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A survey of optometry leadership: Participation in disaster response

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KEYWORDS

Optometry;
Disaster;
Catastrophic event;
Surge;
Response

Abstract

BACKGROUND: A study was completed to assess the academic and state-level professional optometry leadership views regarding optometry professionals as surge responders in the event of a catastrophic event.

METHODS: A cross-sectional survey was conducted using a 21-question, self-administered, structured questionnaire. All U.S. optometry school deans and state optometric association presidents were mailed a questionnaire and instructions to return it by mail on completion; 2 repeated mailings were made. Descriptive statistics were produced and differences between deans and association presidents were tested by Fisher exact test.

RESULTS: The questionnaire response rate was 50% (25 returned/50 sent) for the state association presidents and 65% (11/17) for the deans. There were no statistically significant differences between the leadership groups for any survey questions. All agreed that optometrists have the skills, are ethically obligated to help, and that optometrists should receive additional training for participation in disaster response. There was general agreement that optometrists should provide first-aid, obtain medical histories, triage, maintain infection control, manage a point of distribution, prescribe medications, and counsel the "worried well." Starting intravenous lines, interpreting radiographs, and suturing were less favorably supported. There was some response variability between the 2 leadership groups regarding potential sources for training.

CONCLUSIONS: The overall opinion of optometry professional leadership is that with additional training, optometrists can and should provide an important reserve pool of catastrophic event responders. *Optometry* 2012;83:27-32

Disasters and the threat of the use of weapons of mass destruction have highlighted the need for surge manpower

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utilization to support the existing disaster response infrastructure. The findings of Gershon et al.¹ and Qureshi et al.² have shown that the unavailability of trained individuals in the medical and public health workforce and the ability or willingness to respond constitute critical barriers to emergency preparedness. A surge response can be considered a system's rapid manpower augmentation to a highly demanding event, which may be complicated by a shortage

of health workers because of casualties or fear or because of the increased manpower required by the number of victims.^{3,4} Planning for a surge response requires developing training programs and the integration of efforts of professionals who are appropriately prepared to provide the necessary support.

In the event of a catastrophe, protocols carried out by mobilized personnel with relevant training should decrease morbidity and mortality. It has been proposed that these marshaled personnel may be from a nontraditional disaster responder profession.^{3,5} Optometrists have been historically involved with community service dating back more than 100 years⁶ and responded to the Hurricane Katrina disaster.⁷ In this tradition, optometrists, with their medical and clinical background supplemented with additional training, can serve as surge reserve personnel, e.g., they are competent in diagnosing and treating certain casualties.⁸

The eye is particularly vulnerable to injury during disasters because it is exposed, easily penetrated by sharp objects, and subject to rupture or contusion from blunt trauma.⁹ Eye injuries often occur in association with head trauma or multiple systemic injuries, which require expert triage and staging of care to preserve both life and sight. Airborne chemicals or smoke can cause debilitating eye pain and vision loss, which can affect both civilian victims and the ability of first responders to work. An important health care practitioner to provide emergency treatment for these disaster-associated injuries can be the optometrist, allowing other medical personnel to apply their skills and tend to other injuries. To accomplish these diagnostic and treatment tasks, it is important that optometrists are well informed of the signs and symptoms of biological agents, radiologic effects, and traumatic injuries. Thus, additional training of optometrists may enable them to be a valuable resource in disaster management when properly integrated into disaster response plans. Additionally, optometrists can serve as an element in epidemic surveillance. Severe acute respiratory syndrome, influenza, and certain biological terrorism agents can produce flulike symptoms, which commonly involve the eye. Optometrists may attend to such patients before other clinicians and, therefore, should be knowledgeable of the signs and symptoms of these infectious diseases.^{8,10}

A primary barrier to optometrists participating in a disaster surge response is the scope-of-practice laws and regulations. These legal parameters of care are being modified for disasters after a 2004 conference of experts in the fields of bioethics, emergency medicine, emergency management, health administration, health law and policy, and public health¹¹; that meeting's purpose was to examine how standards of care may need to be altered in the event of a mass casualty incident. The panel emphasized that for health systems and practitioners to respond effectively to mass casualties, a number of important legal, policy, and ethical issues related to altered standards of care/scope of practice needed to be addressed.

The 2006 Public Law, Pandemic and All-Hazards Preparedness Act, addressed some of the standard-of-care

issues. This law encourages states to implement mechanisms to waive licensing requirements applicable to health professionals wishing to provide emergency medical services during a declared disaster, including out-of-state professionals.¹² Examples of states addressing the scope-of-practice issue are Colorado¹¹ and Illinois.¹³ These important actions lay the groundwork for the realistic incorporation of nontraditional disaster responders, including optometrists, to be incorporated into a surge response.

The purpose of this study was to assess the academic and state-level professional optometry leadership views regarding optometry professionals as surge responders in the event of a catastrophic event.

Methods

Study overview

A cross-sectional study was conducted between February and May 2007 that used a survey instrument previously utilized to assess health professional views at an academic and state level of leadership regarding a profession's response to catastrophic events. For the study presented here, all U.S. optometry school deans and state optometric association presidents were mailed the anonymous and self-administered structured questionnaire. The leaders were asked to complete the questionnaire and return it by mail; 2 repeated mailings were additionally made. Descriptive statistics were produced, and differences between deans and association presidents were tested by Fisher exact test. The study was approved by the New York University Medical School Institutional Review Board.

Sample

The study population was determined by searches conducted via the Internet to identify optometry leadership including all academic deans and association presidents. The sample selection was based on titles and addresses that were available on the Internet. Contact information of these optometry professional leaders was entered in a study database.

Study questionnaire

Catastrophic response content experts of New York University prepared a questionnaire with 3 thematic areas,³ each composed of several questions: 1—skills and ethical responsibilities to respond to catastrophic events (5 questions); 2—appropriate roles and tasks regarding catastrophic events, with additional training (10 questions); and 3—preferred sources of education and training for catastrophic preparedness (6 questions). The questionnaire was generic for health professionals (see Figure 1). Each of these themes was itemized into discrete statements with

Opinions of Health Care Leadership: Please aid us in understanding your opinions about potential roles and responsibilities of optometry professionals in response to catastrophic response. We welcome any additional comments and encourage you to add them to the reverse side of this sheet. Thank you in advance for your help. Please return the completed survey in the enclosed self-addressed stamped envelope.	Strongly Disagree	Disagree	Agree	Strongly Agree
Optometry professionals are highly educated health practitioners who have skills that are relevant and applicable to catastrophic response teams				
Optometry professions have an ethical obligation to help the community during a catastrophic event				
Optometry professionals would be receptive to receiving additional training that would enable them to provide additional assistance during a catastrophic event				
Medical professionals would be receptive to assistance from optometry professionals during a catastrophic event				
Medical professionals would recommend that optometry professionals receive additional training that would allow them to help during a catastrophic event				
With proper additional training, optometry professionals could play a role in:				
Providing basic first aid				
Conducting triage during a mass casualty event				
Suturing wounds				
Starting IV's				
Helping to maintain infection control in the treatment facility				
Interpreting radiographs				
Obtaining medical histories from patients				
Manning a Point of Distribution (POD) clinic dispensing medications/vaccines				
Prescribing medications				
Providing counseling to the "worried well"				
Optometry professionals should receive catastrophe preparedness training through:				
Local community (police/fire departments, hospital, etc.)				
State government agencies				
Federal government agencies				
Private companies				
Continuing education courses from medical schools and medical associations				
Continuing education courses from optometry schools and optometry associations				

Figure 1 Survey instrument for accessing presidents of state optometry associations' and optometry school deans' opinions regarding optometrists' potential roles and responsibilities in response to a catastrophic event.

which the leaders could respond to a Likert scale of strongly disagree, disagree, agree, or strongly agree.

Study data collection operations

Each study participant received a questionnaire accompanied with a cover letter and a stamped, addressed return envelope. The cover letter explained the purpose of the survey and invited participants to complete and return the questionnaires. No personal identifiers were collected. One and 2 months subsequent from the initial mailing, the identical questionnaires were mailed again to all participants. These second and third follow-up mailings were accompanied with a reminder letter requesting the survey completion, and the letter stated they should ignore the repeat questionnaires if they had already responded to the survey.

Data management and analysis

The data were double-entered in Excel spreadsheets. Statistical Package for Social Sciences (SPSSv14; IBM, Armonk, New York) was used to perform descriptive data analyses. Disagreements between the group of optometry school deans and that of presidents of state optometric associations for each item were tested using a Mann-Whitney test.

Results

All optometric association presidents (n = 50) and optometry school deans (n = 17) identified in the Internet search were mailed questionnaires. Fifty percent (n = 25) of the state optometric association presidents and 65% (n = 11) of the optometry school deans returned the questionnaires

Table 1 Skills, ethical responsibility, and receptiveness: optometry professionals and catastrophic response

Questions	Leaders	Strongly disagree, n (%)	Disagree, n (%)	Agree, n (%)	Strongly agree, n (%)	Total, N	Mann-Whitney test
Optometrists have skills applicable to catastrophic response	School deans	0 (0)	0 (0)	1 (9)	10 (91)	11	0.61
	Association presidents	0 (0)	0 (0)	5 (20)	20 (80)	25	
Optometrists have an ethical obligation to help community during a catastrophe	School deans	0 (0)	0 (0)	2 (18)	9 (82)	11	0.79
	Association presidents	0 (0)	0 (0)	3 (12)	22 (88)	25	
Optometrists will be receptive to additional training to be of assistance during a catastrophe	School deans	0 (0)	0 (0)	2 (18)	9 (82)	11	0.42
	Association presidents	0 (0)	0 (0)	9 (36)	16 (64)	25	
Medical professionals would be receptive to assistance from optometrists	School deans	0 (0)	0 (0)	8 (73)	3 (27)	11	0.25
	Association presidents	0 (0)	2 (8)	21 (84)	2 (8)	25	
Medical professional would recommend optometrists to receive additional training to help during a catastrophe	School deans	0 (0)	1 (9)	7 (64)	3 (27)	11	0.54
	Association presidents	0 (0)	2 (8)	20 (80)	3 (12)	25	

within the study's assigned period of time, i.e., 1 month from the third questionnaire mailing.

Mann-Whitney testing yielded no statistically significant difference defined as $P \leq 0.05$ between the state optometric association presidents and optometry school deans with regard to any of the statements of the survey.

All of the leaders agreed with the statements that optometrists should have skills applicable to a catastrophic response, are ethically obligated to help the community during a catastrophe, and that they should receive additional training to develop skills for catastrophe management (see Table 1). Only 2 (8%) from the state optometric association presidents disagreed with the statement that medical professionals were receptive to assistance of optometrists; a similar percentage of both the state optometric association presidents and optometry school deans (92% and 91%, respectively) agreed on the statement that medical professionals would recommend that optometrists should receive additional training. The deans more strongly agreed with the statements that optometrists would be receptive to additional training, medical professionals were receptive to assistance of optometrists, and medical professionals would recommend that optometrists should receive additional training.

Table 2 presents the findings between the 2 groups with regard to the statements related to the tasks optometrists can do with additional training in a surge disaster environment. For the tasks of providing basic first aid, conducting triage, maintaining infection control, obtaining medical histories, managing a point of distribution, prescribing medications, or counseling the "worried well," (i.e., nonphysically

or psychologically traumatized yet requiring information, support, and assurance); at most only 2 leaders were in disagreement. Approximately three fourths of the deans (73%) and two thirds of association presidents (68%) agreed that optometrists should be involved with starting intravenous lines, whereas 54% and 56%, respectively, agreed with optometrists suturing. Fifty-four percent of deans and 72% of the state presidents agreed with optometrists interpreting radiographs.

With regard to optometry professionals receiving catastrophe preparedness training by local, state, and federal government agencies (see Table 3), the leadership was very favorable, although a small percentage of the association presidents disagreed with the statements. Approximately two thirds of each group agreed with private companies providing training, whereas twice the percentage of the state optometric association presidents (36%), compared with deans (18%), disagreed with the statement that continuing education courses from medical schools and medical societies could provide catastrophe preparedness training for optometrists. Optometry schools and associations as sources of training were highly and favorably viewed by both groups.

Discussion

The survey presented here is a first overall look at optometry leadership opinions on aspects of the participation of optometry professionals in a catastrophic event response. In catastrophic situations, medical and public

Table 2 Tasks that with additional training optometry professionals can conduct in response to catastrophic events

Task	Leaders	Strongly disagree, n (%)	Disagree, n (%)	Agree, n (%)	Strongly agree, n (%)	Total, N	Mann-Whitney test
Provide basic first aid	School deans	0 (0)	0 (0)	1 (9)	10 (91)	11	0.61
	Association presidents	0 (0)	0 (0)	5 (20)	20 (80)	25	
Conduct triage during mass casualty event	School deans	0 (0)	1 (9)	5 (45.5)	5 (45.5)	11	0.81
	Association presidents	0 (0)	1 (4)	12 (48)	12 (48)	25	
Suturing wounds	School deans	0 (0)	5 (46)	2 (18)	4 (36)	11	0.93
	Association presidents	0 (0)	11 (46)	5 (21)	8 (33)	24*	
Starting intravenous lines	School deans	0 (0)	3 (27)	5 (46)	3 (27)	11	0.87
	Association presidents	2 (8)	6 (24)	7 (28)	10 (40)	25	
Help maintaining infection control	School deans	0 (0)	1 (9)	2 (18)	8 (73)	11	0.97
	Association presidents	0 (0)	1 (4)	6 (24)	18 (72)	25	
Interpreting radiograph	School deans	0 (0)	5 (50)	4 (40)	1 (10)	10*	0.42
	Association presidents	1 (4)	7 (29)	11 (46)	5 (21)	24*	
Obtaining medical history	School deans	0 (0)	0 (0)	1 (9)	10 (91)	11	0.76
	Association presidents	0 (0)	0 (0)	4 (16)	21 (84)	25	
Managing a point of distribution	School deans	0 (0)	1 (9)	3 (27)	7 (64)	11	0.87
	Association presidents	0 (0)	0 (0)	9 (36)	16 (64)	25	
Prescribing medications	School deans	0 (0)	0 (0)	7 (64)	4 (36)	11	0.32
	Association presidents	0 (0)	1 (4)	9 (36)	15 (60)	25	
Providing counseling to the "worried well"	School deans	0 (0)	0 (0)	5 (45)	6 (55)	11	0.59
	Association presidents	0 (0)	1 (4)	7 (28)	17 (68)	25	

* Missing data = 1.

health resources may be placed under severe stress and overwhelmed by the volume of victims. The existence of a reserve, surge manpower response capacity may be a necessity for some postdisaster actions to be effective. However, there is a need for that surge personnel reserve to be familiar with disaster medicine, public health, and logistic principles and practices to positively enhance the

response. Further, surge responders need to be integrated into the local disaster planning.⁹ This survey was to determine the responsibility and ability of optometry professionals to serve as a competent adjunct in cases of disasters, to explore possible roles for optometrists as a manpower reserve, and to identify the most appropriate trainers for optometrists to serve as surge responders.

Table 3 Sources for catastrophe preparedness training to optometry professionals

Source	Leaders	Strongly disagree, n (%)	Disagree, n (%)	Agree, n (%)	Strongly agree, n (%)	Total, N	Mann-Whitney test
Local community (police, fire department, hospital)	School deans	0 (0)	1 (9)	3 (27)	7 (64)	11	0.44
	Association presidents	0 (0)	4 (16)	9 (36)	12 (48)	25	
State government agencies	School deans	0 (0)	0 (0)	6 (55)	5 (45)	11	0.46
	Association presidents	0 (0)	3 (12)	13 (52)	9 (36)	25	
Federal government agencies	School deans	0 (0)	0 (0)	5 (45)	6 (55)	11	0.26
	Association presidents	0 (0)	3 (12)	13 (52)	9 (36)	25	
Private companies	School deans	0 (0)	4 (40)	3 (30)	3 (30)	10*	0.9
	Association presidents	0 (0)	8 (32)	13 (52)	4 (16)	25	
Continuing education courses from medical school and medical associations	School deans	0 (0)	2 (18)	4 (36)	5 (46)	11	0.27
	Association presidents	0 (0)	9 (38)	8 (33)	7 (29)	24*	
Continuing education courses from optometry schools and optometry associations	School deans	0 (0)	0 (0)	2 (18)	9 (82)	11	0.5
	Association presidents	0 (0)	1 (4)	7 (28)	17 (68)	25	

* Missing data = 1.

Two limitations of the study suggest some caution in interpreting the findings. First, the nonresponders may have had very different opinions regarding the survey questions. The conservative interpretation of the findings thus applies to those presidents and deans who did take part in the survey, though the respondents were more than one half of the sample for each group, representing a substantial proportion of the leadership. Second, the small sample size may have had insufficient power to statistically test a difference, although the data in the tables support a general agreement between the 2 groups.

Within the limitation of the response rate (50% presidents, 65% deans), overall, the results of this survey showed a broad unanimity on the part of the optometry leadership regarding optometrists having a role in catastrophic response and the tasks they can competently perform with additional training, with less enthusiasm toward tasks considered more likely to pertain to medicine, such as suturing wounds, interpreting radiographs, and starting intravenous lines. It was generally agreed that additional training should be given by local, state, and federal government agencies and by optometry schools and associations. Private companies were not enthusiastically accepted as sources of additional training, and likewise medical schools and associations were not readily considered likely sources of continuing education for optometry professionals.

Conclusion

Optometrists possess an in-depth understanding of basic biological principles and have a strong background in the clinical sciences, performing patient assessments, pain and anxiety control, and disease prevention. In light of optometrists' potential participation in catastrophic event response, specific tasks and the operations/systems in which they would be performed need to be developed and incorporated within the optometry school curricula and as continuing optometric education.¹⁴⁻¹⁶ The profession should support modification of state scope-of-practice laws for disaster response and work with agencies and institutions charged with disaster response planning to incorporate optometrists into the surge response^{17,18} with several disaster response plans as possible concept development tools. In the opinion of the professional leadership, with additional focused training in medical and public health surge

response roles and tasks, optometrists can be a viable reserve pool of catastrophic event responders.

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