whoweare/oath.asp. Accessed October 22, 2010.
2. Davis RG. The ABCs of bioterrorism for veterinarians, focusing on Category A agents. *J Am Vet Med Assoc.* 2004;224(7):1084-1095.
3. Ashford DA, Gomez TM, Noah DL, Scott DP, Franz DR. Biological terrorism and veterinary medicine in the United States. *J Am Vet Med Assoc.* 2000;217(5):664-667.
4. Katz AR, Nekorchuk DM, Holck PS, Hendrickson LA, Imrie AA, Effler PV. Hawaii veterinarians' bioterrorism preparedness needs assessment survey. *J Vet Med Educ.* 2006;33(4):612-617.
5. Hsu CE, Jacobson H, Feldman K, Miller JA, Rodriguez L, Soto Mas F. Assessing bioterrorism preparedness and response of rural veterinarians: experiences and training needs. *J Vet Med Educ.* 2008;35(2):262-268.
6. Nash D, Mostashari F, Fine A, et al; 1999 West Nile Outbreak Response Working Group. The outbreak of West Nile virus infection in the New York City area in 1999. *N Engl J Med.* 2001;344(24):1807-1814.
7. McCurnin DM. Efficiencies can improve bottom line. <http://www.veterinarypracticenews.com/vet-dept/vet-practice-management/efficiencies-can-improve-bottom-line.aspx>. Accessed October 22, 2010.
8. Wise JK, Shepherd AJ. Employment and age of male and female AVMA members, 2003. *J Am Vet Med Assoc.* 2004;225(6):876-877.
9. US Census Bureau. Accessed December 1, 2008. http://factfinder.census.gov/servlet/GCTTable?_bm=y&-geo_id=04000US36&-_box_head_nbr+GCT-T1&-ds_name=PEP_2009_EST&-_lang=en&format=ST-2&-_sse=on.
10. Empire State Animal Response Team. Accessed October 22, 2010. <http://www.empiresart.com>.
11. New York Consortium for Emergency Preparedness Continuing Education. Accessed November 26, 2008. <http://www.nycepce.org>.
12. Michigan Department of Agriculture. Accessed October 22, 2010. <http://www.michigan.gov/mda>.
13. Illinois Department of Agriculture <http://www.agr.state.il.us>. Accessed October 22, 2010.
14. Purdue University graduate certificate program in veterinary homeland security. <http://www.biosecuritycenter.org/article/vetHomelandProgram>. Accessed October 22, 2010.
15. Act PETS. HR 3858. <http://www.govtrack.us/congress/bill.xpd?bill=h109-3858>. Accessed October 22, 2010.
16. Soto Mas F, Hsu CE, Jacobson H, Zoretic J, Felán M. Physician assistants and bioterrorism preparedness. *Biosecur Bioterror.* 2006;4(3):301-306.