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**Ethics in humanitarian services for the victims of earthquake in Nepal**

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**Ethics in humanitarian services for the victims of earthquake in Nepal**

**Abstract**

Nepal earthquake was one of the biggest natural calamity of the year 2015. This paper attempts to explore the ethical issues involved in the humanitarian services rendered during the crisis situation and thereafter. Four principles of biomedical ethics namely autonomy, beneficence, non-maleficence and justice are discussed in relation to the immediate relief activities followed by the consequent long term activities like rehabilitation, wherever applicable. This includes the public health components like vulnerable population, environment ethics and justice for future. Embedding ethical principles is of vital importance in disasters so that the health care complies with the professional norms and ethical standards, and be accountable.to the medical aspects of the local culture. Beneficence is prioritized while non-maleficence and autonomy tend to be ignored. Justice particularly distributive justice in the context of limited resources deserves due attention not only during the emergency phase but also during the rehabilitation phase and future plan.

**Keywords** – Disaster, Principles of biomedical ethics, Nepal.

**Background**

On 25 April 2015, a 7.8 magnitude earthquake struck Nepal, its epicenter 77 km west from the capital city Kathmandu. This was followed on 12 May by a 7.3 magnitude earthquake with the epicenter east to Kathmandu. These earthquakes were the most severe natural disaster to hit Nepal after the 1934 earthquake with 8.0 magnitude claiming about 8.5 thousands human lives. The total death toll in the recent earthquakes was 8,856 including more than 100 foreigners particularly the tourists. The total number of injured people was 22,309 [1].

Disaster situations are characterized by an acute and unforeseen imbalance between the capacity and resources of the medical profession. This paper is an attempt to explore the ethical issues involved in the humanitarian services rendered during the crisis situation and thereafter.

**Discussion**

The adoption of medical ethics principles is important even in disaster situations [2]. This discussion is based on the four principles of biomedical ethics. Each principles are discussed with the immediate relief activities followed by the consequent long term activities, wherever applicable. Efforts have been made to incorporate the issues raised by the concerned authorities including the victims and relief workers linking them with the ethical principles.

**Beneficence**

The activities of immediate response in any disasters are targeted for the benefit of the victims.

***Search and rescue*** - most lives are actually saved by the locals themselves long before the international teams arrive on scene, many more lives could be saved by teaching the basics of light rescue to local students and citizens in threatened countries [3]. The person present at the scene immediately starts efforts to take out the trapped victims. Previously trained, uninjured survivors can provide basic rescue and effective Life-Supporting First-Aid (LSFA) to the injured [4]. Urgent emergency medical care of seriously injured earthquake casualties trapped under building rubble, cannot be provided unless the victims have been extricated and transported to medical facilities by friends or relatives, or are accessible to field rescue and medical teams [5].

***Responses of volunteers* –** Social media played a very positive role to update the situation in various districts and expand the volunteer spirit in geometric progression. Similarly, media of mass communication particularly radios and televisions continued to update the situations from various corners of the affected areas. During crises, scientific volunteerism emerged spontaneously as the internet, smartphones, and social media fueled a feeling of shared responsibility [6].

***Medical care –*** All the hospitals including private establishments provided free treatment to all the victims of disaster and was one of the best example of beneficence for the victims of catastrophe. Later on, it was reimbursed by the government.

**Non-maleficence**

Extrication of seriously injured, trapped victims by laypersons is hazardous, unless the rescuer has basic knowledge of extrication, and effective life-supporting skills [5]. The principle of non-maleficence – ‘do no harm’ is to be considered here. Good intention is not enough if the rescuer is not trained for such rescue works. Nepal did not have trained rescuers at the community level. Nepal Police and Nepal Red-cross had prepared such human resources in some parts of the country but was not adequate to cope with the massive demand. However, during the crisis of disaster even non-trained personnel were deployed for search and rescue which might have increased the risk of harm.

***Infection control* -** Shelter, food and water are basic essentials for displaced people and responders. At the same time, safety in such provisions are important as these may be the cause of vector-borne and faeco-oral transmission of the diseases. There had been fear of epidemic upsurge of endemic diseases like typhoid fever, cholera and hepatitis E epidemics in the earthquake affected populations who had been living in temporary shelters in crowded conditions [7–10]. Early warning and response system for disease surveillance and outbreak control in each affected district [11].

**Autonomy**

WMA (World Medical Association) has urged to recognize that in a disaster response there may not be enough time for informed consent to be a realistic possibility but at the same time has acknowledged the consenting autonomy of the survivors of disaster to receive most appropriate treatment available with the same respect as other patients [12]. In the aftermath of earthquake, it was not possible to have consent in all the cases and the decisions were taken by the treating physicians in the best interest of the patient.

Even working under crisis conditions in the aftermath of disasters, emergency medical teams from other countries are expected to understand and respect the medical aspects of the culture, comply with professional norms and ethical standards, and be accountable [13]. Obviously, it was not feasible for the foreign medical doctors to undergo registration for medical license in Nepal Medical Council (NMC) before starting the work. Foreign medical professionals were accepted without local registration which was at par with the ‘WMA statement on medical ethics in the event of disasters’ that requests the governments to accept the presence of foreign physicians without discrimination [12]. One of the reporter from an international media, who had academic degree of medical doctor highlighted the scarcity of medical professionals and claimed to operate a patient with head injury in Bir Hospital. The news was denied by the hospital authorities.

With medical advances in acute medical care, death following natural disasters is decreasing but the survivors are left with rising rates of disability [14-15]. Rehabilitation services have an important role for the continuity of care in post-disaster relief which may last for years. Autonomy of the beneficiaries needs to be respected in this process of rehabilitation.

**Justice**

From the perspective of justice as a principle of biomedical ethics, distributive justice needs to be considered in disaster situations as the resources cannot cope with the need.Disaster response is dependent on planning and the availability of capacity to restore infrastructure. Nepal not only lacks resources to restore infrastructure but also lacks planning to respond to disaster situation. Adequate provision for disaster response is rare in developing countries, and restoration of services is greatly dependent on international aid. For countries that are struggling to develop economically, diverting resources to planning and to provide reserve capacity is difficult and thus, would require international assistance not only for immediate relief but also for long-term rehabilitation for restoration of infrastructure [16].

***Triage for medical treatment*** ***–*** Triaging patients in an attempt to set an order of priorities for treatment that will save the greatest number of lives and restrict morbidity to a minimum and thus, is based on the philosophy of utilitarianism. Managing large number of people injured in a short time in the context of limited resources and disruption of the regular mechanisms and resources results in chaos. The first earthquake was on weekend day and obviously, the number of human resources was very limited. Triage poses an ethical problem owing to the limited treatment resources immediately available in relation to the large number of injured persons in varying states of health [12, 17]. Proper planning, timely intervention, utilization of resources, and surgical intervention by a skilled surgical team can make a huge difference in the morbidity of patients in the wake of a major disaster [18].

***Logistics -*** The only international but small airport in Kathmandu had difficulties in coping with the flights arriving with relief supplies. Triaging those flights without adequate information was definitely hard. Restricted airport capacity resulted in delayed arrival of relief workers and supplies. In addition, the government mechanism was in chaos to arrange the space for already downloaded supplies. Similarly, determining the capacity of the relief team and deploying them to the needy area was a challenge.

***Infrastructural resources for services -***

Hospitals - It is essential for all hospitals to have a particular design for hospital preparedness against emergencies such as earthquake, to guarantee the hospital’s adequate performance during a crisis [19]. Destruction of healthcare facilities including birthing centers in the affected districts disrupted the services in the earthquake affected districts [20]. However, the major hospitals in cities including Kathmandu valley had minimal damage and were able to function for the extra need. Hospital preparedness for disaster including retro-fitting and timely response were the likely reasons behind the low death toll compared to Haiti earthquake [21]. Fair and coordinated distribution of patients among the hospitals by the volunteers and ambulance operators was well appreciated.

Schools - Schools have two dimensions in regard to the disasters. First of all, students are crowded in the buildings and are vulnerable population who deserve special safety measures. Secondly, schools provide the space for shelter in the aftermath of disasters. It was not possible to utilize schools for shelters in many hard hit areas as most of the school buildings were damaged. This earthquake proved that school buildings are most vulnerable as a total of 8,308 school buildings were damaged [1]. The first earthquake was on weekend day and schools were still shut down on the day of second earthquake. Even then 32 teachers and 256 students mostly those staying at hostels died. The total number of casualties could have been enormous if the earthquake had occurred on school days. Children spend a significant proportion of their day in school, pediatric emergencies accidental/intentional injuries are likely to occur and schools need to establish emergency-response plans to deal with life-threatening medical emergencies in children [22]. Similarly, long term psychological impact comprises a major public health problem particularly in children.

***Vulnerable population*** - Earthquake victims includes vulnerable population like children and pregnant and lactating mothers were living in shelters without proper access to food, safe drinking water and toilets. In such situations, resources have to be distributed and allocated fairly with special concern that the most vulnerable will receive fair treatment [2]. For example – distributive justice should be implicated on the matters of household food security and child nutrition. Chronic nutritional burden, predating the quake that stands to worsen in the coming year [23]. Synergism of malnutrition with infection presents a threat to child survival and needs effective nutritional monitoring.

***Mental health******issues*** *–* During disasters, obvious focus of care is on physical care and mental health issues tend to be underestimated either due to lack of resources or due to ignorance of the management. Those requiring psychological rescue work should be categorized into vulnerable population group and strategies should be tailored to the specific culture and conditions in the local communities. More attention and support are essential for high-risk groups, such as bereaved survivors, to alleviate their mental distress and help them recover from the devastating loss of their loved ones [24]. As the service is needed in a large scale and the existing system cannot cope with the demand, there is a need to train and mobilize the volunteers. In the aftermath of earthquake NMA (Nepal Medical Association), in collaboration with Japanese counterparts – JMA (Japan Medical Association) and AMDA (Association of Medical Doctors of Asia), is conducting psychosocial support and counseling training for volunteers [25].

***Environmental ethics in the aftermath and justice for the future*** - It is not earthquakes that kill people, but the resultant building collapse. Public awareness, rigorous risk research and aligned targets will help policy-makers to increase resilience against natural hazards [26]. However, it is a common practice even in the hazard-prone regions to disobey the standard construction building codes. While prioritizing the reconstruction of buildings and infrastructure, the impact of large-scale restoration work on the fragile environment and imperiled ecosystems must not be overlooked [27]. The rugged terrain, unstable soils, heavy rains and mountainous geology in Nepal contribute to make it one of the world’s landslide prone area [28]. Even though landslide occurred during the earthquake but during the monsoon rains (June to September) after the earthquake, landslide was not significantly more than the previous years. However, it may occur in future as well.

Better preparedness for disaster response always results in saving lives and properties. Experts have compared Nepal and Haiti earthquake and low death toll in Nepal have been credited to better preparedness than Haiti [21]. Emergency-management plans should be practiced long before a disaster occurs which not only minimizes the casualties but also the ethical challenges in disaster responses [29]. Preparedness also entails warning systems, education, awareness raising and risk communication [26]. It needs earthquake-proof construction and retrofitting, even more education to prepare communities, and improvements in the health care system [15].

**Summary**

Embedding ethical principles in every aspect of healthcare is of vital importance including the preparedness for disasters. Preparedness is important not only in the healthcare facilities but also at the community level with emphasis on public places like hospitals and schools. Ethical challenges in disaster responses can be minimized by the standby preparedness plan and its ongoing orientation and dissemination to the concerned authorities including the grass-root level. Even working under crisis conditions must respect the four principles of biomedical ethics so that the health care complies with the professional norms and ethical standards, and be accountable.to the medical aspects of the local culture.

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**References**

1. Nepal earthquake 2015: Country Profile.<http://drrportal.gov.np/ndrrip/main.html?id=0>. Accessed November 1, 2015.
2. [Lateef F](http://www.ncbi.nlm.nih.gov/pubmed/?term=Lateef%20F%5BAuthor%5D&cauthor=true&cauthor_uid=22008197). Ethical issues in disasters. [*Prehosp Disaster Med.*](http://www.ncbi.nlm.nih.gov/pubmed/22008197) 2011 Aug;26(4):289-92.
3. [Peleg K](http://www.ncbi.nlm.nih.gov/pubmed/?term=Peleg%20K%5BAuthor%5D&cauthor=true&cauthor_uid=26456243). [Notes from Nepal: Is There a Better Way to Provide Search and Rescue?](http://www.ncbi.nlm.nih.gov/pubmed/26456243) [*Disaster Med Public Health Prep.*](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Oct 12:1-3.
4. [Angus DC](http://www.ncbi.nlm.nih.gov/pubmed/?term=Angus%20DC%5BAuthor%5D&cauthor=true&cauthor_uid=10155460), [Pretto EA](http://www.ncbi.nlm.nih.gov/pubmed/?term=Pretto%20EA%5BAuthor%5D&cauthor=true&cauthor_uid=10155460), [Abrams JI](http://www.ncbi.nlm.nih.gov/pubmed/?term=Abrams%20JI%5BAuthor%5D&cauthor=true&cauthor_uid=10155460), [Safar P](http://www.ncbi.nlm.nih.gov/pubmed/?term=Safar%20P%5BAuthor%5D&cauthor=true&cauthor_uid=10155460). Recommendations for Life-Supporting First-Aid training of the lay public for disaster preparedness. [Prehosp Disaster Med.](http://www.ncbi.nlm.nih.gov/pubmed/?term=Recommendations+for+Life-Supporting+First-Aid+Training+of+the+Lay+Public+for+Disaster+Preparedness) 1993 Apr-Jun;8(2):157-60.
5. [Abrams JI](http://www.ncbi.nlm.nih.gov/pubmed/?term=Abrams%20JI%5BAuthor%5D&cauthor=true&cauthor_uid=10155459), [Pretto EA](http://www.ncbi.nlm.nih.gov/pubmed/?term=Pretto%20EA%5BAuthor%5D&cauthor=true&cauthor_uid=10155459), [Angus D](http://www.ncbi.nlm.nih.gov/pubmed/?term=Angus%20D%5BAuthor%5D&cauthor=true&cauthor_uid=10155459). Guidelines for rescue training of the lay public. [*Prehosp Disaster Med.*](http://www.ncbi.nlm.nih.gov/pubmed/10155459) 1993 Apr-Jun;8(2):151-6.
6. [Shrestha UB](http://www.ncbi.nlm.nih.gov/pubmed/?term=Shrestha%20UB%5BAuthor%5D&cauthor=true&cauthor_uid=26273047), [Shrestha S](http://www.ncbi.nlm.nih.gov/pubmed/?term=Shrestha%20S%5BAuthor%5D&cauthor=true&cauthor_uid=26273047), [Aryal A](http://www.ncbi.nlm.nih.gov/pubmed/?term=Aryal%20A%5BAuthor%5D&cauthor=true&cauthor_uid=26273047). [Disaster response: Volunteers, unite!](http://www.ncbi.nlm.nih.gov/pubmed/26273047) [*Science*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Aug 14;349(6249):699-700. doi: 10.1126/science.349.6249.699-b.
7. [Pandey P](http://www.ncbi.nlm.nih.gov/pubmed/?term=Pandey%20P%5BAuthor%5D&cauthor=true&cauthor_uid=26376005). [Letter from Nepal, August 12, 2015 - Cholera in post-earthquake Kathmandu.](http://www.ncbi.nlm.nih.gov/pubmed/26376005) [*Travel Med Infect Dis*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Sep-Oct;13(5):425. doi: 10.1016/j.tmaid.2015.08.002.
8. [Basnyat B](http://www.ncbi.nlm.nih.gov/pubmed/?term=Basnyat%20B%5BAuthor%5D&cauthor=true&cauthor_uid=26091742), [Dalton HR](http://www.ncbi.nlm.nih.gov/pubmed/?term=Dalton%20HR%5BAuthor%5D&cauthor=true&cauthor_uid=26091742), [Kamar N](http://www.ncbi.nlm.nih.gov/pubmed/?term=Kamar%20N%5BAuthor%5D&cauthor=true&cauthor_uid=26091742), [Rein DB](http://www.ncbi.nlm.nih.gov/pubmed/?term=Rein%20DB%5BAuthor%5D&cauthor=true&cauthor_uid=26091742), [Labrique A](http://www.ncbi.nlm.nih.gov/pubmed/?term=Labrique%20A%5BAuthor%5D&cauthor=true&cauthor_uid=26091742), [Farrar J](http://www.ncbi.nlm.nih.gov/pubmed/?term=Farrar%20J%5BAuthor%5D&cauthor=true&cauthor_uid=26091742), [Piot P](http://www.ncbi.nlm.nih.gov/pubmed/?term=Piot%20P%5BAuthor%5D&cauthor=true&cauthor_uid=26091742). [Nepali earthquakes and the risk of an epidemic of hepatitis E.](http://www.ncbi.nlm.nih.gov/pubmed/26091742) [Lancet.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Jun 27;385(9987):2572-3. doi: 10.1016/S0140-6736(15)61110-2.
9. [Basnyat B](http://www.ncbi.nlm.nih.gov/pubmed/?term=Basnyat%20B%5BAuthor%5D&cauthor=true&cauthor_uid=26289172). [Tackle Nepal's typhoid problem now.](http://www.ncbi.nlm.nih.gov/pubmed/26289172) [*Nature*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Aug 20;524(7565):267. doi: 10.1038/524267a.
10. [Nelson EJ](http://www.ncbi.nlm.nih.gov/pubmed/?term=Nelson%20EJ%5BAuthor%5D&cauthor=true&cauthor_uid=26270343), [Andrews JR](http://www.ncbi.nlm.nih.gov/pubmed/?term=Andrews%20JR%5BAuthor%5D&cauthor=true&cauthor_uid=26270343), [Maples S](http://www.ncbi.nlm.nih.gov/pubmed/?term=Maples%20S%5BAuthor%5D&cauthor=true&cauthor_uid=26270343), [Barry M](http://www.ncbi.nlm.nih.gov/pubmed/?term=Barry%20M%5BAuthor%5D&cauthor=true&cauthor_uid=26270343), [Clemens JD](http://www.ncbi.nlm.nih.gov/pubmed/?term=Clemens%20JD%5BAuthor%5D&cauthor=true&cauthor_uid=26270343). [Is a Cholera Outbreak Preventable in Post-earthquake Nepal?](http://www.ncbi.nlm.nih.gov/pubmed/26270343) [*PLoS Negl Trop Dis*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Aug 13;9(8):e0003961. doi: 10.1371/journal.pntd.0003961.
11. [Bagcchi S](http://www.ncbi.nlm.nih.gov/pubmed/?term=Bagcchi%20S%5BAuthor%5D&cauthor=true&cauthor_uid=26122451). [Risk of infection after the Nepal earthquake.](http://www.ncbi.nlm.nih.gov/pubmed/26122451) [*Lancet Infect Dis*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Jul;15(7):770-1. doi: 10.1016/S1473-3099(15)00103-6.
12. WMA General Assembly. Statement on medical ethics in the event of disasters. Pilanesberg, South Africa. 2006. http://www.wma.net/en/30publications/10policies/d7/. Accessed November 1, 2015.
13. [Merin O](http://www.ncbi.nlm.nih.gov/pubmed/?term=Merin%20O%5BAuthor%5D&cauthor=true&cauthor_uid=26214842), [Yitzhak A](http://www.ncbi.nlm.nih.gov/pubmed/?term=Yitzhak%20A%5BAuthor%5D&cauthor=true&cauthor_uid=26214842), [Bader T](http://www.ncbi.nlm.nih.gov/pubmed/?term=Bader%20T%5BAuthor%5D&cauthor=true&cauthor_uid=26214842). [Medicine in a Disaster Area: Lessons From the 2015 Earthquake in Nepal.](http://www.ncbi.nlm.nih.gov/pubmed/26214842) [*JAMA Intern Med*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Sep 1;175(9):1437-8. doi: 10.1001/jamainternmed.2015.3985.
14. [Sheppard PS](http://www.ncbi.nlm.nih.gov/pubmed/?term=Sheppard%20PS%5BAuthor%5D&cauthor=true&cauthor_uid=26165576), [Landry MD](http://www.ncbi.nlm.nih.gov/pubmed/?term=Landry%20MD%5BAuthor%5D&cauthor=true&cauthor_uid=26165576). [Lessons from the 2015 earthquake(s) in Nepal: implication for rehabilitation.](http://www.ncbi.nlm.nih.gov/pubmed/26165576) [*Disabil Rehabil*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Jul 14:1-4.
15. [Hauswald M](http://www.ncbi.nlm.nih.gov/pubmed/?term=Hauswald%20M%5BAuthor%5D&cauthor=true&cauthor_uid=26130430), [Kerr NL](http://www.ncbi.nlm.nih.gov/pubmed/?term=Kerr%20NL%5BAuthor%5D&cauthor=true&cauthor_uid=26130430), [Wachter DA](http://www.ncbi.nlm.nih.gov/pubmed/?term=Wachter%20DA%5BAuthor%5D&cauthor=true&cauthor_uid=26130430), [Baty GM](http://www.ncbi.nlm.nih.gov/pubmed/?term=Baty%20GM%5BAuthor%5D&cauthor=true&cauthor_uid=26130430). [Leaving Nepal After the Earthquake: Sometimes Stepping Away May be the Best Disaster Response.](http://www.ncbi.nlm.nih.gov/pubmed/26130430) [*Acad Emerg Med*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Jul;22(7):865-7. doi: 10.1111/acem.12715.
16. [Binns C](http://www.ncbi.nlm.nih.gov/pubmed/?term=Binns%20C%5BAuthor%5D&cauthor=true&cauthor_uid=26116652), [Low WY](http://www.ncbi.nlm.nih.gov/pubmed/?term=Low%20WY%5BAuthor%5D&cauthor=true&cauthor_uid=26116652). [Nepal Disaster: A Public Health Response Needed.](http://www.ncbi.nlm.nih.gov/pubmed/26116652) [Asia Pac J Public Health.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Jul;27(5):484-5. doi: 10.1177/1010539515593015.
17. Pou AM. [Ethical and legal challenges in disaster medicine: are you ready?](http://www.ncbi.nlm.nih.gov/pubmed/23263310) South Med J. 2013 Jan;106(1):27-30.
18. [Vaishya R](http://www.ncbi.nlm.nih.gov/pubmed/?term=Vaishya%20R%5BAuthor%5D&cauthor=true&cauthor_uid=26430580), [Agarwal AK](http://www.ncbi.nlm.nih.gov/pubmed/?term=Agarwal%20AK%5BAuthor%5D&cauthor=true&cauthor_uid=26430580), [Vijay V](http://www.ncbi.nlm.nih.gov/pubmed/?term=Vijay%20V%5BAuthor%5D&cauthor=true&cauthor_uid=26430580), [Hussaini M](http://www.ncbi.nlm.nih.gov/pubmed/?term=Hussaini%20M%5BAuthor%5D&cauthor=true&cauthor_uid=26430580), [Singh H](http://www.ncbi.nlm.nih.gov/pubmed/?term=Singh%20H%5BAuthor%5D&cauthor=true&cauthor_uid=26430580). Surgical Management of Musculoskeletal Injuries after 2015 Nepal Earthquake:Our Experience.[*Cureus.*](http://www.ncbi.nlm.nih.gov/pubmed/?term=Surgical+Management+of+Musculoskeletal+Injuries+after+2015+Nepal+Earthquake%3A+Our+Experience.) 2015 Aug 18;7(8):e306. doi: 10.7759/cureus.306.
19. [Hosseini Shokouh SM](http://www.ncbi.nlm.nih.gov/pubmed/?term=Hosseini%20Shokouh%20SM%5BAuthor%5D&cauthor=true&cauthor_uid=24576386), [Anjomshoa M](http://www.ncbi.nlm.nih.gov/pubmed/?term=Anjomshoa%20M%5BAuthor%5D&cauthor=true&cauthor_uid=24576386), [Mousavi SM](http://www.ncbi.nlm.nih.gov/pubmed/?term=Mousavi%20SM%5BAuthor%5D&cauthor=true&cauthor_uid=24576386), [Sadeghifar J](http://www.ncbi.nlm.nih.gov/pubmed/?term=Sadeghifar%20J%5BAuthor%5D&cauthor=true&cauthor_uid=24576386), [Armoun B](http://www.ncbi.nlm.nih.gov/pubmed/?term=Armoun%20B%5BAuthor%5D&cauthor=true&cauthor_uid=24576386), [Rezapour A](http://www.ncbi.nlm.nih.gov/pubmed/?term=Rezapour%20A%5BAuthor%5D&cauthor=true&cauthor_uid=24576386), [Arab M](http://www.ncbi.nlm.nih.gov/pubmed/?term=Arab%20M%5BAuthor%5D&cauthor=true&cauthor_uid=24576386). Prerequisites of preparedness gainst earthquake in hospital system: a survey from Iran. [*Glob J Health Sci*.](http://www.ncbi.nlm.nih.gov/pubmed/24576386) 2014 Feb 21;6(2):237-45. doi: 10.5539/gjhs.v6n2p237.
20. Khanal V, Khanal P, Lee AH. Sustaining progress in maternal and child health in Nepal. [*Lancet*.](http://www.ncbi.nlm.nih.gov/pubmed/?term=Sustaining+progress+in+maternal+and+child+health+in+Nepal) 2015 Jun 27;385(9987):2573. doi: 10.1016/S0140-6736(15)60963-1.
21. [Auerbach PS](http://www.ncbi.nlm.nih.gov/pubmed/?term=Auerbach%20PS%5BAuthor%5D&cauthor=true&cauthor_uid=26047830). [Preparedness explains some differences between Haiti and Nepal's response to earthquake.](http://www.ncbi.nlm.nih.gov/pubmed/26047830) [BMJ.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Jun 5;350:h3059. doi: 10.1136/bmj.h3059.
22. [Olympia RP](http://www.ncbi.nlm.nih.gov/pubmed/?term=Olympia%20RP%5BAuthor%5D&cauthor=true&cauthor_uid=16322130), [Wan E](http://www.ncbi.nlm.nih.gov/pubmed/?term=Wan%20E%5BAuthor%5D&cauthor=true&cauthor_uid=16322130), [Avner JR](http://www.ncbi.nlm.nih.gov/pubmed/?term=Avner%20JR%5BAuthor%5D&cauthor=true&cauthor_uid=16322130). The preparedness of schools to respond to emergencies in children: a national survey of school nurses. [*Pediatrics*.](http://www.ncbi.nlm.nih.gov/pubmed/16322130) 2005 Dec;116(6):e738-45.
23. [Webb P](http://www.ncbi.nlm.nih.gov/pubmed/?term=Webb%20P%5BAuthor%5D&cauthor=true&cauthor_uid=26251389), [West KP Jr](http://www.ncbi.nlm.nih.gov/pubmed/?term=West%20KP%20Jr%5BAuthor%5D&cauthor=true&cauthor_uid=26251389), [O'Hara C](http://www.ncbi.nlm.nih.gov/pubmed/?term=O%27Hara%20C%5BAuthor%5D&cauthor=true&cauthor_uid=26251389). [Stunting in earthquake-affected districts in Nepal.](http://www.ncbi.nlm.nih.gov/pubmed/26251389) [*Lancet*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Aug 1;386(9992):430-1. doi: 10.1016/S0140-6736(15)61444-1.
24. [Hu X](http://www.ncbi.nlm.nih.gov/pubmed/?term=Hu%20X%5BAuthor%5D&cauthor=true&cauthor_uid=26177733), [Su Y](http://www.ncbi.nlm.nih.gov/pubmed/?term=Su%20Y%5BAuthor%5D&cauthor=true&cauthor_uid=26177733). [Psychological rescue work ahead for Nepal: lessons from the Wenchuan earthquake.](http://www.ncbi.nlm.nih.gov/pubmed/26177733) [*J Psychiatr Ment Health Nurs.*](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Aug;22(6):353. doi: 10.1111/jpm.12253.
25. AMDA Rehabilitation Activity for Nepal Earthquake, July 2015. <http://en.amda.or.jp/articlelist/?work_id=421>. Accessed 25 November 2015.
26. [Cutter SL](http://www.ncbi.nlm.nih.gov/pubmed/?term=Cutter%20SL%5BAuthor%5D&cauthor=true&cauthor_uid=26085255), [Ismail-Zadeh A](http://www.ncbi.nlm.nih.gov/pubmed/?term=Ismail-Zadeh%20A%5BAuthor%5D&cauthor=true&cauthor_uid=26085255), [Alcántara-Ayala I](http://www.ncbi.nlm.nih.gov/pubmed/?term=Alc%C3%A1ntara-Ayala%20I%5BAuthor%5D&cauthor=true&cauthor_uid=26085255), [Altan O](http://www.ncbi.nlm.nih.gov/pubmed/?term=Altan%20O%5BAuthor%5D&cauthor=true&cauthor_uid=26085255), [Baker DN](http://www.ncbi.nlm.nih.gov/pubmed/?term=Baker%20DN%5BAuthor%5D&cauthor=true&cauthor_uid=26085255), [Briceño S](http://www.ncbi.nlm.nih.gov/pubmed/?term=Brice%C3%B1o%20S%5BAuthor%5D&cauthor=true&cauthor_uid=26085255) et al. [Global risks: Pool knowledge to stem losses from disasters.](http://www.ncbi.nlm.nih.gov/pubmed/26085255) [*Nature*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Jun 18;522(7556):277-9. doi: 10.1038/522277a.
27. [Mishra SR](http://www.ncbi.nlm.nih.gov/pubmed/?term=Mishra%20SR%5BAuthor%5D&cauthor=true&cauthor_uid=26245574). [Earthquake aftermath: Support Nepal to rebuild sustainably.](http://www.ncbi.nlm.nih.gov/pubmed/26245574) [*Nature*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 Aug 6;524(7563):35. doi: 10.1038/524035c.
28. [Witze A](http://www.ncbi.nlm.nih.gov/pubmed/?term=Witze%20A%5BAuthor%5D&cauthor=true&cauthor_uid=25971483). [Mappers rush to pinpoint landslide risk in Nepal.](http://www.ncbi.nlm.nih.gov/pubmed/25971483) [*Nature*.](http://www.ncbi.nlm.nih.gov/pubmed) 2015 May 14;521(7551):133-4. doi: 10.1038/521133a.
29. Ozge Karadag C, Kerim Hakan A. [Ethical dilemmas in disaster medicine.](http://www.ncbi.nlm.nih.gov/pubmed/23285411) Iran Red Crescent Med J. 2012 Oct;14(10):602-12.