

Lessons from Haiti on Disaster Relief

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Recent disasters have raised awareness within the nephrology community of the challenges faced by patients with ESRD and by those at risk for acute kidney injury (AKI) during these devastating situations (1–3). Given time constraints during disasters, limited resources, and the vulnerable populations who are often involved, the kidney community recognizes the value of an organized response. The term “renal disaster” was introduced by the International Society of Nephrology (ISN) Commission on Acute Renal Failure to underscore the many crush syndrome victims who required medical treatment or dialysis support after earthquakes in Armenia, China, and Turkey (4–8).

ISN founded the Renal Disaster Relief Task Force (RDRTF) in 1989 to support patients with kidney injury or disease in disaster areas. Having a partnership with Médecins Sans Frontières (also known as Doctors Without Borders), ISN RDRTF sends medical personnel, offers logistical advice on handling and distributing medical supplies, provides education on crush syndrome and AKI, and supplements local dialysis efforts (9–11). ISN provided clinical and dialysis support during the 1999 earthquake in Marmara, Turkey (11), the 2003 Bam earthquake in Iran, and the 2005 earthquake in Kashmir, Pakistan (7,12,13) and provided advice and assessment during the recent earthquakes in Southeast Asia and L'Aquila, Italy, last year (14,15).

In the United States, a different type of disaster occurred after Hurricane Katrina struck the U.S. Gulf Coast in August 2005, causing widespread destruction. Katrina—the deadliest and costliest U.S. hurricane since 1928—forced more than 1 million people to evacuate the region. Although hurricanes typically provide enough advance warning for dialysis patients to leave the affected areas, many patients did not evacuate before Katrina hit the Gulf Coast. Many ESRD

patients missed treatments and required hospitalization for medical and psychosocial problems (16–19).

After Katrina, disaster planning for dialysis patients in the United States intensified, leading to the creation of the Kidney Community Emergency Response (KCER) Coalition, an organization tasked with minimizing disruptions to renal care. The KCER Coalition is composed of patient and professional organizations; health care providers; dialysis and transplant facilities; hospitals; suppliers; ESRD networks; state emergency representatives; and federal agencies, including the Centers for Disease Control and Prevention (CDC), the Centers for Medicare and Medicaid Services (CMS), the U.S. Food and Drug Administration (FDA), and the National Institutes of Health (NIH).

Recognizing the needs of ESRD patients and those at risk for AKI, the American Society of Nephrology (ASN) in 2008 initiated a Disaster Relief Task Force (DRTF). At its annual meetings in 2008 and 2009 the ASN DRTF sought input from the nephrology community, particularly the ISN RDRTF, KCER, ESRD networks, NIH, dialysis organizations, and industry. These meetings emphasized the need for planning more coordinated relief efforts than occurred during Katrina.

Approximately 10 weeks after ASN Renal Week 2009, a catastrophic 7.0 magnitude earthquake struck near Port-au-Prince, Haiti, on January 12, 2010. This event marked ASN's first major involvement in disaster response. To clarify the society's role in future disaster relief efforts within the United States, North America, and abroad, the ASN DRTF identified at least ten lessons from its response to the earthquake in Haiti.

1. Ensure Strong Internal and External Communications

Within hours of the earthquake, the ASN DRTF contacted the domestic and international nephrology communities to begin coordinating relief efforts. ASN collaborated with KCER to convene daily conference calls with representatives from the ISN RDRTF, the ESRD networks, dialysis organizations, and industry, as well as participants from Médecins

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Sans Frontières, the International Pediatric Nephrology Association (IPNA) and other pediatric nephrologists, U.S. Navy Ship *Comfort* nephrologists, the Sociedad Latino-Americana de Nefrología Hipertension (SLANH), and La Sociedad Dominicana de Nefrología (SODONEF).

ASN also communicated with the U.S. government, particularly the Department of Health and Human Services (HHS) and the Agency for International Development (USAID), the U.N. Office for the Coordination of Humanitarian Affairs (OCHA) and the Pan American Health Organization, Partners in Health, the American Red Cross, and the William J. Clinton Foundation. Creating a comprehensive roster of representatives from the kidney care community helped connect those providing care with those organizing supply and volunteer efforts, and the list of participants grew as additional stakeholders were identified (Table 1 lists conference call participants).

In contrast to communication systems typically available in the Western Hemisphere, the Haitian infrastructure was relatively less developed before the earthquake and was almost entirely decimated by the earthquake. Largely lacking land lines, cellular networks, or internet connections, sources in Haiti were difficult to contact, particularly immediately after the earthquake. Performing a needs assessment and obtaining basic information about patients and providers in the region was challenging, so daily conference calls presented a uniquely valuable opportunity for the nephrology community to pool knowledge and collectively develop a more comprehensive understanding of Haiti's needs than would otherwise have been possible (Figure 1).

As relief needs were communicated, daily calls provided an effective, centralized point of communication between first responders in Haiti and potential donors and volunteers in the nephrology community elsewhere. These exchanges helped prevent duplicative responses in terms of medical supplies and volunteers, ensure needs were efficiently met, and reduce traffic congestion. (Because of constraints on airstrip space and fuel, numerous aid flights were turned away from Port-au-Prince in the days after the earthquake.)

Nonetheless, ASN learned of failures in communication and a lack of coordination on the ground. For example, despite the existence of central coordinating agencies, information regarding existence of dialysis services provided by the ISN RDRTF, which partnered with Médecins Sans Frontières to establish the first team in Port-au-Prince, was not disseminated in time. Because of frequent rotations in hospital teams and their leadership, information was lost, and as a consequence, cases of AKI were missed (19). In addition to working with KCER and the ISN RDRTF to communicate with the wider nephrology community in future interventions, ASN should also include non-nephrology responder groups on calls during future disasters to identify patient needs and locations as well as raise awareness of available renal resources. Centralized coordination between multiple responding entities at the disaster site and around the world will facilitate disaster relief efforts.

Table 1. Daily conference call participants

Organization	Name
Society and relief organizations	
ANNA	Norma Gomez
ASN	Sharon Anderson
	Kara Davis
	Tod Ibrahim
	Rajnish Mehrotra
	Bruce Molitoris
	Mark Okusa
	Didier Portilla
	Rachel Shaffer
ISN RDRTF/Médecins Sans Frontières	Raymond Vanholder
KCER	Abdias Hurtado
	Sherilyn Burris
	Robert Kenney
	Jeffery Kopp
	Ken Lempert
	Lisa Hall
KCER, Florida ESRD Network	
Pediatric nephrology community (IPNA/ASPN)	Tim Bunchman
SLANH	Maria Ferris
Industry participants	Ricardo Correa-Rotter
Baxter	Sarah Prichard
	James Sloand
	Bruno Sanabria
	Lynne Snyder
	Marsha Wolfson
Bbraun	
Centocor Ortho Biotech Services	Allen Nissenson
DaVita	Angie Kurosaka
DaVita, KCER	Ed Creamer
DCI	Philip Zager
Fresenius Medical Care, KCER	Bill Numbers
	Larry Park
	Babajide Salako
	Wendy Schrag
	Kate Dillon
	Kay Deck
Genzyme	
NxStage, KCER	
Government participants	
CMS	Renee Dupree
	Kathleen Egan
	Glenda Payne
HHS	Tim Davis
	Andrew Stevermer
	Allen Dobbs
National Disaster Medical System	
U.S. Military	Kevin Abbott
U.S. Naval Ship <i>Comfort</i>	Brent Pasiuk

Table 1. (Continued)

Organization	Name
Nephrologists/institutions	
Dartmouth	Clay Block Brian Remillard
Johns Hopkins	Bernard Jaar
Kaiser Permanente	Talha Imam
McCarron Group	David McCarron
Caritas Christi Health Care	Bertrand Jaber
University of California– San Diego	Ravi Mehta

ANNA, American Nephrology Nurses Association; ASPN, American Society of Pediatric Nephrology; DCI, Dialysis Clinic, Inc.

2. Identify Connections with Local Experts in or nearby the Affected Area—Their Knowledge of Local Medical, Governmental, and Transportation Infrastructure and Local Cultures, Customs, and Processes Is Invaluable

With transportation and communications systems severely hindered in Haiti, ASN worked closely with SLANH and SODONEF. Unaffected by the earthquake in the Dominican Republic, SODONEF was well positioned to travel to the Haitian border to conduct needs assessments and provide information about regional infrastructure and capacity for the U.S. nephrology community. Reports from the ISN RDRTF and its partner Médecins Sans Frontières also provided supply needs assessments.

Providers in Haiti struggled to offer basic care, and hundreds of Haitians sought medical services along the border. On the basis of SODONEF's assessment of that area, and the capacity of dialysis units in the Dominican Republic to accept transfer patients, the border town of Jimani, Dominican Republic, was selected as a kidney care destination. ASN assisted SODONEF in establishing screening for crush syndrome and AKI. From Jimani, more complex or unstable patients were sent to SODONEF contacts at hospitals in nearby Barahona, Dominican Republic, or the capital, Santo Domingo.

When responding to disasters abroad and in the United States, identifying local nephrologists (as does ISN RDRTF) is essential, and coordinating support and supplementation of the care supplied by local kidney professionals is vital to providing a sustained level of care for kidney patients.

3. Develop a Mechanism to Collect, Classify, and Respond to Volunteer Offers before Collecting Them and Identify a “Portal of Entry” Organization to Facilitate Their Deployment

ASN members began contacting the society on January 12 to volunteer to serve in Haiti. However, ASN had no mechanism in place to collect, organize, and respond to these communica-

tions. In response to a rapidly growing number of offers, ASN staff developed an online survey form to assess potential volunteers' clinical skills, vaccination status, and availability. This screening mechanism was important in ensuring the society would compile information on qualified volunteers with appropriate training for the circumstances.

The survey also gauged skills in Creole, French, Spanish, and other languages. Because Haitians speak French and Creole, whereas Dominicans speak Spanish, ASN had to evaluate carefully how to ensure that potential volunteers could communicate with French- and Creole-speaking patients or with other providers, who were likely Spanish speaking.

Additionally, staff collaborated with the pediatric nephrology community to incorporate data on pediatric specialists and communicated with the American Nephrology Nurses Association regarding availability of nursing volunteers. More than 80 nephrologists completed the survey, and staff designed a volunteer database that will serve as a resource for ASN in the future and a complement to databases maintained by other organizations, including KCER for disasters inside of the United States and ISN for disasters in the rest of the world. This tool will enable ASN to better manage volunteers in the future.

Two physicians who completed the ASN volunteer survey—Bernard G. Jaar and Talha Imam—traveled to Haiti and the Dominican Republic. Raised and educated in Port-au-Prince, Jaar speaks fluent Creole, French, English, and Spanish. Upon meeting SODONEF president Sandra Rodriguez in Santo Domingo, Jaar traveled with Julio Cesar Caro (the only nephrologist in that region of the island) to the border and spent a week screening and treating patients in three hospitals. Many providers there were not trained for disaster medicine, particularly identification of crush-related AKI. Jaar and Caro screened nearly 300 patients, educated providers on screening and care of possible crush injuries, and collaborated with the Dominican Republic Public Health Department to ensure screening would continue after their departure.

A veteran disaster responder, Imam traveled to Port-au-Prince to work with the ISN RDRTF and Médecins Sans Frontières to identify and treat patients in the devastated capital. Recent reports document that despite the high number of casualties (including 230,000 dead and 300,000 wounded), 19 patients with crush syndrome were referred for hemodialysis (HD). In view of the circumstances, each patient surviving on dialysis was an accomplishment. On presentation those patients had high serum potassium levels and some were comatose (15,20). A total of 64 dialysis sessions were run, and some of these patients were transferred to the U.S. Naval Ship *Comfort* for advance care. All survivors recovered renal function, confirming observations from previous disasters (21).

ASN member Brian Remillard also traveled to Haiti to provide care under the auspices of his hospital, which has an existing relationship with the Port-au-Prince-based aid organization Partners in Health, and communicated with the society to provide assessments from a nephrology perspective. The connection with SODONEF and the daily communications with ISN RDRTF were also essential for ASN to gather information on the relief efforts. For logistical and legal reasons, ASN was

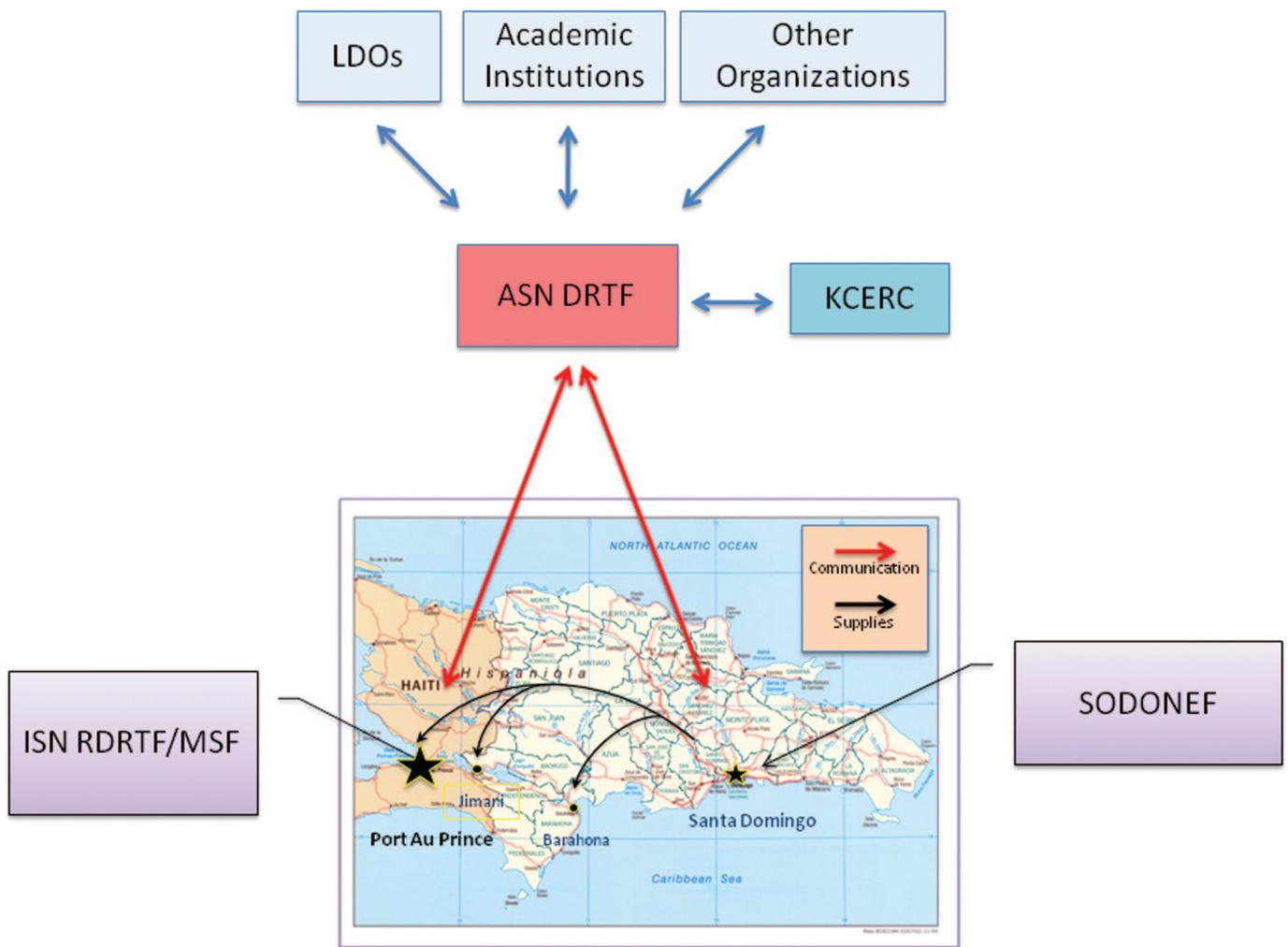


Figure 1. Nephrology community’s disaster relief communication network. LDO, large dialysis organization; MSF, Médecins Sans Frontières.

unable to provide full support (e.g., insurance, shelter, and food) to volunteers wishing to be deployed under the society’s auspices. Similarly, ASN experienced significant difficulties transporting needed dialysis and pharmaceutical supplies in a timely fashion. ASN DRTF members recommend that the society explore partnerships with other relief agencies to ensure provision of supplies and trained volunteers in future disasters. Humanitarian relief organizations such as the Red Cross, the U.N. Children’s Fund (UNICEF), and Partners in Health could utilize ASN volunteers and supplies in case of a national or international disaster. Within the United States, KCER could serve this role. As evidenced by ISN’s partnership with Médecins Sans Frontières, a relationship with a “port-of-entry” organization would enable medical society volunteers and supplies to be deployed rapidly and in greater harmony with professional relief organizations.

Volunteers in disaster areas require extensive preparation for deployment, particularly concerning physical and mental health. A partnership with a relief organization might expand the preparatory resources available in the future and further speed the society’s ability to respond.

Experiences in Haiti also emphasized the need to include dialysis technicians as part of the medical staff deployed to a disaster area, in addition to nurses and physicians. ISN RDRTF reported on this lesson after some of the dialysis machines brought into the Kashmir earthquake disaster area by Médecins Sans Frontières broke down during transport (13). In Haiti, the ISN RDRTF/ Médecins Sans Frontières team had the need to install a *de novo* dialysis unit. Although a water treatment system and dialysis machines were available in the University Hospital in Port-au-Prince, both needed upgrading and repair while additional machines were introduced to increase capacity. The inclusion of a technician in each Médecins Sans Frontières team allowed the success of the mission by providing a functioning unit with their assistance (14,22). ASN DRTF may wish to consider including dialysis technicians in calls for volunteers during future disasters.

4. Provide Timely, Effective Assistance

Several industry organizations contacted ASN DRTF offering support immediately after the earthquake. Lacking a list of needed supplies, and without infrastructure to accept financial

donations, ASN directed donors to nongovernmental organizations, such as the American Red Cross and the William J. Clinton Foundation.

Later, as communication with providers in Haiti improved and screening expanded, so too did the understanding of supply needs. ASN DRTF developed a registry to track needs and contacted nearly 25 companies regarding donations. Highly specific requests to industry for supplies proved more fruitful than general requests for donations of supplies of any kind. For example, identifying not only a demand for supplies, but also the exact number and models in advance of contacting donors, facilitated industry's ability to provide direct support. Collaborating with a large dialysis organization, ASN DRTF helped coordinate a shipment of more than 10,000 lb of dialysis-related supplies and medications to the region.

Through its experience in Haiti, ASN DRTF identified specific needs that will likely be in demand in the event of future disasters. This fundamental needs list (Table 2) better equips the society to coordinate early offers of support and provision of effective relief supplies. ASN DRTF should work with members of the nephrology community, nongovernmental organizations, governmental relief organizations, and others to continue to refine the needs list. In particular, ASN should anticipate a shortage of laboratory facilities in any disaster and plan for early screening alternatives accordingly. Similarly, in the event of a disaster in a similar location to Haiti, a renal relief mission should not assume that usual—or any—medications will be reliably available, and immediate attention may need to

Table 2. List of essential equipment, supplies, and other material in disaster response (in alphabetical order)

1. Arterial and venous lines for dialysis
2. Bicarbonate concentrate for HD
3. Bloodline systems (tubing)
4. Double lumen central vein HD catheters (adult and pediatric)
5. Catheters for PD (stiff and Tenckhoff)
6. Chlorhexidine 2% in 70% isopropyl alcohol
7. Disposable paper surgical gowns and drapes
8. Sodium chloride 0.9%
9. Dialyzers and filters
10. Dialysis solutions for PD
11. Disinfectants (peracetic acid)
12. Gauze
13. Heparin
12. Handheld blood analyzers (such as i-stat machines) and supplies (such as Chem8 + and creatinine cartridges; charger; printer)
14. Kayexalate
15. Masks
16. Needles (no. 14 and 16) for HD
17. HD filters, preferably biocompatible
18. Sterile and nonsterile gloves
19. Syringes
20. Tape

focus on providing critical medications such as vancomycin, ceftriaxone, and morphine.

For example, needs assessments made by the ASN DRTF led to the acquisition and delivery of critical drugs and medical devices, including sodium polystyrene sulfonate and handheld blood analyzers, to Partners in Health in Port-au-Prince and to SODONEF screening stations in the Dominican Republic. The prior use of the handheld blood analyzers was found to be helpful in stratifying patients that need conservative therapy with intravenous fluids *versus* patients that need dialysis (20).

Despite these successes, ASN learned that supplies should be sent only in response to receiving specific requests from teams on the ground because of limitations in appropriate storage space. For instance, the type of dialysis support to be provided in the event of an earthquake is an important consideration. The volume of solution required for peritoneal dialysis (PD) is greater than required for HD, thus making transportation more difficult. In Haiti, PD could not be used because of the poor sanitary conditions. Data from previous dialysis relief efforts indicate that compared with HD, PD is less effective in removing potassium from earthquake victims (14). As a consequence, ASN learned that PD supplies sent to Haiti were not used and Médecins Sans Frontières had to transport, store, and finally destroy them. It is not the quantity but the appropriateness of supplies delivered to a region of need that determines the effectiveness of relief efforts.

5. Anticipate Challenges Transporting Supplies (and People) to the Disaster Area

Transporting donations to the region of need presented significant challenges. With electricity, airstrip space, and fuel at a premium in Haiti, ASN DRTF established an alternate supply chain. Drawing on regional knowledge provided by SODONEF to map an alternate route to the area of need, ASN and a dialysis organization shipped supplies via a chartered flight to Santo Domingo. Each box had to be labeled as disaster relief supplies with a content list and purpose. SODONEF met the flight in Santo Domingo and ushered the supplies through the complex customs process for relief materials.

In addition to these supplies, ASN DRTF also responded to requests from SODONEF and Partners in Health by arranging delivery of four handheld blood analyzers and 1000 cartridges. The ASN DRTF also coordinated donation of more than 400 dialysis catheters and 200 bottles of sodium polystyrene sulfonate. Flown to Santo Domingo, these supplies entered a gray zone within customs and were missing for several days. Between an influx of similar relief shipments and a few phone lines, contacting customs in the airport was difficult and had to be conducted in Spanish. Customs tariffs (theoretically waived for disaster relief donations) provided another source of confusion.

SODONEF and ASN staff attempted to navigate customs (in person in Santo Domingo and via phone from the United States, respectively). After several in-person trips to the airport and many hundreds of dollars later, SODONEF obtained the materials and sent them via the previously established supply chain (including Partners in Health and Médecins Sans Fron-

tières) to border screening stations and to Haiti. Regional variability in accountability and communications infrastructures was a significant impediment to safe, timely delivery of relief materials and should be anticipated in future disaster relief efforts.

6. Understand That First Responders May Not Be Aware of the Risk of Kidney Injury after a Disaster

Early communication with providers in Haiti suggested a widespread lack of awareness and screening for kidney injury in initial relief efforts. On the basis of Jaar's experiences in Jimani, members of the ASN DRTF believe more information and education on kidney care in disaster situations—particularly for primary care teams and surgeons—is needed. Some caregivers in the Dominican Republic, overwhelmed by the influx of patients, were unaware of proper treatment for potential crush syndrome. Amid the chaotic situation, certain amputees received oral or intravenous nonsteroidal anti-inflammatory agents for pain control and some received potassium-containing fluids such as Ringer lactate for hydration.

Jaar observed that no serum creatinine or potassium chemistry tests were available upon his arrival. He later procured them through USAID and the Dominican Department of Public Health, but several patients with AKI were not discovered until they developed severe hyperkalemia and renal failure requiring evacuation for dialysis.

Physicians in disaster areas, including nephrologists, could benefit by receiving information from evidence-based protocols on medical intervention in case of a disaster. To promote identification and timely treatment of crush injury in the Dominican Republic, bilingual ASN and SLANH members translated into Spanish a crush treatment protocol derived from drafts used by ISN RDRTF (23). A panel of experts is currently preparing a document that outlines the management of crush injury (24). Additionally, ASN DRTF members suggest that ASN considers working to implement these recommendations and develops an online educational tutorial on crush syndrome management.

The nephrology community—particularly dialysis providers—might also work to implement scoring model systems to guide future dialysis-related disaster response. This analysis could help standardize terminology for dialysis events, improving communication with HHS and others for disaster assistance (and ongoing postevent comparative analysis). The nephrology community may also wish to consider reaching out to the larger emergency medical relief community to promote awareness of and screening for kidney injury in initial relief efforts (*e.g.*, through educational programs or editorials).

7. Do Not Forget the Children

The specific needs of children in the aftermath of a disaster are unique and must be accounted for in planning and response efforts. During daily conference calls, members of the pediatric nephrology community with experience in disaster relief ensured participants contemplated these unique needs in all aspects of the relief effort, from recruiting volunteers to soliciting

donations to developing pediatric care protocols. Depending on the circumstances, children's needs may or may not include crush injury treatment, but it is important to involve experts accustomed to caring for pediatric patients in disaster situations in planning and response efforts.

Literature to date does not reflect experience of crush injury with subsequent AKI and need for renal replacement therapy in children. This may be because children have a relatively lower muscle mass with less risk for crush injury (6). Furthermore, unless the children are consolidated in school buildings, then there will be no high concentration of children in one location, generally placing them in less risk (23). In the setting of need for renal replacement therapy, HD utilizing "adult systems" (*e.g.*, vascular access, extracorporeal volume, and prescriptions) can be utilized in children weighing >40 kg. In smaller children (particularly those weighing <40 kg) these adult systems will be difficult to implement because of the discrepancy between the size of the child and the size of the circuit/access. Therefore, renal disaster responders must examine other experiences with AKI in children. For instance, PD is a reasonable option for children during a disaster situation, and family members can be taught to do manual PD if staffing is short. This method was used in 1995 in Haiti when acetaminophen contaminated with diethyleneglycol caused more than 100 deaths from AKI and multiorgan system failure (25). Unless there is contraindication, manual PD can be considered as an alternative in smaller children in future disasters.

Pediatric-specific dialysis equipment for PD and HD were among the supplies collected and shipped to Santo Domingo for local pediatric nephrologists to use and distribute as necessary. Local pediatric nephrologists in the Dominican Republic already had in place pediatric-specific HD machines and PD solutions. There, two to three children (all teens) underwent HD for AKI via adult-based systems. As such, we continue to have little to no actual experience for PD as an option.

The volunteer database included pediatric nephrologists with experience in disaster relief; however, none of these volunteers were needed in Haiti. ASN DRTF, which includes a pediatric nephrologist experienced in disaster relief, contributed to an overview of acute pediatric treatment options and a quick-reference guide for children in a disaster setting that could be used in future educational and response activities. In the future, all disaster planning and relief efforts should continue to incorporate input from pediatric nephrologists.

8. Recognize That Disaster Response Requires an Around-the-Clock Commitment and It Is Important to Have the Infrastructure in Place to Respond

In the days and weeks after the earthquake, the ASN DRTF was in almost constant contact with conference call participants, ASN leadership, and other stakeholders. Coordinating wide-reaching external communications; keeping abreast of communiqués from Haiti, the Dominican Republic, the United States, and elsewhere; and monitoring progress on various aspects of response efforts demanded a significant time com-

mitment. Identifying a central point of contact within ASN was crucial to supporting and tracking efforts of the ASN DRTF and conference call participants and for communicating with industry and providers in Haiti and the Dominican Republic.

Staff infrastructure is vital to support relief work. Selecting one permanent staff member to serve as the society's point person—and anticipating that this person's time and effort (professional and personal) will have to be diverted from regular responsibilities—is an important component of disaster response, particularly for small organizations such as ASN.

Equally important, ASN DRTF members recognize that the society dedicated considerable attention to Haiti during its response to the disaster. This focus caused the society to rearrange priorities and expend necessary, but unexpected, resources.

9. Prepare Worst-Case Scenario Communication and Treatment Access Plans for Chronic Dialysis Patients in Advance

After the earthquake, the U.S. nephrology community was concerned about availability of care for chronic dialysis patients in Haiti. The community discussed transporting patients with ESRD to the United States or elsewhere, but obtaining information about patients who were on dialysis before the disaster was challenging. Although this information gap was largely attributable to earthquake-related communication barriers in Haiti, it highlighted chronic dialysis patients' vulnerability in the wake of disasters.

The ASN DRTF recognizes that, as in Haiti, disasters may disrupt communications for the first 24 to 72 hours. This fact underscores the importance of the medical directors of dialysis units developing facility-specific disaster protocols. Protocols could include strategies for evacuation and continued dialysis support in other units in the case of a predictable emergency (such as a hurricane) and nonpredictable emergencies (such as an earthquake). Nephrologists should also collaborate on implementing procedures for coordinated transportation and placement of displaced patients.

Although some dialysis organizations have disaster plans in place, others may not. ASN DRTF members suggest that the ASN Dialysis Advisory Group considers working with KCER, ESRD networks, dialysis organizations, and other stakeholders to conduct a needs assessment to determine the extent to which such protocols are already in place within the United States. Depending on the findings, the ASN Dialysis Advisory Group could work with the rest of the community to develop protocols for preparing units for disasters (which should be reviewed periodically and translated into common international languages) and support training for directors (17,26–28). For example, the greatest need for education and support may be for freestanding units not affiliated with dialysis organizations or academic institutions.

Similarly, the ASN Dialysis Advisory Group might work with industry partners to encourage planning for continued provision of supplies to home dialysis patients at their homes or in designated shelters. Although it may be possible to tem-

porarily ask a home HD patient to receive treatments in a dialysis unit, it may not be easily done for PD patients. Alternatively, units could provide emergency intermittent PD to these patients—an inadequate long-term therapy but potentially life-saving for patients facing disrupted supply deliveries. Companies that deliver supplies for home dialysis should be included in future disaster planning.

In response to future disasters, the ASN DRTF proposes to work with local governments (proactively at home or as needed abroad) to designate dialysis units as priorities for restitution of energy and water. Such a contingency plan between the Chilean dialysis association and the Chilean Ministry of Health prevented reliance on other regions for care of dialysis patients after the February 27, 2010 earthquake in Concepcion.

10. Know When to Transition from Immediate Emergency Response to Long-Term Recovery Effort

Nearly 3 weeks after the earthquake, demand for emergency nephrology relief in Haiti decreased markedly as full-time relief organizations began long-term recovery and redevelopment efforts. Although establishment of a permanent health infrastructure was a priority for the region, members of the ASN DRTF recognized that ASN is a professional society with no expertise in long-term disaster relief and reconstruction and, in consultation with ASN leadership, scaled down involvement. Continuing to monitor the situation with partner organizations in Haiti and the Dominican Republic, ASN remained available to direct professional relief organizations to nephrologists or additional supplies if needed.

Conclusions

By responding to the earthquake in Haiti, ASN DRTF members learned at least ten lessons that will help the society and the nephrology community respond more effectively, efficiently, and meaningfully to the next disaster within the United States or elsewhere. It will be crucial for ASN and the nephrology community to draw upon these lessons (and lessons from other organizations, such as ISN) and shape a response system that is effective in this region and capable of further contributions to international efforts.

The nephrology community united as never before to help the people of Haiti. Benefiting from these lessons and building on this accord, the ASN DRTF will continue disaster relief planning that reflects all recommendations above to work with the nephrology and wider medical communities to better prepare, educate, and communicate to help future disaster victims throughout the world.

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Disclosures

None.

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