



The Renal Disaster Relief Task Force of the International Society of Nephrology (RDRTF/ISN)

Also for

Médecins Sans Frontières (MSF)

R Vanholder, Ghent, Belgium

MSS Sever, Istanbul, Turkey

N Lameire, Ghent, Belgium

The NEW ENGLAND JOURNAL of MEDICINE

REVIEW ARTICLE

MEDICAL PROGRESS

Management of Crush-Related Injuries after Disasters

Mehmet Sukru Sever, M.D., Raymond Vanholder, M.D., Ph.D.,
and Norbert Lameire, M.D., Ph.D.

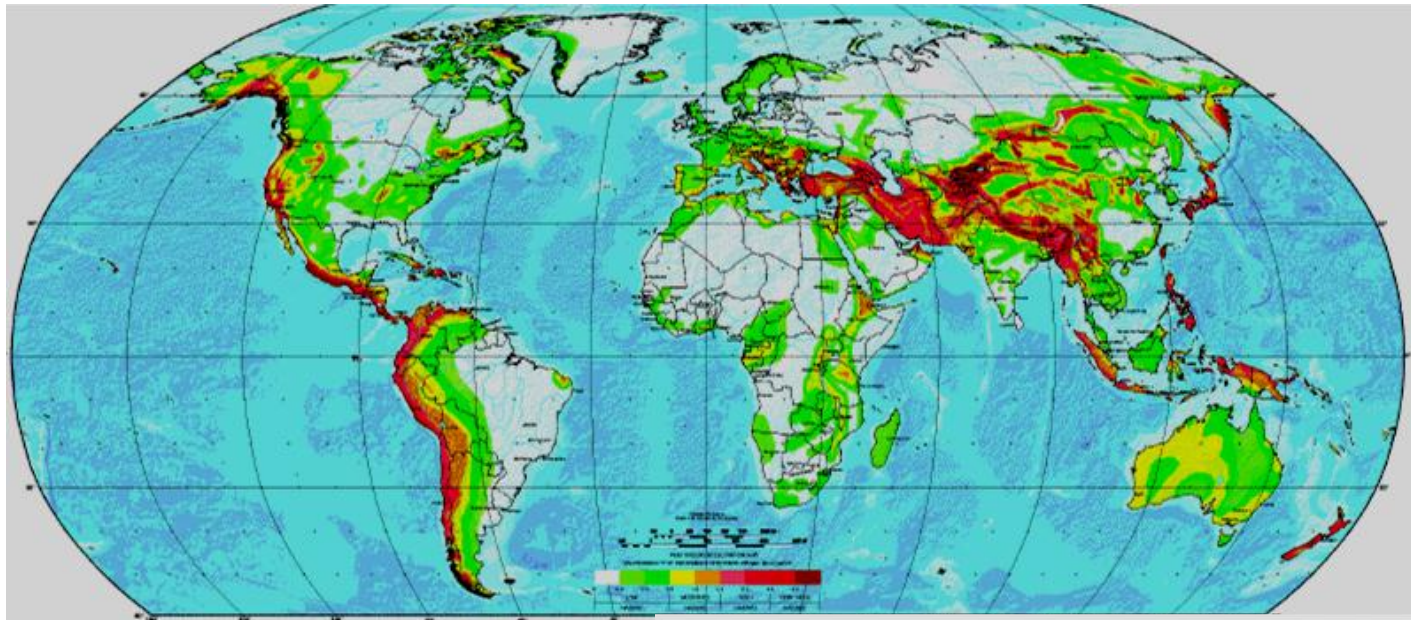
DISASTER

**Sudden calamities
producing extensive
damage, loss and distress**

- ➔ Natural
 - ➔ Earthquakes
 - ➔ Landslides
 - ➔ Avalanches
 - ➔ Hurricanes
 - ➔ Tornadoes
- ➔ Man-made
 - ➔ War
 - ➔ Mining
 - ➔ Tunnel collapse
 - ➔ Terrorism, torture



GLOBAL SEISMIC HAZARD MAP



- Californian fault
- The whole Mediterranean
- South-East Asia
- The Far-East
- Tehran

Heightened Odds of Large Earthquakes Near Istanbul: An Interaction-Based Probability Calculation

Tom Parsons,^{1*} Shinji Toda,² Ross S. Stein,¹ Aykut Barka,³
James H. Dieterich¹

FOLLOWING DISASTERS:

CRUSH SYNDROME



the second most frequent cause of death (following direct trauma) Ukai, Ren Fail, 1997



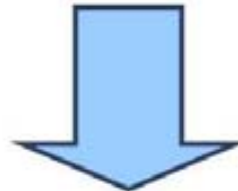
RENAL DISASTER

THE ARMENIAN EARTHQUAKE

- **Death toll: 25,000 ?**
- **Crush cases: 600 ?**
- **Many crush pts. died due to lack of dialysis**

Help not effective

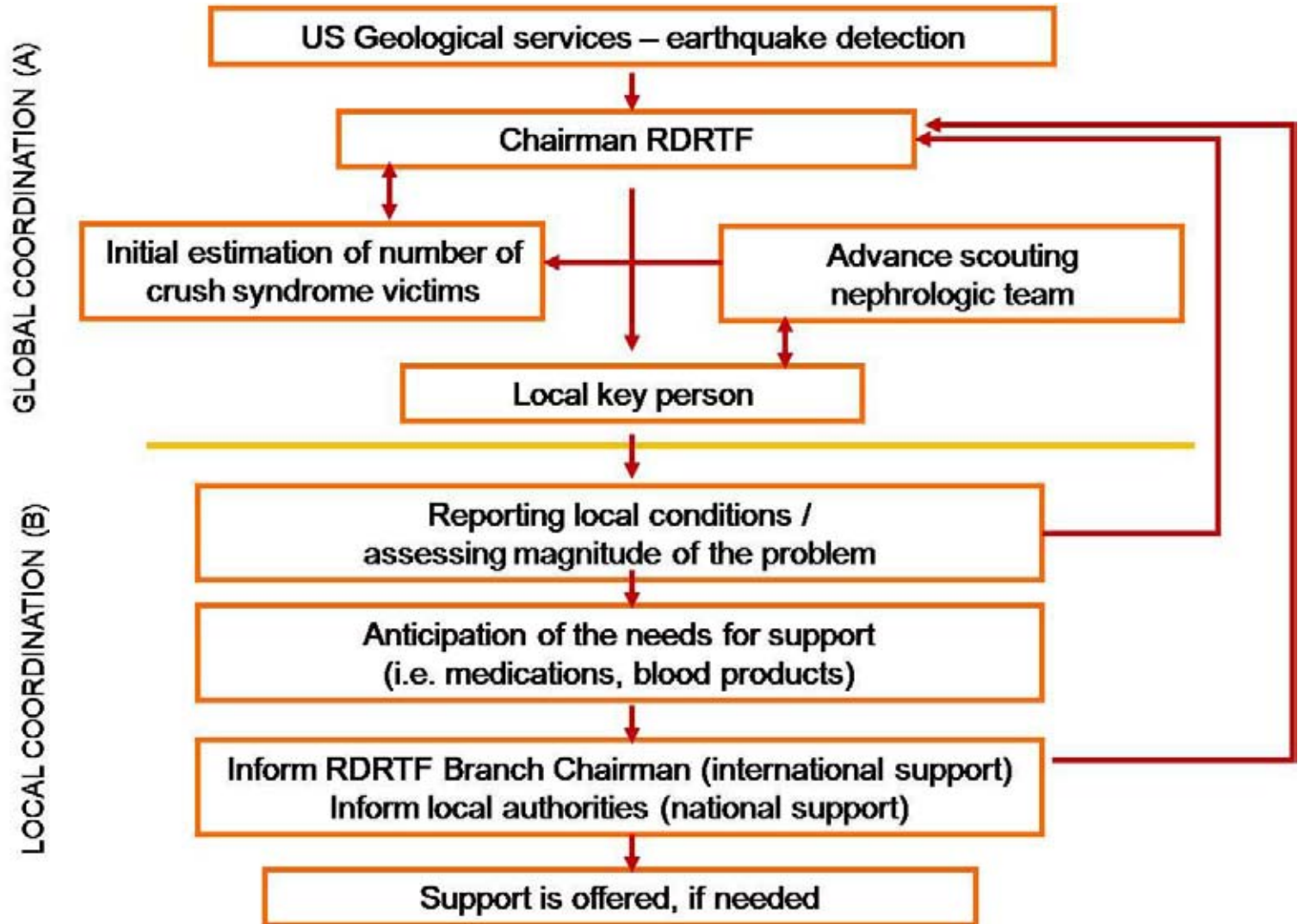
Need for preplanned logistic organization



RENAL DISASTER RELIEF TASK FORCE

RENAL DISASTER RELIEF TASK FORCE (RDRTF): AIMS

- ➔ To offer material and personnel support in any mass disaster where renal problems are prevalent
- ➔ The RDRTF has lists of volunteers (nephrologists/intensivists, nurses, technicians)
- ➔ The RDRTF has a stock of hardware (dialysis machines, RO-systems) to be dispatched in case of disasters



THREE BRANCHES

- ➔ **Global branch**
 - ➔ R Vanholder
 - ➔ C Bergen
 - ➔ E Hoste
- ➔ **South-East Asian Branch**
 - ➔ V Jha
 - ➔ M Jose
- ➔ **Latin-American Branch**
 - ➔ A Hurtado

RELATIONSHIP WITH MSF

- ➔ **It is merely impossible to do major nephrologic intervention without being “embedded” in a large experienced logistic organization**
- ➔ **Our relationship with MSF goes far beyond logistics**
 - ➔ They have active groups in many countries which can quickly collect information
 - ➔ They have connections with local governments but also with other organizations
 - ➔ They have high experience with water purification
 - ➔ They have a broad network of primary care support
 - ➔ They support on ancillary aspects that may be time consuming (e.g. contact with press)

FINANCES

- **The large costs (travel, stay, transport, purchase of material) all are covered by MSF**
- **In addition, we have a budget from ISN (15,000 \$) for**
 - Day to day management costs
 - Basic costs for intervention not covered by MSF (e.g. taxi to the airport, telephone costs)
 - Costs for steering committee meetings
- **Budget is spent ad hoc, i.e.:**
 - If the money is not spent at the end of the year, it is not transferred to the next year
 - If in a year with several interventions, the budget is exceeded, the sum to reimburse is adapted



NOT EVERY DISASTER IS THE SAME

LOCATION	COUNTRY	YEAR	RATIO
Spitak	Armenia	1988	9.0-15.4
Northern Iran	Iran	1990	3.9
Kobe	Japan	1995	24.6
Marmara	Turkey	1999	28.1
Chi-Chi	Taiwan	1999	13.3
Gujarat	India	2001	1.7
Boumerdes	Algeria	2003	6.6
Bam	Iran	2003	3.7
Kashmir	Pakistan	2005	2.4
Yogyakarta	Indonesia	2006	1.2
Chengdu	China	2008	1.9
L'Aquila	Italy	2009	30.2
Padang	Indonesia	2009	0.0
Port-au-Prince	Haiti	2010	0.1
Maule	Chile	2010	3.9

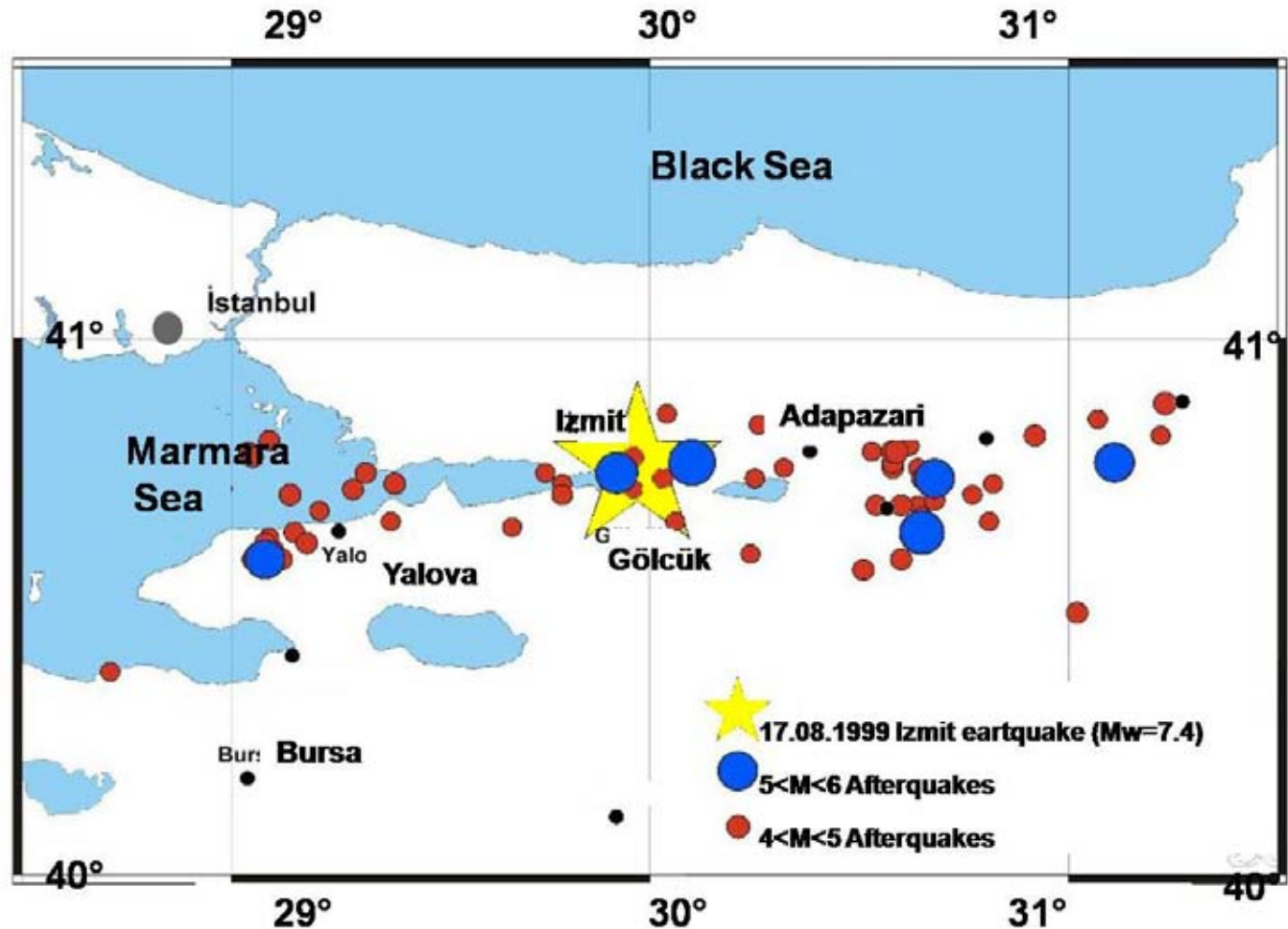
NOT EVERY DISASTER IS THE SAME

➔ Some selections from recent events

- ➔ Haiti 2010
 - ➔ Huge intervention, huge costs: 25 volunteers for 25 dialyzed
 - ➔ Very primitive circumstances
 - ➔ Learned a lot (Istat, how to start a dialysis unit from scratch)
- ➔ Misrata, Libya and Abidjan, Ivory Coast
 - ➔ Local nephrologists out of material: material support
- ➔ Sendai, Japan and Van (Ercis), Turkey
 - ➔ Local nephrologists experienced enough
- ➔ Tripoli and Sirte, Lybia
 - ➔ False alarm, mismanagement disguised as request fro help
- ➔ Bangkok, Thailand
 - ➔ Ran out of specific material, only advice

RENAL DISASTER RELIEF TASK FORCE INTERVENTION – MARMARA EARTHQUAKE AUGUST 18 – SEPTEMBER 17, 1999





BAM (IRAN): DECEMBER 2003



KASHMIR (PAKISTAN): 8 OCTOBER 2005





kidney

INTERNATIONAL

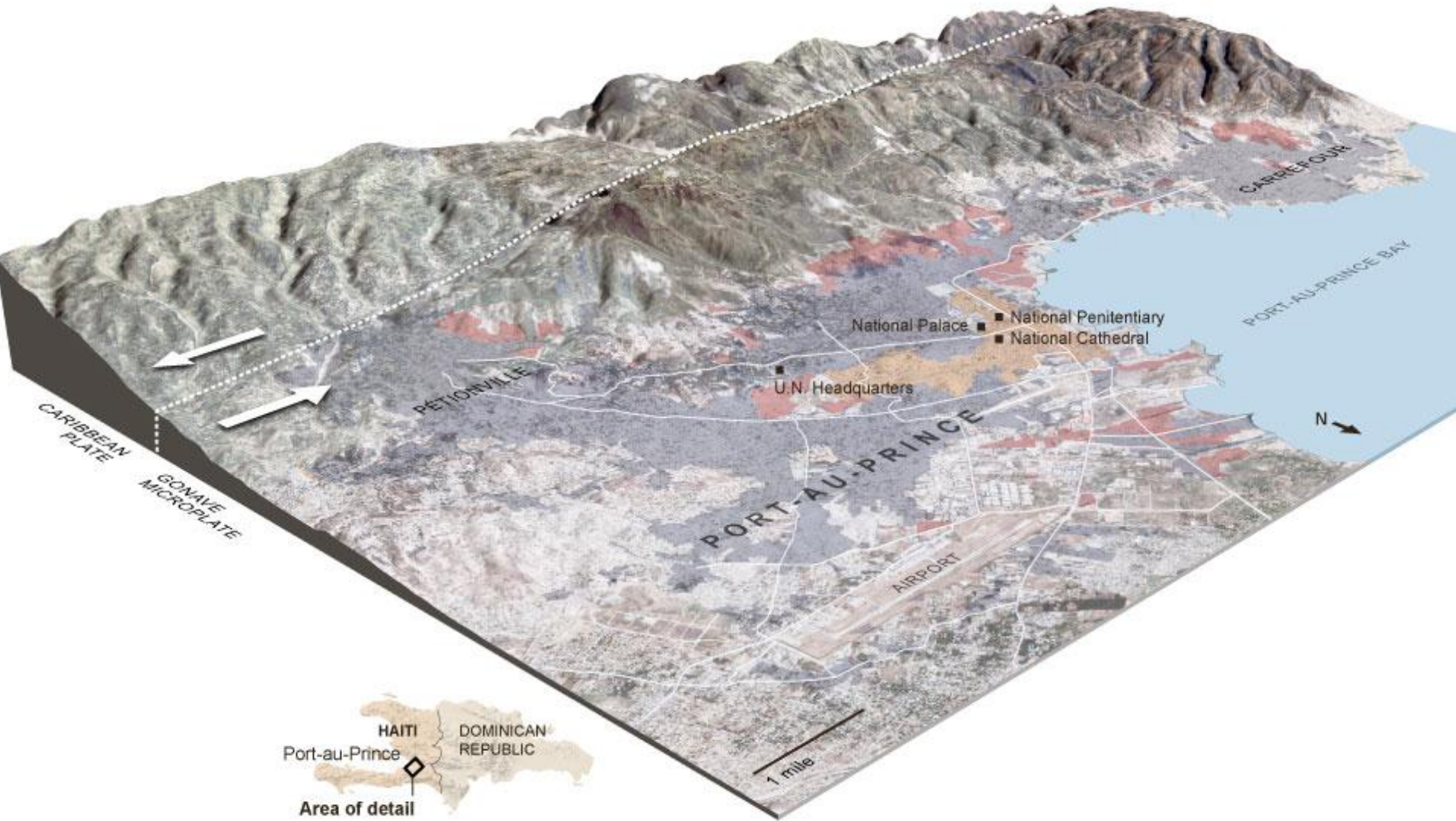


VOLUME 71 | ISSUE 1 | JANUARY (1) 2007
<http://www.kidney-international.org>

Renal failure during earthquakes

European mortality gradients

Low vitamin D levels in early CKD





Reference list (1)

- Vanholder et al, J Am Soc Nephrol, 2000; 11:1553-1561
- Vanholder et al, Nephrol Dial Transplant, 2000; 15:1517-1521
- Vanholder et al, Kidney Int, 2001; 59:783-791
- Sever et al, Kidney Int, 2001; 60:1114-1123
- Erek et al, Nephrol Dial Transplant, 2002; 17:33-40
- Sever et al, Nephrol Dial Transplant, 2002; 17:1025-1031
- Sever et al, Nephron, 2002; 92:64-71
- Sever et al, Nephrol Dial Transplant, 2002; 17:1942-1949
- Sever et al, Kidney Int, 2002; 62:2264-2271
- Sever et al, Crit Care Med, 2002; 30:2443-2449
- Sever et al, Clin Nephrol, 2003; 59:326-333
- Lameire et al, Adv Ren Replace Ther, 2003; 10:93-99
- Sever et al, J Am Soc Nephrol, 2004; 15:1071-1076
- Sever et al, Clin Nephrol, 2004; 61:413-421
- Sever et al, J Nephrol, 2004; 17:399-404

Reference list (2)

- Hatamizadeh et al, Am J Kidney Dis, 2006; 47:428-438
- Sever et al, N Engl J Med, 2006; 354:1052-1063
- Vanholder et al, Kidney Int, 2007; 71:17-23
- Vanholder et al, Contrib Nephrol, 2007; 156:325-332
- Zoraster et al, Am J Disaster Med, 2007; 2:96-106
- Vanholder et al, Acta Clin Belg Suppl, 2007; 405-407
- Vanholder et al, Nat Clin Pract Nephrol, 2008; 4:347
- Najafi et al, J Nephrol, 2008; 21:776-782
- Van der Tol et al, Nephrol Dial Transplant, 2009; 24:907-912
- Sever et al, Nephrol Dial Transplant, 2009; 24:1730-1735
- Vanholder et al, Nephrol Dial Transplant, 2009; 24:3251-3255
- Vanholder et al, Kidney Int, 2009; 76:687-689
- Vanholder et al, Lancet, 2010; 375:1162-1163
- Sever et al, Nephrol Dial Transplant, 2011; 26:515-524
- Vanholder et al, Nephron Clin Pract, 2011; 117:C184-C197

RECOMMENDATIONS ON TREATMENT OF CRUSH VICTIMS FOLLOWING MASS DISASTERS



RECOMMENDATIONS FOR THE MANAGEMENT OF CRUSH CRUSH VICTIMS IN MASS DISASTERS

Work Group Review Draft
Istanbul, Turkey
January 28-30, 2010

- ↻ Iran, March, 1997: Material support
- ↻ Moldova, March, 1999: Material support
- ↻ Macedonia, May, 1999: Evacuation chronic patients
- ↻ Macedonia/Kosova, July, 1999: Material support
- ↻ Turkey, August, 1999: Major intervention
- ↻ Kosova, February, 2000: Educational support
- ↻ India, January, 2001: Assessment
- ↻ Turkey, May, 2003: Material support
- ↻ Algeria, May, 2003: Assessment
- ↻ Iran, December, 2003: Major intervention
- ↻ Luisiana, August, 2005: Advisory role
- ↻ Pakistan, October 2005: Major intervention
- ↻ Poland, January, 2006: Advisory role
- ↻ Indonesia, May, 2006: Assessment
- ↻ Lebanon, July, 2006: Material support
- ↻ Peru, August, 2007: Scouting
- ↻ China, May 2008: Major intervention
- ↻ Italy, April 2009: Advice
- ↻ Indonesia, September 2009: Assessment
- ↻ Haiti, January 2010: Major intervention
- ↻ Chile, February 2010: Advice
- ↻ Turkey, March 2010: Advice
- ↻ New Zealand September 2010 and February 2011: Advice
- ↻ Ivory Coast, May 2011: Material support
- ↻ Lybia, May 2011: Material support
- ↻ Turkey, October 2011: Advice