



The Use of U.S. Academic Institutions in Community Medical Disaster Recovery

Arnauld Nicogossian, *George Mason University*
Thomas Zimmerman, *Palm Beach Medical College, Florida*
Gloria Addo-Ayensu, *Fairfax County Health Department*
Kevin Thomas, *Boston University, School of Medicine*
Gary L. Kreps, *George Mason University*
Nelya Ebadirad, *George Mason University*
Sulava Gautam, *George Mason University*

Nicogossian, Arnauld; Zimmerman, Thomas; Addo-Ayensu, Gloria; Thomas, Kevin; Kreps, Gary L.; Ebadirad, Nelya; and Gautam, Sulava (2011) "The Use of U.S. Academic Institutions in Community Medical Disaster Recovery," *World Medical & Health Policy*: Vol. 3: Iss. 1, Article 3.

Available at: <http://www.psocommons.org/wmhp/vol3/iss1/art3>

DOI: 10.2202/1948-4682.1149



The Use of U.S. Academic Institutions in Community Medical Disaster Recovery

Arnauld Nicogossian, *George Mason University*
Thomas Zimmerman, *Palm Beach Medical College, Florida*
Gloria Addo-Ayensu, *Fairfax County Health Department*
Kevin Thomas, *Boston University, School of Medicine*
Gary L. Kreps, *George Mason University*
Nelya Ebadirad, *George Mason University*
Sulava Gautam, *George Mason University*

Abstract

Objective: To explore the role of public schools, and other academic institutions, in community medical disaster preparedness and recovery.

Methods: A literature search on the subject of public schools utility in community medical disaster preparedness and recovery was performed. Relevant publications were selected, reviewed, and categorized for the strength of evidence. Spatial distribution of schools, and academic facilities, within rural and urban communities using Geographic Information System (GIS) analysis was conducted. GIS of the Northern Virginia (NOVA) region, adjacent to the nation's capital, was used to identify the spatial distribution and relationship of schools, and other academic and healthcare facilities, within rural and urban communities and the walking accessibility distance within a residential area. A group of subject-matter experts was convened to identify lessons learned and solicit opinions on the use of schools for medical disaster preparedness. All information was integrated in the final assessment of the role of public schools and academic institutions in medical disaster preparedness and recovery.

Results: Literature on the use of schools and academic institutions for medical disaster preparedness and recovery is sparse. Meta-analysis or randomized controlled trials (RCTs) were not found. Most of the relevant information was located in state or federal government websites. Fair evidence supports that: (1) Schools were used, either as healthcare or as shelter facilities, by federal agencies and privately funded humanitarian relief organizations such as the American Red Cross (ARC). Many U.S. states have executed agreements with ARC for such purposes. (2) Schools, on their own, usually lack resources, facilities, and liability coverage to serve as physical and logistic assets for community medical disaster recovery beyond their traditional role of protecting students and staff. (3) University campuses possess educational and infrastructure resources capable of supporting community medical needs following disasters. Some universities have already established emergency preparedness departments, and are recipients of federal and state grants to develop medical disaster educational programs. With modest investments, such programs can be adapted by local schools for additional community outreach activities. (4) GIS analysis can help identify unique physical attributes of schools of interest to medical disaster planning and recovery programs. In the NOVA region, schools have different spatial relationships

to the communities and other resources of potential benefit for medical disaster recovery. In the rural areas, schools are not always located within walking distance from residential areas. (5) Community emergency preparedness networks are not fully integrated and may not benefit diverse demographic groups.

Discussion: Backed by adequate resources and planning, schools can be used in a dual Function—to care for students and the community.

Policy Implications and Conclusions: Schools and other academic institutions should be integrated into community disaster planning and recovery. Best practices from local health departments and privately funded relief organizations, engaging schools, should be incorporated into a nationwide disaster planning framework. NOVA's experience suggests that local health departments can integrate schools into community disaster preparedness and recovery. Adequately funded schools can help with community educational networks for disaster preparedness. Further research into the interdependencies between local health departments and schools and best practices targeting community disaster networking should be undertaken.

Limitation: This is a preliminary review intended to identify lessons learned and research gaps in the use of schools for medical disaster preparedness and response. Using the NOVA region, part of the nation's capital region, as a study model may not be applied to other U.S. geographic regions due to the uniqueness of the Washington Metropolitan area. However, the NOVA region may be a good representation of a suburban area. This review is focused on public schools and to some degree state universities. Private schools and/or universities were not included due to the difficulty of acquiring information from parochial organizations and could have introduced additional bias.

KEYWORDS: medical disaster preparedness, role of schools, K-12, university, county health department, mitigation, recovery, outreach, training, shelters, logistics, evacuation, communication nodes, impact, community resiliency, NOVA, FEMA, DHS, DOE

Author Notes: Conflicts of Interest: None declared. This pilot study was supported by a competitive grant from George Mason University. The authors wish to thank the following experts for their thoughtful inputs and critiques: Heidi Cordi MD, MPH, Columbia Presbyterian Hospital; Lisa Eckenwiler PhD, Healthcare Ethics and Center for Health Policy Research and Ethics—GMU; Fred Ellis BS, Fairfax County Public Schools—Office of Safety and Security; Daniel Hanfling MD, Emergency Management and Disaster Medicine, INOVA Health System; David McCann MD, McMaster University; Kenneth Schor DO, MPH, National Center for Disaster Medicine and Public Health; Franceska Schroeder Esq., Fish & Richardson P.C., and Edward Septimus MD, Hospital Corporation of America. Corresponding author: Arnauld Nicogossian, MD, Director, CSIMPP, SPP, George Mason University, 3401 N. Fairfax Dr., MS#3B1 Arlington, VA 22201. E-mail: anicogos@gmu.edu.

Introduction

Communities prone to disasters are more likely to develop and exercise preparedness plans (Graham et al. 2006). Proactive disaster preparedness is essential to improve emergency management for all community assets, including schools (Shelton, Owens, and Song 2009). Schools are designed to accommodate hundreds of students and provide a learning experience in a healthy and safe environment (Department of Homeland Security 2010). They have certain physical attributes of interest to disaster planners and policymakers. Schools operate cafeterias, have janitorial services, manage a transportation system (school vans and buses), and possess large, open spaces such as playgrounds and exercise facilities. School locations, like other civic areas, are familiar to parents and other community residents. They can and on occasion have been used as nodes for mass vaccination, drug distribution, pre-screening patients, psychological counseling, temporary shelters, and quarantine. Post-disaster triage and outpatient care can be set up on school premises (Gebhart and Pence 2007).

Utilizing schools for disaster preparedness is not a new concept. In 2008 Hurricane Ike devastated coastal regions of the Gulf of Mexico. The Birdville Independent School District (BISD), Texas and the United States promptly responded by opening shelters in two high and two middle schools (BISD 2008). Victims of Hurricane Katrina were evacuated and relocated across the United States. The Wanamaker Junior High Schools in Philadelphia housed 54 Hurricane Katrina survivors and cared for 130 evacuees, providing resources such as communication, food, and healthcare services (Drexel University School of Public Health 2010). The American Red Cross (ARC) has executed agreements with the U.S. Federal Emergency Management Agency (FEMA) and individual state education authorities for the use of schools in disaster recovery and medical support (New York Department of Education 2010; American Red Cross 2010).

A U.S. federal legislation promoting school security and safety, including the development of emergency communications networks, has been enacted following the Columbine, Colorado school massacre (Crime Awareness and Campus Security Act). This legislation was initially backed by grants, which were curtailed in the 2010–2011 appropriation budgets. The Department of Homeland Security published a report stating that in the aftermath of disasters, intact schools were used to help community recovery efforts (Department of Homeland Security 2010).

There are 98,916 public schools in the United States comprising elementary schools, middle schools, and high schools, which enroll 55 million students from kindergarten to 12th grade (The Center for Education Reform 2009; Graham et al. 2006). The responsibility for protecting and ensuring the safety of such a large segment of the U.S. population is complex and the current study

investigators assumed that this experience can benefit community medical disaster preparedness and recovery.

Methodology

The preliminary assessment of the utility of public schools, and other academic institutions, to community medical disaster preparedness and recovery was limited to four specific inquiries:

1. Use of school infrastructure (physical facilities) and services
2. School ability to function as educational and communication nodes using existing educational and outreach capacity
3. Ethical and legal concerns of assigning schools a non-traditional and dual role
4. Potential contributions of other local community infrastructure to enhance schools utility.

The study approach consisted of literature reviews, spatial and geographic relationship of the schools in the Northern Virginia (NOVA) region with communities, and a subject-matter expert's workshop addressing the four issues under investigation. All information was combined to produce a final assessment. The following five steps summarize this approach:

- (1) Literature acquisition, selection, and pre-screening of abstracts
- (2) Literature evaluation for the strength of evidence
- (3) Geographic Information System (GIS) analysis to address the spatial relationships of schools to communities and other infrastructures in the NOVA region. The GIS methodology used to identify the NOVA region schools relationship to resources has been described in previous publications (Zook et al. 2010; Koizumi 2010)
- (4) Discussions of issues by subject-matter experts
- (5) Integration of steps (1)–(4).

The literature acquisition and review methodology has been detailed in a recent publication (Nicogossian et al. 2010). Literature searches were conducted using Medical Subject Heading (MeSH) terms (National Center for Biotechnology Information 2010) to query search engines such as Medline, Cochrane Collaboration, and Google Scholar. Primary MeSH terms included schools and university infrastructure and facilities, disasters planning and recovery for schools, school-based disaster response for medical community needs, legislations and academic facilities for disaster-response and medical

preparedness, ethical aspects for the use in a dual role of the educational facilities, academic facilities as shelters and medical triage units, communications, etc.

Each abstract and website was pre-screened for relevance to the topic under investigation. Selected publications and materials were evaluated using the subjective and qualitative approach described in Table 1.

Table 1. Subjective and Qualitative Categorization of Literature Strength

Strength Level	Explanation	Justification
1	Good evidence	Scientifically validated information with minimal experimental bias, or benefits that outweigh the risks.
2	Fair evidence	Limited scientific information with potential for bias, or potential benefits that outweigh the risks.
3	Inconclusive evidence	Expert opinion and/or limited scientific information with potential for significant bias and/or benefits do not outweigh the risks.
4	Evidence lacking	No scientific information and/or risks outweigh benefits.

Results

Literature Acquisition and Evaluation

The literature search yielded no meta-analysis or randomized control trials (RCTs). Sixty publications were identified and screened for relevance. From those, 12 (including two books) were selected for further in-depth evaluations. A strength level 2 was assigned to all nine refereed publications.¹ Books and websites providing specific information, or case studies, on the use of schools in

¹ Aburto et al. (2010), Beaton et al. (2007), Elder and Crespo (2010), Gebhart and Pence (2007), Graham et al. (2006), Johnston and Redlener (2006), Maher, Price, and Zirkel (2010), Shelton, Owens, and Song (2009), and Stuber et al. (2002).

disasters were categorized as level 3, with the remaining government reports and websites rated as level 4. None of the materials accessed met the level 1 criterion.

There is fair evidence that structurally safe schools can be used for medical disaster recovery. A 2004 survey of more than 2,100 school system superintendents found that only 86% did develop a disaster-response plan. Almost 95% of school administrators had an evacuation plan, but 30% had never conducted an evacuation drill. The same study finds that 22% did not have disaster plans accommodating children with special needs, and 25% lacked plans for post-disaster counseling (Johnston and Redlener 2006). School preparedness to handle students and staff can serve as an indicator of the readiness and ability to support community needs and should be investigated further.

Fair evidence supports the fact that most urban school districts are better equipped for disaster response than rural districts (Graham et al. 2006). Fair evidence also supports the fact that in the aftermath of disasters, the majority of public schools are usually closed and unused. From August to December 2009, there were at least 1,947 school closures due to the 2009 A(H1N1) pandemic influenza threats. During the two waves—a period of approximately 96 school days—3,298 schools were closed for one or more days. From April to June 2010, 1,351 schools (1% of schools nationwide) from 34 states and the District of Columbia dismissed all students for at least one day (The Office of Safe Drug-Free Schools, U.S. Department of Education 2007). With proper planning, closed schools can serve community recovery needs without further disruption of classes.

During Hurricane Andrew, Florida schools were made inoperable (Provenzo, Eugene, and Fradd 1995). The Northridge earthquake damaged local schools and universities in California. After the Red River flooded in the spring of 1997, North Dakota and Minnesota schools were swamped by mud and made unusable (Federal Emergency Management Agency 2010). Hurricanes Katrina and Rita heavily impacted Louisiana's schools. Nearly 176,000 students were displaced, including more than 72,000 who left the state. In New Orleans alone, the storms closed 71 schools (Louisiana Recovery Authority 2010).

In response to Hurricane Katrina, Tulane University closed and evacuated over 400 students to the Jackson State University in Mississippi. The Tulane University Hospital and its clinics continued to serve patients from the region despite the loss of power (Carey 2006) and until evacuation was feasible.

The use of schools to provide psychological assistance and crisis counseling is common after traumatic events (The Office of Safe Drug-Free Schools, U.S. Department of Education 2007). In the aftermath of September 11, 2001, more than half of the students undergoing counseling after the attack received it through schools (Stuber et al. 2002). Furthermore, schools are

available to non-governmental organizations (NGOs) such as the American Red Cross for counseling and as distribution centers (American Red Cross 2010).

GIS Analysis of the NOVA Region

The NOVA region served as a case study to model the distribution and spatial relationship of schools and community resources for medical disaster preparedness and recovery. The association among schools, strip malls, and healthcare facilities identified disparities among NOVA counties/cities. In general, eastern counties and cities in more densely populated areas have better access to such facilities than the western region. GIS analysis also showed that strip malls and schools are more likely to coexist in the densely populated eastern region. GIS analysis of the NOVA revealed that there are fewer hospitals than schools: 635 schools and only 16 hospitals and healthcare centers. Most medical facilities are, however, located within three miles of a school, which could serve as a satellite triage or first-aid center operated by the hospital staff and prevent against sudden outpatient surge capacity.

An assessment of the walking accessibility of schools in the NOVA region indicated that schools are located close to main roads; however, some schools are not within walking distance for all community members. Additionally, up to 90% of the population is located within a one-mile (1.609 kilometers) radius and 97% within a three-mile radius from a school buffer zone (4.828 kilometers).

Discussions by Subject-Matter Experts

Fairfax County and the rest of NOVA are susceptible to a variety of natural hazards, including floods, hurricanes, and tornadoes, and human-made disasters such as hazardous waste spills and terrorist attacks (Fairfax County 2010). Subject-matter experts represented a wide range of organizations from the United States and Canada.² The discussions focused primarily on the NOVA experience, specifically the Fairfax County region. No consensus was sought during the workshop. Individual conclusions are summarized below:

- (a) FCPS has a close collaboration with local, state, and federal health, safety, and emergency management organizations to develop plans

² American Red Cross, Fairfax County Public Schools (FCPS), the Fairfax County Health Department (FCHD), George Mason University, Boston University, Inova Health System, McMaster University, New York Presbyterian Hospital Center, National Center for Disaster Medicine and Public Health (NCDMPH), Uniform Services University, Centers for Disease Control and Prevention (CDC), Hospital Corporation of America, and Public Schools Risk Institute, Inc.

- for emergency crisis mitigation (Fairfax County Public Schools 2010a).
- (b) The experience gained from the collaborative efforts between the FCPS and the NOVA Fairfax County Health Department (FCHD) can benefit community resiliency (Fairfax County Public Schools 2010a).
 - (c) Schools allow access for ground and air logistics and can be used as shelters or first-aid stations. Most urban schools are also located in the vicinity of services such as restaurants, pharmacies, urgent care centers, veterinary clinics, and medical professional buildings. These services usually are part of strip malls and conceptually can serve as additional temporary disaster-response resources.
 - (d) Use of GIS analysis can help identify and allocate resources.
 - (e) Sources for liability insurance and ethical considerations should be an important consideration in planning for school use during community medical disaster preparedness and recovery.

Discussion

Many U.S. and international guidelines mention the possible utility of schools for medical disaster preparedness and recovery (Action Aid International 2010). The importance of education in promoting and enabling the use of schools in disasters has been emphasized (Institute of Development Studies 2010). Most U.S. states require schools to prepare for disasters. There is a fundamental link between day-to-day emergency readiness and disaster recovery (National Center for Education Statistics 2010). Some schools have introduced disaster reduction education into their curricula to raise awareness and provide a better understanding of disaster management by students, teachers, and communities (Regional Consultative Committee 2007). Improving building codes and structural hardening can increase the safety of buildings, protect students and staff, and serve the community following disasters. Investing in hardening school infrastructures and/or stockpiling survival and emergency gear should be assessed for cost/benefit tradeoffs (*USA Today* 2010; International Strategy for Disaster Reduction 2006). Recent federal budget cuts will probably affect schools security programs and perhaps their utility to community disaster preparedness (Beaton et al. 2007).

Since 2004 FEMA has provided grants to universities for developing training programs for disaster preparedness and improving community resiliency (CTGP 2010). Many colleges and universities that are recipients of disaster preparedness grants, including George Mason University (GMU), did establish an emergency preparedness office and regularly exercise an all-hazards response

plan (Federal Emergency Management Agency 2008). These assets could be amplified and linked to community preparedness as a whole.

Local, state, and federal authorities must consider the potential risks and shortcomings of transforming school staff into community first responders without proper training and support. The results of literature reviews were inconclusive on the use of school staff, specifically the services, maintenance, and healthcare personnel, for community disaster relief.

The benefits and risks of using schools as alternative public health/medical resources in disaster preparedness and recovery should be carefully vetted by local, state, and federal authorities. For example, during the 2009 influenza, lack of vaccines precluded the use of schools for mass vaccination (Aburto et al. 2010).

Liability insurance is important in disaster planning. While all schools hold liability insurance, this insurance only covers medical costs for a student's injury resulting from school negligence. Organizations and community members are allowed to use school infrastructure for civic purposes, such as after-hours meetings and training. These groups have to present proof of insurance since most schools cannot afford liability insurance to cover such civic functions (Fairfax County Public Schools 2010b). Ethical considerations should be included into the process of medical policies formulation. Community concerns should be addressed during the planning process to improve compliance with policies and prevent confusion in the roles and responsibilities of schools (Maher, Price, and Zirkel 2010).

Evidence-based research targeting practice guidelines should be carried out to further refine the proper role and needs of schools in community medical disaster preparedness and recovery.

Policy Implications and Conclusions

Schools should be considered as part of all community activities involving medical disaster planning and resiliency. With adequate financing and logistic support from local, state, and federal governments, schools could be a viable and successful community asset following disasters.

This preliminary review identified a potential benefit from including local universities, especially those that do have undergraduate and graduate medical training as an important educational resource to support schools in medical disaster preparedness, response, and recovery. Universities, although also resource constrained, possess assets that can be readily adapted to support communities and perhaps serve as hubs for local schools' educational and outreach networks.

Many natural disasters, such as earthquakes, storms, and floods, can impact and even destroy community infrastructures. As a result, these disasters could impede the use of schools in the affected area. Schools have been used as alternative medical facilities in a limited number of disaster scenarios. These scenarios primarily include epidemics and human-made biological disasters. Hardening school infrastructure and implementing new legislation aimed at improving the building codes to withstand different types of disasters should be a major policy consideration. Hardening school infrastructure might not be enough to protect them from devastating disasters such as floods, earthquakes, and hurricanes.

Table 2 is an attempt to summarize the complex and multi-dimensional relationships between schools and the different types of disasters. A 1–5 Likert Scale (1 representing the highest score) was used to relate the functional capacity of schools to individual disasters. These rankings must be validated with additional research and studies.

Table 2. Use of Schools in Disaster Preparedness and Recovery

Type §	Sub-type	Disaster	Extent *	Duration **	School Integrity ***	Accessibility by Roads	Availability for Use	Building Code	Rank *****
Natural	Geothermal	Earthquake Tsunami Volcanic eruption	Multi-regional	Several hours to <1 week	No*	May not be accessible†	UA*****	Yes (new location)	5
	Topological	Landslides Avalanches Wild fires	Multi-regional	Hours but <1 day	No	May not be accessible†	UA	No (better site selection)	5
	Hydro-meteorological	Hurricanes Tornadoes Flood/drought	Multi-regional	Minutes to days	Maybe	May not be accessible†	AA‡	Yes	5
	Biological	Epidemics Pandemics	Multi-regional	Days to months depending on the agent	Yes	Accessible	AA	N/A	1
Human-made	Technological	Explosion Leakage Pollution	Local/Multi-regional	Minutes to days (contamination)	No	May not be accessible†	UA	N/A (air filtering system)	3
	Transportation	Air/land/sea disaster	Local	Minutes to hours	Yes	Accessible	AA	Proximity to hazard	NA
	Structure Collapse	Mine/bridge collapse	Local	Minutes to days	Maybe	May not be accessible†	AA	N/A	3
	Production Failure	Computer system breakdown	Multi-regional	Minutes to days (contamination)	N/A	N/A	N/A	N/A	N/A
	Conflict	War (traditional or non-traditional) Siege	Local/Multi-regional	Days to years	No	Unsafe	AA	N/A	5

*Denotes spread and affected area up to 100 miles or more

**Denotes length of time the hazard is devastating the area

***Denotes the ability of the structure to maintain integrity and functionality

****Unaffected area (UA): emphasizes that only schools located outside of disaster areas might be usable as distribution centers, makeshift hospitals, etc.

*****Defines school usability in the affected area, with 1 being highly recommended and 5 not recommended

†May not be accessible due to extent of destruction. Air access might be possible

‡AA stands for affected area

§Adapted from the National Oceanographic and Atmospheric Agency 2010

References

- Aburto, N.J., et al. 2010. "Knowledge and Adoption of Community Mitigation Efforts in Mexico During the 2009 H1N1 Pandemic." *American Journal of Preventive Medicine* 39 (5): 395-402.
- Action Aid International. 2010. *Disaster Risk Reduction Through Schools*. <http://www.actionaid.org/assets/pdf/disaster-through-schools.pdf>.
- American Red Cross. 2010. *Disaster Services*. <http://www.redcrosslv.org/disaster.html>.
- Beaton, R., et al. 2007. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 5 (4): 327-334.
- BISD. 2008. "BISD Schools Provide Shelter for Hurricane Ike Evacuees." *Inside BISD*, September 24, 2008. <http://www.bryanisd.org/docs/InsideBISD092408.pdf>.
- Carey, B. 2006. *Leave No One Behind: Hurricane Katrina and the Rescue of Tulane Hospital*. Nashville: Clearbrook Press.
- Department of Homeland Security. 2010. *School Safety*. http://www.dhs.gov/files/programs/gc_1183486267373.shtm.
- Department of Education N.Y. State. 2010. *Schools, Shelters, and The Red Cross*. www.p12.nysed.gov/facplan/Emergency/sheltermanagerarticle.html
- American Red Cross press release 2010. www.nvoad.org/index.php/rl/doc.../16-moa-red-cross-and-arc.html.
- Drexel University School of Public Health. 2010. *Katrina Relief Efforts*. http://publichealth.drexel.edu/News/News_Archive_2005/Katrina_Relief_Efforts/158/.
- Elder, J.P., and N.C. Crespo 2010. "Community Mitigation of Disease Outbreaks: Health Communication Perspectives." *American Journal of Preventative Medicine* 39 (5): 487-488.
- Fairfax County. 2010. *Fairfax County Pre-Disaster Recovery Plan*. <http://www.fairfaxcounty.gov/oem/pdrp/>.
- Fairfax County Public Schools. 2010a. *Emergency Preparedness and Support*. <http://www.fcps.edu/emergencyplan/>.
- Fairfax County Public Schools. 2010b. *Risk Management*. <http://www.fcps.edu/fs/budget/riskmanagement/>.
- Federal Emergency Management Agency. 2008. *DHS Awards \$63 Million in Emergency Preparedness Grants*. <http://www.fema.gov/news/newsrelease.fema?id=45733>.
- Federal Emergency Management Agency. 2010. *How Schools Can Become More Disaster Resistant*. <http://www.fema.gov/kids/schdizr.htm>.
- Graham et al. 2006. "Mass-casualty events at schools: a national preparedness survey." *Pediatrics* 117(1):8-15.

- Gebhart, M.E., and R. Pence. 2007. "START Triage: Does it Work?" *Disaster Management and Response* 5 (3): 68-73.
- Institute of Development Studies. 2010. *Role of Education and Schools in Disaster Risk Reduction*. <http://www.eldis.org/go/topics/resource-guides/climate-change/key-issues/children/-climate-change-and-disasters/role-of-education-and-schools-in-disaster-risk-reduction>.
- International Strategy for Disaster Reduction. 2006. *Keynote Address by Sálvano Briceño*. http://www.unisdr.org/preventionweb/files/5609_speechHarvard.pdf.
- Johnston, C., and I. Redlener. 2006. "Critical Concepts for Children in Disasters Identified by Hands-on Professionals: Summary of Issues Demanding Solutions Before the Next One." *Pediatrics* 117 (5 pt 3): S458-S460.
- Koizumi, N. 2010. "Geographic Disparity in Access to Organ Transplant in the United States and Other Western Countries." *World Medical and Health Policy* 2 (6): 111-131.
- Louisiana Recovery Authority. 2010. *Task Forces*. <http://www.lra.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&nid=34&pnid=0&pid=91&fmid=0&catid=0&elid=0&ssid=0>.
- Maher, P.J., K. Price, and P.A. Zirkel. 2010. "Governmental and Official Immunity for School Districts and Their Employees: Alive and Well?" *Kansas Journal of Law and Public Policy* 19 (2): 234-268.
- National Center for Biotechnology Information. 2010. *MeSH*. www.ncbi.nlm.nih.gov/mesh.
- Nicogossian, A.N., et al. 2010. "Influenza Immunization: Synthesizing and Communicating the Evidence," *World Medical & Health Policy* 2 (2): 51-84.
- Provenzo J.R., F. Eugene, and S.H. Fradd. 1995. *Hurricane Andrew, The Public Schools, and the Rebuilding of Community*. Albany: State of New York Press.
- Regional Consultative Committee. 2007. *Integrating Disaster Risk Reduction into School Curriculum: Mainstreaming Disaster Risk Reduction into Education*. <http://www.inesite.org/assets/ADPCIntegratingDRRIntoSchoolCurriculum.pdf>.
- Shelton, A.J., E.W. Owens, and H. Song. 2009. "An Examination of Public School Safety Measures across Geographic Settings." *Journal of School Health* 79 (1): 24-29.
- Stuber, J., et al. 2002. "Determinants of Counseling for Children in Manhattan after the September 11 Attacks." *Psychiatric Services* 53 (7): 815-822.
- The Center for Education Reform. 2009. *K-12 Facts*. http://www.edreform.com/Fast_Facts/K12_Facts/.

- The Office of Safe Drug-Free Schools, U.S. Department of Education. 2007. *Practical Information on Crisis Planning: A Guide for Schools and Communities*.
<http://www2.ed.gov/admins/lead/safety/emergencyplan/crisisplanning.pdf>.
- USA Today*. 2010. *Flood insurance claims*. http://www.usatoday.com/news/nation/2010-08-25-flood-insurance_N.htm.
- Zook, M., et al. 2010. "Volunteered Geographic Information and Crowdsourcing Disaster Relief: A Case Study of the Haitian Earthquake." *World Medical and Health Policy* 2 (2): 7-33.