Listening to the silence: Doing better at responding to disasters

Disasters and emergencies present significant challenges to affected individuals, communities, services and systems. The 2004 Indian Ocean Tsunami wreaked havoc and massive destruction: yet within minutes individuals were responding and providing support and within hours communities and systems were working together to mitigate the disaster which had affected them. Fourteen countries were affected, 227,000 people lost their lives, and 1.7 million people were displaced[1].

Since the Tsunami, numerous other natural disasters and crisis in the Asia-Pacific, including earthquakes in Kashmir (2005) and Yogyakarta (2006), and another Tsunami, fortunately much less devastating, in the Solomon Islands in early 2007 have occured. Some ongoing, crisis and emergencies, however, barely register a response from the international community. Most notable of these are man-made emergencies in which the rights of citizens, and their human and collective security is deliberately undermined. In all these crisis and disasters, whether natural or man-made, those who are most seriously affected are typically those most marginalised, and least represented in local and national decision-making.

Documenting pre-existing inequities and vulnerabilities, service gaps, and the inadequacies of our responses to the needs of the most marginalised communities deserves attention. Although natural disasters occasionally strike in unpredictable ways, many of them can actually be forecast and much of their impact prevented.

Disasters and emergencies will not go away, if anything they are likely to become more frequent as the pace of globalisation intensifies and our environment deteriorates. We identify a number of lessons that the public health community in the Asia-Pacific region could draw from recent experiences of disaster and response. While we often devote attention to improving the quality of technical interventions, we neglect, at our peril, the social aspects of occurrence and response to complex emergencies and crisis.

Disasters often occur where underlying vulnerabilities are present: we must seek to address these early in an effort to avoid crisis

Prevention must be a priority. Current debate regarding global warming, for example, is high on the international agenda. Not far below the bigger questions of the survival of humankind and our planet are considerations of how we will respond to accelerating environmental pressures, rising ocean levels and increasing scarcity of basic resources like water and safe shelter. These changes in our environment are compounded, and fueled by population growth, expanding mobility, and competition for the economic, technical and financial resources to respond to basic human security needs[2].

The global community, and local communities, are in many ways more able to effectively and efficiently respond to disasters and emergencies today than they were a few decades ago. Better training for those working to mitigate disasters, improved technical capabilities and availability, and more responsive structures and mechanisms have been established. Yet, too little attention is devoted to the issues which exacerbate the risk, magnitude and impact of crises. The media, researchers and agency leaders, highlight issues for a short and sharp period, seeking to rapidly mobilise resources. While this focuses attention to acute disasters, and by anaology to such other issues as HIV/AIDS, pandemic influenza, bioterrorism, and global warming, there is, however, a simultaneous neglect of many of the underlying structural factors that may be common to all. A health and human rights analysis may help identify and respond to common roots of vulnerability to these multiple challenges[3].

We need to take a step back and ask questions about how our societies and interactions are organised at local and global levels, how we develop responses to adversity, what agency we place in the hands of people, and how resources are distributed and controlled. While these issues seem abstract with a long time-horizon, and the disasters and emergencies are immediate, we must recognise their effects on both man-made and natural disasters, their occurrence, our ability to respond, and on the substance and direction of reform that follows in its wake.

Ensure our response to disasters and crisis does not make things worse

We must consider the impact and effects of international community interventions. While there is little doubt that international solidarity has played and should continue to play a central role in the response to major disasters, the huge amount of funding raised, the wide range of agencies operating, and the limited skills and professionalism of some of these actors, often leave negative effects for many who are ostensibly the recipients of such interventions. In parts of Sri Lanka affected by the Tsunami, considerable new funds were avail-

able to rehouse those affected, but sometimes these resources were earmarked for people of a particular faith group. Resettlement plans took insufficient consideration of the need to keep populations close to their source of livelihood, sometimes moving fishermen away from their coastal homes. Inappropriate technology and equipment were poured onto the scene with inadequate consideration of their safety and usefulness. In most cases funds were available for those who had been displaced by the Tsunami, but not for those affected, as adversely, by protracted civil conflict.

Any intervention, emergency or development, should demonstrate sensitivity to local context: the nature of the conflict or emergency, the local cultures and communities present, their demands, languages, religions, rituals and customs[4]

It should not exacerbate existing inequities and inequalities and should seek to promote the establishment of trust, of social cohesion, and the extension of rights and participation[5]. A simple example is illustrative: working closely with local communities to determine how best to bury those who have been victims of the disaster, how to respect their memories and stories, how to deal with those whose fate remains unknown, and how to move ahead while recognising the tragedies of the past is crucial. Pressure to move on and incorrect fears of disease spreading, led to the disposal of bodies in mass-graves, without due attention to community needs to bury, and grieve, in keeping with community values and custom.

Listen to what communities are saying: they know what we don't

Crucial to promoting the objectives mentioned above is the engagement of communities – listening to them, hearing about their experiences, their needs, preferences and demands. It is only through effective engagement with communities that those seeking to assist and to provide needed services can do so with the degree of sensitivity to local context that is required if local initiatives are to be respected and strengthened. Community members are active agents of their own destiny, and although communities may be heterogeneous, comprising multiple sub-groups with different agendas, they all seek a degree of agency and influence over their environment, including the services available to them and especially those provided for them. People retain their dignity, their desire, and their rights; it is the responsibility of the public health community to respect and reinforce them. We need to listen to, and respond, to what we hear from those affected, including those with least resources, children and young people, women, older people, and local service providers. It is through responding to their narratives and stories that better responses can be fashioned.

Build responses around agency, resilience and supporting local capacities: affected communities must be the subjects and not merely the objects of disaster response

Although disaster mitigation and response occur in times of acute crisis and need, they should build on the agency, the dignity, the resilience, the capacity and the ongoing action of local actors, organisations and systems. Virtually every critique of the response to the Boxing Day Tsunami acknowledges that the vast majority of effort came from communities and service providers already present on the ground as they promptly responded to the immediate needs around them. Supporting local community and other civil-society structures, as well as local government, to support *their* response to the short and longer terms needs and to foster greater trust and true partnerships between them and international NGOs and donors, would be of value. Only then will disaster reponse be effective and its impact long-lasting.

Public health personnel can contribute substantially (Box 1). Recent work in Timor-Leste demonstrated a high degree of commitment to professionalism within the health services despite ongoing violence and instability, fear, and displacement. Health workers drew upon their training and health worker identities to highlight their commitment to serving the community, and to maintaining their neutrality in relation to a divisive internal political power-struggle which had "ethnic" overtones.

Learn lessons and promote accountability

We must be accountable for what we do, and, also for what we fail to do. Better practice needs to be informed by evidence, and evidence needs to be built up from a range of sources including the experiences and narratives of affected communities and service providers, whether gathered informally or through more systematic enquiry and research[6]. Service providers often have to take difficult decisions in environments where priorities are competing. Who will benefit from support and in what ways? What short and and medium-to-long term negative impacts might result from an ill-designed emergency response? How can effective engagement both overcome the acute crisis while building greater community resilience? Actions must be carefully documented and analysed, even if some negative experiences may emerge. Limitations and weaknesses must be declared so they can be addressed and rectified in the future.

Ensure that whatever systems and structures are re-established after the crisis are an improvement over what was previously in place

Crisis present opportunities for change and in their aftermath may offer opportunities to promote greater equity and accountability. Tackling the big and important issues of the day will include addressing structural issues including how we organise our societies and service provision, how resources are mobilised and used, who controls them and how, and with what agendas and objectives in mind. The

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Box 1
Examples of lessons learned from the Humanitarian Response to the Boxing Day Tsunami: Coordination

- invest in standby humanitarian response capacity by supporting strategic partnerships that tap into NGOs and locally available expertise

- develop a standing global response mechanism under the auspeices of the UN

- improve civil-military liason and communication

- clarify who is to coordinate disaster recovery and not just emergency responses

Displacement and protection:

- the particular needs of internally displaced people (IDPs) should be rapidly addressed

- IDPs need to be involved in relief planning from the outset to help ensure that aid is fairly distributed and pre-existing inequalities are not reinforced

- UN Guiding Principles on Internal Displacement should be extended to natural disasters

Closing the gap between relief and development:

- early national ownership and participation in design and implementation of recovery programs are essential

- local disaster management personnel can help ensure that recovery programming considers the needs and capacities of affected populations

- risk reduction measures should be incorporated into post-disaster recovery efforts

Civil society and local engagement:

- recovery programming must be based on sound participatory assessments of needs and capacities of the affected populations

- external agencies and local institutions should work together to prepare pre-disaster plans and build response capacity of local organisations

- assist communities to protect themselves and their property from the impact of disasters

- local initiative, resources and capacities should be fully understood and utilised

- consultation mechanisms and priority setting activities contribute to building consensus around recovery priorities

Source: Couldrey and Morris, 2005. Drawn from report to UN's Economic and Social Council (ECOSOC) *"Strengthening emergency relief, rehabilitation, reconstruction, recovery and prevention in the aftermath of the Indian Ocean tsunami disaster: report of the UN Secretary General", July 2005.*

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deserve attention; critique of emergency interventions, the transition to development, and the role of different players from NGOs to government, United Nations to donors, is a necessary part of this process.

Together these form an important agenda – touched upon by many in the papers presented here, but warranting attention, resources, time and energy in the future.

Learn globally, act locally

While each disaster presents its own context-specific lessons, experience and insights derived elsewhere can and must be built upon if we are not to repeat the same mistakes time and again. Some lessons, at least in broad terms, can be derived from such experience. As we assess the performance of key agencies, we need to ask questions not only about efficiency and effectiveness of responses, but also about equity. Our own work has revealed that the response to the Tsunami in countries such as Sri Lanka, and in Aceh, Indonesia, were often inconsistent, reinforcing inequities through who received access to services and support, and in what measure. Reinforcing greed and grievance, in the aftermath of disaster, may predispose to or fuel pre-existing social conflict, violence, and distress.

The recent Tsunami Evaluation Coalition identified numerous problems in the response[7] and recommended four important areas for attention (see Box 2). We would do well to consider them carefully, now and into the future. Such shortcomings as unclear institutional mandate and capacity of relief agencies, lack of coordination rooted in overlapping and at times diverging programmatic directions, mismatch between secured resources and implementing capacity should all be brought under scrutiny in the post-crisis period. The purpose of such exercises is not to name, blame or shame but to progress towards greater international capacity to support local responses.

lack of equitable resource distribution, the trampling of rights, the omnipresence of structural violence, and the limited accountability of powerful stakeholders, deserve attention through ongoing scrutiny and critique and engagemenet with those seeking to enhance participation, social justice and equity. Ongoing critique and enhanced accountability structures

Introduction to articles appearing in the Special Issue

This Special Issue of the Asia-Pacific Journal of Public Health seeks to place a number of perspectives on the table to facilitate this ongoing effort of reflection and lesson-learning. Papers were submitted following a public call – 23 articles were received of which nine have been selected for publication following peer review. We have papers from Thailand, Sri Lanka, Hong Kong, the USA, Australia and Britain, with a focus on prevention, service provision, mitigation and reconstruction. The result is broad but necessarily imperfect: we cannot claim comprehensiveness of the issues debated, total accuracy and objectivity of the information presented, nor of the geographic areas covered. We hope, however, that each paper will tell a story, both of the subject matter addressed, and of the engagement of the authors in the issues at stake. Many issues which were invited in the call for papers were not taken up and we have little to present on conflict and man-made disasters and the implications for affected communities. We touch on this through debates on human rights, the impact of the Tsunami in conflict-affected Aceh and Sri nami in conflict-affected Aceh and Sri Lanka, and HIV in Nepal. More detailed analysis of fragile states and of the challenges of providing health care in contested environments will need to be another project.

The first paper by Hui and Ng comes from a political science and international relations perspective. It focuses on the issue of SARS and the politics of formulating a response in Greater China – examining the relationships between mainland China, Hong Kong and Taiwan during a period in which high levels of communication were required to address an emerging problem. It highlights the diverging political interests and bureaucratic practices which contributed to poor coordination and communication. It reminds us of how politics within and between nations affect public health and health programming. It underscores how political are issues such as revealing data on infectious disease outbreaks, especially in today's globalised world where news travels instantenously and economic and poltical effects can be massive and virtually immediate.

The two papers which follow reflect on preparedness and prevention, focusing attention, in particular on the human resources necessary to provide effective responses. Limpakarnja- narat *et al* from the Thai Ministry of Health and collaborating partners highlight the value of prior training and preparation in facilitating the effectiveness of the response to the Tsunami in Thailand. They emphasise the country's long-term commitment to public health workforce capacity-building and the related health infrastructure. It suggests that emphasis on rapid health assessments, surveillance, and outbreak response provided critical information to inform the determination of public health priorities and medical needs of the affected populations. Ferrier and Spickett also highlight the issue of preparedness, in this case focusing on reducing vulnerabilities and addressing environmental health, including water and sanitation needs, in advance of crises and disasters. Both papers emphasise that the "surge capacity" required to effectively address crises needs to be built up in advance and in place when disaster strikes.

Given the magnitude and power of the Tsunami, in reality and in its symbolism, it is not surprising that it provoked the majority of contributions to this special issue. The paper by Wickramage is an impressive photoessay, created as a series of reflections and insights derived from working in the field in post-Tsunami Sri Lanka. The powerful images and accompanying narrative, highlight the dilemmas and difficulties which characterise an engagement with urgent humanitarian relief needs while needing to also consider the longer term issues of capacity enhancement, local ownership and agency, development and sustainability.

The next three papers are each very different but all have a clinical angle: Wickramasinghe *et al* ask questions concerning the quality of care provided to Tsunami-affected and displaced Sri Lankans. Jeremijenko et al. describe an epidemic of tetanus in Aceh in early 2005, following wounds sustained during the Tsunami. This is usually a rare and often fatal condition, mortality was in this case limited to 19% of those affected. The

authors describe the clinical features, treatment, outcomes and policy and practice recommendations. Chan and Sondorp draw attention to the increasing burden of chronic disease contrasting this with the attention of most post-disaster interventions on the provision of acute medical services and the control of communicable diseases. The authors attribute this to a range of factors: lack of awareness and insensitivity of relief workers to chronic medical conditions, the practice of risk-based rather than need-based assessments, a focus on acute needs, the lack of reliable indicators and baseline information, and the multi-dimensional characteristics of chronic medical problems. They argue that assessment tools should be developed to rapidly identify chronic medical needs in resource deprived settings and that community partnership and collaboration is needed to promote local ownership and transfer of chronic disease management skills.

Weinstein and colleagues describe the results of an investigation into how the Boxing Day Tsunami and its aftermath affected the human rights of the survivors. Teams of researchers interviewed survivors, government officials, representatives of international and local non-governmental organisations, UN officials, the military, police, and other key informants in India, Sri Lanka, the Maldives, Indonesia, and Thailand. They analysed newspaper articles and reports from a wide range of sources and examined also the laws and policies related to survivor welfare in these countries. They describe human rights violations, inequities in aid distribution, lack of accountability, poor coordination of aid, and a lack of community participation in reconstruction – issues which are repeated time and again in the aftermath of disasters. Corruption and pre-existing conflict had a negative impact on humanitarian interventions. They conclude that a human rights framework offers significant protection to survivors and should play a critical role in disaster response.

Jones *et al* highlight the impact of the Tsunami on Aceh and highlight needs and responses in relation to psychosocial and mental health problems. They describe the impact of the disaster, and pre-existing conflict on Acehnese society, and present the experience of an international non-governmental agency addressing emergency mental health and psychosocial needs in an integrated way. They sought to offer a continuum of care incorporating psychosocial support for the wider community and clinical services for the more severely affected. Their model included engagement with the indigenous system and the development of psychosocial support activities in partnership with local communities. Community-based clinical mental health services were established by identifying and building locally-based capacity at the primary health care level, and potentially sustainable services were set up in collaboration with the Ministry of Health. They emphasise that crisis provided an unexpected opportunity to address longstanding community mental health needs.

And beyond all these issues, remain silent emergencies persisting in the Asia-Pacific, in countries such as Burma, Nepal, Sri Lanka, Indonesia and many more.

We present also two small boxes to address neglected areas. Particularly important is a focus on gender issues which highlights the silence surrounding the incidence of rape and sexual abuse of women and girls displaced by natural disasters and conflict. Reports of increased domestic violence and abuse have emanated from all tsunami affected countries, leading to the subsequent adoption of a United Nations Resolution in which governments made commitments to address gender issues and sexual abuse in disaster situations. The work reflected here draws attention to the value of effective documentation backed up by advocacy.

A second brief report draws attention to how conflict and displace-

ment in Nepal affects vulnerabilities to HIV and exposure to the virus. Data were collected during an exploratory field study suggesting that the impact of the conflict and the responses of those affected have given rise to a range of vulnerabilities to HIV, all interacting with the particular context in which people in Nepal find themselves. The paper concludes that the conflict and forced migration increased vulnerability and exposure to HIV infection.

In all these chronic ongoing crisis, poverty, inequity and ill-health are major features of the lives of millions of people. Ill-health in such fragile settings is aggravated by adversity and violence, and is frequently associated with structural violence and overt repression. Beyond our region are other complex political and humanitarian emergencies: Darfur, Zimbabwe, and the Democratic Republic of Congo, and other states in which minorities are repressed or suppressed. In these chronic emergencies, human suffering and social injustice receive far less international attention than those which manifest more actuely. Yet, literally millions of people in these places have lost their lives and the future of many young people is in jeopardy.

And as this editorial is written, natural and man-made threats to human security continue, with populations inadequately prepared for impeding crisis, precursors of collective violence ignored, promised help not materialising … all of these with limited public knowledge and attention. These so-called silent emergencies are only silent to those who do not want to hear. We, public health practitioners, must be able to listen to the silence. The international public health community can play a role through growing and developing the expertise and courage to document and reveal to political and policy leaders the many tragedies unfolding around us, or those which are likely to emerge. Our trust in the value of public health would be purposeless if we did not

engage in the promotion of social justice, equity and human rights.

References

1. Telford J, Cosgrave J. Joint evaluation of the international response to the Indian Ocean tsunmai: Synthesis Report. London, Tsunami Evaluation Coalition, July 2006. Available at http://www.tsunami-evaluation.org/The+TEC+Synthesis+Report/Full+Report.htm. Assessed 18 June 2007.
2. United Nations Secretary-General Kofi Annan. Millenium Report, Chapter 3, p.43-44. Available at http://www.un.org/millennium/sg/report/full.htm 08/22/01. Assessed 18 June 2007.
3. Gruskin S, Tarantola D. Health and human rights. In: Detels R, Beaglehole R, editors. Oxford textbook on public health. New York: Oxford University Press; 2001. p. 311-35.
4. Zwi AB, Bunde-Birouste A, Grove N, Waller E, Ritchie J. 2006. The Health and Peacebuilding Filter and The Health and Peacebuilding Filter: Companion Manual. Sydney, School of Public Health and Community Medicine, University of New South Wales (copy available from authors or from web at. Available at http://www.sphcm.med.unsw.edu.au/SPHCMWeb.nsf/page/AUSCAN. Assessed 18 June 2007.
5. Grove N, Zwi A, Silove D, Tarantola D. Psychosocial health and human rights: fair weather friends? Examining post-tsunami interventions in conflict-affected areas. Australian Journal of Human Rights 2005; 11(2): 71-94.
6. Banatvala N, Zwi AB. Public health and humanitarian interventions: improving the evidence base. *BMJ*, 2000; 321: 101-105.
7. The Tsunami Evaluation Coalition, Joint Evaluation of the International Response to the Indian Ocean Tsunami: Synthesis Report (July 2006). Available at http://www.tsunami-evaluation.org/The+TEC+Synthesis+Report/Full+Report.htm. Assessed 18 June 2007.
8. Couldrey and Morris, 2005. Drawn from report to UN's Economic and Social Council (ECOSOC) "Strengthening emergency relief, rehabilitation, reconstruction, recovery and prevention in the aftermath of the Indian Ocean tsunami disaster: report of the UN Secretary General", July 2005.

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Abstract

This paper examines the problems of coordination between and within six jurisdictional players, namely the Hong Kong SAR Government, the Guangdong Province, the Central Authority (PRC), the Taiwanese Government, the Taipei Government and the World Health Organization during the SARS episode from November 2002 until August 2003. We found that the diverging political interests and entrenched administrative practices accounted for the poor coordination between and within these players. The obsession with "political correctness" has severely hampered "rational" decision making among the jurisdictional players. The highly fragmented and compartmentalised intra-jurisdictional public health system means that marshalling resources from health and non-health sectors is difficult. *Asia Pac J Public Health 2007; 19(Special Issue): 7–12.*

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Politics and the Management of Public Health Disasters: Reflections on the SARS epidemic in Greater China

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Introduction

During early 2003, a number of Asian countries were been deeply troubled by the outbreak of the SARS crisis. Apart from serious disruption of daily socio-economic activities, the crisis unveils the institutional vulnerabilities that are latent in the governing systems of these countries. The purpose of this paper is to identify the problems of mis-coordination with reference to how the three governments in Greater China, namely Hong Kong, Taiwan and China responded to the SARS crisis. This paper argues that the capabilities of coordination of these governments during the SARS episode are heavily defined by the political relations between and within different jurisdictional players.

Before discussing how politics affects coordination of different relevant sectors within and between three jurisdictions, an overview of the outbreak of SARS crisis from 2002-2003 is provided. The outbreak can be dated back to the emergence of an unusual atypical pneumonia in Foshan, Guangdong Province in November 2002. Following that, there were more reports on the disease reported in Hong Kong, Singapore and Toronto[1]. When first discovered, the etiological agent of SARS was unknown in humans[2]. First named to be an atypical pneumonia, it was later identified to be an unknown type of coronavirus, SARS coronavirus (SARS-CoV) which is suspected of originating in animals[2]. As a novel epidemic, SARS presented a worrying case since its syndromes are very similar to those of the common flu, with high person-to-person infectivity[3]. Among all countries with identified SARS cases from November 2002 to August 2003, the China mainland, Hong Kong and Taiwan have the highest number of cases and deaths: 5,327 cases identified and 349 deaths in the Mainland China (mortality rate 6.55%); 1,755 cases identified and 300 deaths in Hong Kong (mortality rate 17.09%); and, 665 cases identified and 180 deaths in Taiwan (mortality rate 27.06%)[4].

Prior to the outbreak of the crisis, little scientific knowledge was available about the etiology of the coronavirus. Under this circumstance, medical professionals and politicians who were actively involved in public health governance of the respective jurisdictions faced unprecedented challenges. Unfortunately, the strenuous effort of the medical professionals in working out possible medical treatment was not paralleled by the development of appropriate and coordinated government policies. We delineate two kinds of coordination in

this paper, namely negative co-ordination and positive coordination. Negative coordination refers to an end-state with minimum incon-sistencies and contradictions between policies and programmes launched by various jurisdictional players[5]. Positive coordination is understood to be the presence of agreed routines, norms and consensus that can facilitate the transactions of in-formation and resources within and among jurisdictional players.

The jurisdictional players should not be considered to be a monolithic entity; instead they are composed of many bureaucratic, political and professional entities, be they health-focused or non-health focused. At least six major jurisdictional players can be identified throughout the epidemics, namely the Hong Kong SAR Government, the Guangdong Province, the Central Authority (PRC), the Taiwanese Government, the Taipei Government and the World Health Organization. By gathering and analysing studies and reports devoted to the subject matter of this paper, we found that the interactions within and among two or more of these six jurisdictional actors have not arrived at the stage of negative coordination throughout the crisis; there are however signs that these players were proactively cultivating means, though ineffectual sometimes, to harmonise interactions. This paper is based mainly on library and desktop research in order to understand the public health systems of China, Hong Kong and Taiwan at the time of SARS outbreak. More specifically, we examined the problems in inter-jurisdictional coordination and intra-jurisdictional coordination during the period of study.

SARS crisis management in the Greater China

Inter-jurisdictional Coordination

Endowed with different interests, resources and capacities, the six jurisdictional players have different modes of public health governance.

In additions, these jurisdictions have their own idiosyncratic patterns of linkage with one another. These conditions must be considered in conjunction with their positions in international politics, which affect their access to resources and information. In contemporary politics, the level of "legitimate" engagement is defined largely by the sovereign status of the jurisdictional players. Theoretically speaking, when a collective action for addressing public health missions is urgently needed, it is expected that these players, with their comparative advantages, will pool their resources together in their mission. However, a different picture has emerged during the handling of the SARS crisis.

In international politics, the controversial issues of sovereignty could lead to a "coordination void" between jurisdiction players. The most salient example is the cleavage between Taiwan and WHO. On 19th March 2003, the Taiwanese Govern-ment sent the first letter to WHO expressing the regret of being "mis-takenly" identified as a province of China. On the following day, the Taiwanese Government sent a second letter requesting for logistical support and information concerning SARS but was rejected. The reason is that the WHO membership is on state basis and Taiwan is not considered to be a de jure state. In a later communi-cation, the Taiwanese Government toned down its demand, requesting to be invited to be an observer of WHO. The Foreign Ministry of Taiwanese Government asserted that there were legitimate grounds for Taiwan to be invited as an observer because of the importance of information and knowledge sharing and adequate international resources in developing responsiveness of crisis management[6]. In responses to the diplomatic manoeuvres by the Taiwanese Government, the Central Authority of China reiterated its stance noting that Taiwan is an inalienable part of China. From the Central Authority's point of view, any attempts that used disease

to challenge such stance should be considered a pretext and hence should be dismissed[7]. Wenkang Zhang, the former Health Minister of China, reaffirmed the position of the Central Authority: "We hope that the leaders of the Taiwan authority would stop spreading rumours with ulterior motives, or even use the disease as an excuse… or in the name of human rights to try to enter the World Health Organization, which is only open to sovereign nations"[8]. Despite des-patching two experts to Taiwan and the invitation of one Taiwan legislator, who was on good terms with the Mainland Authority[7], to the WHO's Global Conference on SARS in Kuala Lumpur, these gestures remained piecemeal and ad hoc actions and channels of communication between Taiwan,WHO and naturally, the China mainland, were blocked.

Central-local coordination presents another set of challenges that undermines the effectiveness of policy directions. Most jurisdictional players with a federal system have developed agreeable protocols or mechanisms on which communication between central and local governments. Whether these protocols and mechanisms are attached with serious commitment by relevant policy players is another matter. Moreover, despite the presence of these protocols and mechanism, a highly stratified top-down system of central-local relationship often implied that moving information and requests upward is usually distorted and downplayed by the lower level authorities. The res-ponse by the provincial governments in China is illustrative of how the scale of crisis can be exacerbated by political infightings between the central and local governments. The usual practice of secrecy, which permeates admini-strative practices of local and pro-vincial governments was orchestrated during SARS and vividly depicted by extensive media reports. Dominated very much by a belief that "a serious matter can be reduced in scale whereas a small one reduced to nothing"[9], the local authority such as Guangdong

Province resorted to hiding information from the Central Authority[10].

The institutional goal of maintaining social stability was the reason for downplaying the severity of the SARS crisis. The value of this institutional goal was further elevated by the preoccupation of the Central Authority with the transition of leadership[11]. It was when the spread of the epidemics could no longer be contained that the provincial leaders of Guangdong sent a letter to the Politburo acknowledging the grave situation[12]. Indeed, the practice of secrecy and procrastination backfired when there was an explosion of information and misinformation about the severity of crisis. These competing accounts triggered high levels of fear among local citizens leading to the panic bulk purchase of personal protection equipment. This had the unfortunate consequences of affecting the supply of such protective equipment for the frontline staff in hospitals dedicated to the control and treatment of SARS in Hong Kong.

Similar problems of discord occurred in Taiwan as evidenced by the political infighting between the Department of Health in Taipei and the Department of Health in the Executive Yuan. The disputes over the issue of when to categorise SARS as a statutory communicable disease had been considered to be unhelpful in mitigating the crisis. When the Department of Health in Taipei put pressure on the Department of Health in the Executive Yuan to categorise SARS as the "fourth" category statutory communicable disease which then would provide legal power for enforcement measures such as immigration controls, the latter pursued the tactics of procrastination arguing that the former had neglected the issue of personal privacy[13]. The peculiar term "semi-statutory communicable disease" that has emerged from this political infighting is a very telling sign of weaknesses in policy coordination between central and local governments. It is after President

Shui-Bian Chen proposed the policy principle of "doing more than it should" that the Department of the Health of the Executive Yuan finally put SARS as the "fourth" category statutory communicable disease[14,15].

The "One Country, Two Systems" formula which has been used to regulate the relationship between the Central Authority and the Hong Kong government was put under a test during the SARS crisis. At the onset of the SARS episode, "public health professionals in the Department of Health had been unable to obtain information from their counterparts in Guangdong province, and collaboration between clinicians and medical academics in Hong Kong and Guangdong had been patchy and piecemeal"[4]. The fundamental problem about across border coordination is the "One Country, Two Systems" framework. Indeed, there has been speculation that the Hong Kong government, out of the need to be "politically correct", was reluctant to name the China mainland as the source of SARS[16]. In early February 2003, Dr. Margaret Chan, the former Director of Health, had instructed her colleague to follow up the news reports with health officials in Guangdong through telephone, fax and a letter on "the number of people affected, their age group, causative agent, signs and symptoms, treatment and fatality"[17]. However, there was no response to all these requests. The most plausible explanation is that the confidential nature of an infectious disease implies that any disclosure by the local government will be considered as inappropriate. It was only after the Director of Health directly contacted the Ministry of Health in Beijing that a channel of communication was established. This does not of course discredit the centrality of the Central Authority embodied in the "One Country, Two Systems" framework for introducing complexity in governing relationship between Hong Kong and the Mainland China. It highlights instead the need to renew the attention

to ways of enhancing the interactions between Hong Kong and other provinces in the Mainland China without compromising the centrality of Central Authority.

Throughout the SARS crisis, WHO acted not merely as a jurisdictional player that promoted inter-jurisdictional coordination but also an institutional entrepreneur in defining the mode of interactions in global health networks. GOARN (Global Outbreak Alert and Response Network) of WHO developed to become "an operational platform to mobilize clinicians, data managers, infectious disease experts, epidemiologists, laboratory experts, logistics experts, medical epidemiologists, microbiologists, media experts, pathologists public health specialists and virologists as part of the international effort to address this global public health emergency"[18]. Whilst WHO has capitalized upon the extensive network of expertises and government departments, there have been several political problems that are beyond the capacity of WHO to resolve. First, there is the dilemma that being an international organisation that was mandated to conduct multilateral public health diplomacy, WHO throughout the crisis has acted unilaterally. Examples are the listing of "affected area" and the issue of travel warning which were considered to be unwelcoming by some of the SARS-affected cities. In addition, WHO is still "partially multilateral" in that its sphere of actions does not go beyond state level of the public health governance. Interestingly, it can be observed that whilst Hong Kong and Taiwan are reckoned to be non-state jurisdictional actors, Hong Kong seems to have better liaison with WHO than Taiwan. The possible reason for this variation, as the crisis unfolded, could be the pragmatic concern that putting Taiwan on WHO's agenda would stir up unnecessary troubles and discourage China from providing critical epidemiological information.

Intra-jurisdictional Coordination Problems

The intra-jurisdictional coordination problem is characterised by political infightings across different depart-ments and the absence of coordinating mechanism that can marshal resources and powers from sub-players within a single jurisdictional player. Indeed, the heavy reliance on bureaucracy suppressed the flexibility and creativity that were required to facilitate timely responses. Such problems of over-bureaucratisation produces a situation in which negative coordination and political infighting prevails[19]. Those pre-assigned terms of reference of different departments of government are not easily amend-able to effective changes. When public health is concerned, the problem about bureaucratization is even more complicated as technical/medical and political domains are not necessarily on good terms with one another[20].

In Hong Kong, according to the SARS Expert Committee, the HWFB, Department of Health and the Hospital Authority were responsible for the following during the SARS epidemic:

- HWFB (Health Welfare & Food Bureau): mapping out a strategy for managing and controlling the epidemic, coordinating efforts in the health sector and overseeing Hong Kong's emergency response;

- Department of Health: under the policy direction of HWFB, undertaking all the necessary public health functions, including disease surveillance, contact tracing, enforcement of public health legislation, liaison with HA and the health community, public education, and liaison with the Mainland health authorities and WHO and the international community; and

- Hospital Authority: mobilising and managing its resources in the public hospital system[4].

The Secretary of HWFB (SHWF) was expected to direct the battle over SARS: preparing a strategy, co-ordinating efforts within Hong Kong and within the health sector in particular to manage and control the epidemic. However, the HWFB is bereft of the necessary human resources supporting policy formu-lation. The SHWF also lacks the capacity to coordinate the activities and responsibilities of the Department of Health, Hospital Authority and the private sector[4]. A former legislator representing the constituencies of the health sector argued that "the private sector had been neglected in a compartmentalised health-care system. Private hospitals and doctors are looked at as problems, rather than as partners"[21]. Although the line management relationship between SHWF and DH is clear, there is still a problem between the policy making bureau and the professional executive department. For instance, SHWF has accountability for the health system as a whole but the statutory public health powers are vested in the Director of Health[4].

Recognising the limitations of the erstwhile mode of division-of-labour, two coordination mechanisms namely the Chief Executive's Steering Committee (CESC) and the Inter-departmental Action Coordinating Committee (IACC) was set up with a view to facilitating multi-sectoral coordination[17]. The CESC serves as a "commanding body in steering for the Government's responses to SARS"[17]. The major tasks, among many, are the dissemination of in-formation; enhancement of health check measures; introduction of home confinement; enhancement of in-vestigation work; and liaison with the Mainland authority[17]. The IACC was chaired by the Permanent Secretary of HWFB and included members of over 25 bureaux, departments and public bodies to coordinate the imple-mentation of decisions made by the CESC and SHWF[4]. At that point, SHWF's role was to personally co-ordinate the respective work of the

Hospital Authority and the Depart-ment of Health and focus on the health sector[17]. It is under the new political setting that SHWF could assume effective functions of mustering resources.

In Mainland China, the most readily identifiable tension between different departments is the fragmen-tation between the Party's Department of Propaganda (DOP) and the Ministry of Health which represent different political interests[9]. Whilst the Ministry of Health of the Central Authority and Guangdong Health Bureau would like to disclose information about the health status and the possible preventive measures, such manoeuvres were constrained by the "legitimate parameter" set forth of DOP at national level and at provincial level[9]. The dissemination of the sensitive information that is perceived to damage the image of the Party has been filtered by the Party's organ. Indeed, DOP can serve the purpose of promoting the alert about the extent of crisis; however, the obsession about maintaining political legitimacy has discouraged DOP from embarking on that. Combined with the bureaucratic culture of secrecy, it is therefore no surprise that the top echelons of the Central Authority realised the situation so belatedly. After being informed of the situation, these top echelons exerted an effort to combat the disease and dismissed incompetent govern-ment officials[9].

The intra-jurisdictional interaction within Taiwanese government seems to be much more peculiar. Although Taiwan has already set up the National Disasters Prevention and Protection Commission in 2000, the Taiwanese government did not rely on the relatively institutionalised structure. This is because public health has not been considered as a major disaster relevant to this Commission. During the crisis, the Executive Yuan of Taiwanese government established another policy infrastructure for SARS[22]. The final structure of the Executive Yuan's Severe Acute Respiratory Syndrome Prevention and

Alleviation Committee which was tailored to the need for multi-sectoral coordination during the SARS crisis was established belatedly on 28 April 2003. From a public administration point of view, however, learning the policy style in a novel setting is a painstaking exercise and is particularly ill-suited when political resources is in shortage. Indeed, this misfortune could have been easily avoided as there was already a proper structure provided by the National Disasters Prevention and Protection Commission[23]. Whilst the Central Government was still vacillating about the structure of the coordinating framework for combating SARS, the provincial government and hospital had been operating their respective systems. For example, immediately after the closing of Hoping Hospital (25 April 2003), the Taipei Fire Department invoked the disaster prevention and rescue plan. On the basis of this plan, the SARS Disaster Management Centre, which was a multi-sectoral collaboration between different departments of the Taipei city government, was developed[24].

Lessons learned

Putting the discussion in perspective, it is observed that the jurisdictional players in the face of disaster and emergency are more comfortable with developing new consensus of how coordination should be reached than redressing the problem of inconsistency and contradictions in pre-existing mode of interaction. One of the possible explanations is that resolving the existing coordination problems embedded in political system is fundamentally more difficult in the time of crisis as the leverage needed to overcome inertia is considerable. By comparison, setting up novel means of coordination seems to be less costly. Definitely, it is not to project an image that jurisdictional players should be complacent in its ability to improvise proper actions; rather jurisdictional players should identify different policy alternatives

well before any public health crisis and liaise with the relevant players so that critical resources will not be wasted on politics.

References

1. Peiris JSM, Yuen KY, Osterhaus ADME, Stöhr K. The severe acute respiratory syndrome. N Engl J Med 2003; 349: 2431-2440.
2. Peiris JSM, Guan Y, Yuen KY. 2004. Severe acute respiratory syndrome. Nat Med 2004; 10: S88-S97.
3. Leung PC, Ooi EE. SARS War: Combating the Disease. Singapore: World Scientific, 2003.
4. SARS Expert Committee. SARS in Hong Kong: From Experience to Action. Hong Kong: SARS Expert Committee, 2003.
5. Peters BG. Managing horizontal government: the politics of co-ordination. Public Administration 1998; 76:295-311.
6. Ministry of Foreign Affairs. The Global Health Imperatives for Inviting Taiwan to be an Observer of the World Health Assembly (WHA). Taiwan: Ministry of Foreign Affairs. Available at http://www.mofa.gov.tw/webapp/public/Attachment/5541145771.pdf. Accessed 11 April 2006.
7. Loh C. The Politics of SARS: WHO, Hong Kong and Mainland China. In: Loh C. (editor). At the Epicentre: Hong Kong and the SARS Outbreak. Hong Kong: Hong Kong University Press, 2004: 139-162.
8. Mainland to Offer All Possible Health Assistance to Taiwan People. BBC Monitoring International Reports 2003 April 3. Available from: Lexis-Nexis. Accessed 11 April 2006.
9. Zheng Y, Lye LF. SARS and China's Political System. In: Wong J, Zheng Y, (editors). The SARS Epidemic: Challenges to China's Crisis Management. Singapore: World Scientific, 2004: 45-76.
10. *Huo Y. Zhengfu dui gonggong weishend de wenji guanli: zhongguo SARS weiji fansi* [Government's public health crisis management: reflections from SARS crisis in China] [dissertation]. Xian: Northwest University, 2004.
11. Christensen T, Painter M. The politics of SARS – Rational responses or ambiguity, symbols and chaos? Policy and Society 2004; 23: 18-48.
12. Lai H. Local Management of SARS in China: Guangdong and Beijing. In: Wong J, Zheng Y, (editors). The SARS Epidemic Challenges to China's Crisis Management. Singapore: World Scientific, 2004: 77-98.
13. Shi J, Yang J, Zhan S. *Beishi Pi Weishu Buying Bandiaozi Qiushushi Biaoshi Meikanguo Zhufadingchuanranbing Mingci* [the Department of Health of Taipei Criticized Department of Health of Taiwan: The Half-Way Measures should be Avoided. Miss Qiu Never Heard of the Term Semi-Communicable Disease]. *Lianhebao* [serial online]. 2003 March 26 [cited 2006 Apr 11]. Available from: WiseNews.
14. Ye S. *Juece Zhuanwan Chongji Bianyou Tizhi*. [Swift Turn in Policy Challenges Chen and You's Political System] *Minzhong Ribao* [serial online]. 2003 March 29 [cited 2006 Apr 11]. Available from: WiseNews.
15. Wang S, *Yu Sishen Gongwu de Huangmiuju* [The Dance with the Devil: The Farce]. South News. Available at http://home.kimo.com.tw/snews1965/new_Taiwan/newtaiwan03/03013.htm. Accessed 22 October 2006.
16. Ma N. SARS and the HKSAR Governing Crisis. In: Koh T, Plant A, Lee EH, (editors). The New Global Threat: Severe Acute Respiratory Syndrome and Its Impact. Singapore: World Scientific, 2003:107-122.

17. Legislative Council. Report on "Legislative Council Select Committee to inquire into the handling of the Severe Acute Respiratory Syndrome outbreak by the Government and the Hospital Authority". Hong Kong: Legislative Council, 2004.

18. World Health Organization. The Operational Response to SARS. World Health Organization. Available at http://www.who.int/csr/sars/goarn2003_4_16/en/print.html. Accessed 11 April 2006.

19. Hui DLH, Ng MK. Absence of Sustainable Governance for Health Crisis Management: The SARS Epidemic in Hong Kong. In: Conference Proceedings for the 12th Annual International Sustainable Development Research Conference 2006. Hong Kong: the Centre of Urban Planning and Environmental Management.

20. Institute of Medicine. Future of Public Health. Washington DC: National Academy Press; 1988.

21. Benitez MA. Health Chief Admits SARS Flaws. South China Morning Post. 2003 August 23.

22. Department of Health, Executive Yuan. *Kang SARS Guanjian Jilu Gongwei Zagen Gangyi Dianji* [Record of Battle Against SARS: Consolidating the Basis of Public Health Crisis Management]. Taipei: Centre for Disease Control, Department of Health, 2004.

23. Qiu CT. Taiwan *Yinying SARS Weiji de Wenti yu Jingyan* [Taiwan's Responses to SARS: Problems and Experiences]. In: Chen DS, (editor). *Liangan Wenji Guanli: SARS Jingyan, Jiaoxun yu Bijiao* [Cross-Strait Crisis Management in SARS: Experiences, Lessons and Comparisons]. Taipei: *Jingdian Wenhua, 2005*:93-120.

24. Taiwan *Yinying SARS Weiji de Wenti yu Jingyan* [Taiwan's Responses to SARS: Problems and Experiences]. In: Chen DS, (editor). *Liangan Wenji Guanli: SARS Jingyan, Jiaoxun yu Bijiao* [Cross-Strait Crisis Management in SARS: Experiences, Lessons and Comparisons]. Taipei: *Jingdian Wenhua,* 2005.

Abstract

Thailand's long-term commitment to public health workforce capacity-building and its health infrastructure were key components in its successful response to the December 26, 2004 tsunami disaster. Surveillance and Rapid Response Teams, comprising fellows and staff from the Field Epidemiology Training Programme of Thailand, in collaboration with staff from the Thailand Ministry of Public Health – U.S. Centers for Disease Control and Prevention and the World Health Organization, enabled a rapid and an effective public health response. Active surveillance, outbreak response and control, rapid health assessments, and mental health surveys provided critical information on the public health priorities and medical needs of the impacted populations. Environmental assessments of temporary morgues led to health safety and infection-control recommendations, and computerised surveillance systems assisted in victim tracking and identification. Thailand's experience demonstrates the importance of a prepared public health sector in mitigating the impact of disasters, and supports the recommendation of the Fifty-Eighth World Health Assembly for Member States to develop preparedness plans that include building capacity to respond to health-related crises. *Asia Pac J Public Health 2007; 19(Special Issue): 13–17.*

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Long-Term Capacity-Building in Public Health Emergency Preparedness in Thailand – Short Report

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Introduction

On December 26, 2004, an estimated 225,000 deaths occurred in eight countries from a devastating tsunami caused by an earthquake off the Indian Ocean coast of Indonesia. In Thailand, six provinces with a total population of almost two million people were severely affected. As of September 5, 2005 these provinces reported, 5,395 confirmed deaths, 8,457 persons injured, and 2,817 persons missing. Among the 4,495 confirmed dead whose nationality was established, 2,059 (46%) were reported to be Thai nationals[1].

The Thai Ministry of Public Health responded rapidly to the disaster. Local and non-local medical and public health staff and supplies began arriving within six hours of the tsunami. Included in these deployments were five teams from the Regional Office of Disease Prevention and Control, Bureau of Epidemiology and Thailand's Field Epidemiology Training Programme (FETP) to conduct active surveillance and investigate potential disease outbreaks. Another three teams from the Thailand Ministry of Public Health – U.S. Centers for Disease Control and Prevention Collaboration were also deployed to conduct rapid health assessments.

The health assessments conducted one week after the tsunami indicated that, despite a huge influx in the number of patients, the medical system was intact and functioning effectively. By January 19, approximately 90,000 persons had received medical or mental health care services. Of these, 2,233 required inpatient services, 398 intensive care, and 1,264 major surgical procedures. Approximately 80,000 persons received care from the mobile health teams.

The environmental health assessments determined the safety of food, drinking water, and sea water and resulted in the implementation of health education programmes on personal hygiene, water and food safety, waste disposal, and injury pre-

vention. Although an increase in diarrhoea was detected, this was likely due to more case finding from the active rather than passive case detection and reporting[2].

The success of Thailand's tsunami disaster response was acknowledged by the international participants at the WHO Conference on the Health Aspects of the Tsunami Disaster in Asia co-sponsored by the Thai Ministry of Public Health and the WHO in May 2005. At that meeting, Thailand's FETP was recognised as producing field epidemiologists who can respond well in natural disaster situations. This article will review Thailand's long-standing capacity building activities that have contributed to the handling of the tsunami disaster.

Thailand's Field Epidemiology Training Programme

Thailand's FETP began in 1980 to train epidemiologists with career interests in public health and to improve epidemiological capacity within the Ministry of Public Health. Five years after its inception, the programme has been accredited by the Thai Medical Council, which qualifies its graduates to be eligible for the board certified examination in Preventive Medicine (Epidemiology). Currently, the programme is institutionalised within the Bureau of Epidemiology in Thailand's Ministry of Public Health, and funded primarily by the Royal Thai Government. Along with the Centers for Disease Control and Prevention (CDC) and the other 33 FETPs worldwide, Thailand's FETP is a member of the Training Program in Epidemiology and Public Health Intervention Network (see www. TEPHINET.org). All member pro-grammes are aimed at building capacity in public health practice in their host countries.

Thailand's 2-year training-and-service programme was modelled after the CDC's well-known Epidemic Intelligence Service. After one month of classroom training in the principles of epidemiology, biostatistics, and infectious and non-infectious disease epidemiology, the trainees conduct surveillance and outbreak investigations of priority diseases; conduct an epidemiologic research study, including protocol development, data collection, analysis, write-up, and presentation; and attend regular briefings and epidemiology training sessions. After completing two years of training, the FETP, with the support from the WHO, provides most trainees with a 1-3 month fellowship at an international public health agency, typically the CDC. The purpose of this fellowship is to enhance the international experience and professional networks outside of Thailand.

Since its implementation through 2005, 112 Thai trainees have graduated. Of these graduates, 83 work at the Ministry of Public Health (44 at the central government level and 39 at the provincial level); eight are faculty members at the Thai universities; two serve in the armed forces; nine work in international agencies such as the UNAIDS, UNDP, WHO, and CDC; and 10 are in private clinical practice.

In 1998, the Thailand's FETP began to train physicians from neighbouring countries in Asia. After one month of classroom training in Bangkok, these international trainees return to their home countries for field work assignment. On-site supervision is supplemented by regular visits from the Thailand's FETP staff. Like the Thai trainees, these international trainees are required to participate in public health surveillance and outbreak investigations in their home countries, conduct an epidemiology research study, and attend regular training in Bangkok. To date, the Thailand's FETP has had 16 international graduates from Malaysia (4), Myanmar (4), Vietnam (3), Laos (3), Cambodia (1), and China (1).

The FETP trainees have rapidly responded to 353 health threats to date, an average of 14 times per year. Of these, 256 (73%) were infectious disease-related; the remainder repre-sented a variety of chronic diseases, non-communicable diseases, and occupational health hazards. The recent FETP deployments include SARS, avian influenza, and the tsunami disaster.

In the tsunami's immediate aftermath, the Thailand's FETP joined with hundreds of public health staff from the Department of Disease Control to form Surveillance and Rapid Response Teams. These teams conducted active surveillance for twenty diseases plus wound infections and electric shock in all the twenty districts in the impacted provinces[2]. Surveillance was conducted from December 26 to January 2. Data for the 20 districts were collected from all the medical facilities (77 health centers, 22 public hospitals, and four private hospitals), the two shelters for displaced persons, and the two forensic identification centres. The Surveillance and Rapid Response Teams visited each site daily and collected individual case-report forms that included information on disease syndrome, age, sex, and nationality. Each day, these teams analysed data and identified the events requiring further investigation and preventive measures. This surveillance and investigation model was used subsequently by the local health authorities until the acute phase of the tsunami ended.

WHO

The long-time commitment of the WHO's South-East Asia Regional Office and Thailand's WHO Country Office's to field epidemiology training and disaster preparedness capacity building had contributed to a public health sector which was capable of responding quickly and appropriately to the tsunami disaster. The WHO disaster-related training courses conducted in the Asian region are described in Table 1. Along with these courses are a large number of emergency preparedness and response technical publications which have been distributed to government and

Table 1. WHO emergency preparedness initiatives in Thailand from 2000 to 2005

Course/materials name	Dates/location	Description
Public Health and Emergency Management in Asia and Pacific (PHEMAP)	March 2002; October/November 2002; August 2003; April 2004. All courses were offered in Thailand, and attendees represented countries from WHO's Western Pacific (WPRO) and South-East Asia (SEARO) Regions.	In coordination with WHO's WPRO and SEARO Regional Offices, the Asian Disaster Preparedness Center organised and delivered a two-week course on public health and emergency management for member states of the two regions. The PHEMAP course aims to enhance preparedness in emergency public health management at the international level for senior ministry of health staff. The course is organised by the Asian Disaster Preparedness Center, established in Bangkok in 1986 as a regional resource center working towards safer communities and sustainable development through disaster reduction in Asia and the Pacific. It has begun expanding the international PHEMAP course to national courses, and several PHEMAP training courses have been held within countries. The PHEMAP course is managed by a steering committee with WHO representation. WHO has assisted in obtaining funding through the Norwegian Embassy for PHEMAP.
Inter-country meeting on Biological – Chemical – Radionuclear Materials Emergency Preparedness Strategies	March 2003, Bangkok	This meeting was sponsored by WHO SEARO and the Organization for the Prohibition of Chemical Weapons. The objectives were to review the status of emergency preparedness in regional countries, particularly for biological, chemical and radiological emergencies, to apprise participants of existing biological, chemical and radionuclear emergency preparedness programmes at regional and international levels/treaties for biological, chemical, and radionuclear emergencies, to discuss strategies and elements for strengthening emergency preparedness for biological, chemical, and radionuclear emergencies, and to prepare draft national plans of actions for follow-up activities.
Fifth International Course on "Disaster and Development"	November 2004, Bangkok	This meeting was jointly sponsored by WHO SEARO, UNDP with technical input from ADPC. The goal was to promote a comprehensive inter-sectoral and inter-disciplinary approach to emergency response, integrating prevention, mitigation, response and recovery into a broad framework of sustainable development of both the health sector and the country.
Health Messenger issue on emergency Preparedness and response	June 2003	Several articles, published in English and Burmese, were contributed by WHO technical officers, and distributed to 7,000 health workers along the Thai/Myanmar border. *Health Messenger* is a distance learning magazine for health workers in the border areas. For some health workers it is the only technical publication they receive.
Distribution of technical resources		A large number of emergency preparedness and response technical publications have been distributed to government and non-government persons working in Thailand. All persons attending the 2002 Border Health Meeting were given an opportunity to request resource materials on emergency preparedness and response.

non-government persons working in Thailand.

Public health emergency preparedness training was also offered to the region through courses delivered by the Asian Disaster Preparedness Center, in collaboration with the World Health Organization (Table 1). In 2003, the WHO's Representative to Thailand and the Executive Director of the Asian Disaster Preparedness Center signed a memorandum of understanding between the Asian Disaster Preparedness Center, WHO's Western Pacific Regional Office and WHO's Southeast Asian Regional Office. Roles and responsibilities were designated in this memorandum of understanding, the intent being to support the Public Health and Emergency Management courses in Asia and the Pacific.

Besides training, the established coordination mechanisms made it possible for organisations to quickly join together in conducting assessments during the tsunami. The mechanisms which were established and functioning at the time of the tsunami included the following:

- regularly held WHO-sponsored United Nations Border Health Coordinating Committee Meetings,

- WHO/MOPH Annual Border Health Meetings of stakeholders,

- WHO/MOPH technical meetings with stakeholders, held two to three times a year; and

- up-to-date lists of contact information for non-governmental organisations, UN agencies, and donors, which were distributed regularly.

The WHO country office has worked collaboratively on a number of initiatives with Ministry of Public Health, non-governmental organisations and other UN organisations prior to the tsunami. The relationships that had been established made it easier to quickly coordinate activities. For example, the Ministry of Public Health, UNICEF, the International Organization for Migration, and WHO conducted an assessment mission on the health status of the vulnerable migrant population.

During the tsunami emergency, the WHO opened an operations centre in the country office in Bangkok and began participating in daily meetings held by the Ministry of Public Health. Throughout this time, the WHO continued to provide technical assistance to the Royal Thai Government, non-governmental organisations and others by responding to queries through the distribution of disaster response materials on the management of dead bodies, rapid assessments and other technical issues. WHO participated in four inter-agency assessment missions on the impact of the disaster, on mental health, and on the vulnerable migrant populations.

Thailand Ministry of Public Health – U.S. CDC Collaboration

In 1980, the CDC inaugurated the first FETP outside of North America in Thailand. Building on the trust established between the Thai MOPH and CDC and through the Thai FETP, the CDC established the "HIV/AIDS Collaboration" in 1990 to conduct the HIV prevention research and evaluate the novel public health surveillance tools and strategies in Thailand. This collaboration is now known as the Thailand Ministry of Public Health - U.S. CDC Collaboration (TUC)[3]. All research and programme activities are planned and developed in consultation with the Thai Ministry of Public Health.

The TUC has conducted the HIV/AIDS prevention research, highlighted by the study of biomedical interventions through clinical trials, the evaluation of novel public health surveillance tools and strategies, and the advancement of the science of behavioural risk assessment. In late 2001, Thailand became one of the twenty-five countries participating in the U.S. Health and Human Service/CDC Global AIDS Program. Also added in late 2001 was the U.S. Health and Human Service/CDC International Emerging Infections Program, which focuses on four main areas: surveillance, outbreak support, training, and applied research.

Following Thailand's devastating tsunami, the TUC provided critical information to the Royal Thai Government on the health status and medical needs of impacted populations. It helped to develop standardised protocols, procedures, technical assistance on disease surveillance and computerised systems for disaster victim identification and tracking, and health safety and infection-control recommendations at temporary morgues. The TUC also planned and implemented surveys assessing the mental health among children and adults in impacted areas.

Shortly after the tsunami disaster, the TUC staff was deployed to conduct rapid health assessments of the impacted provinces. Using the WHO rapid assessment tool[4], the investigators collected data on hospital characteristics; damage to buildings and communication, electricity, water, and sewage systems, adequacy and condition of health-care personnel, medical supplies, and morgue facilities; and anticipated medical needs. The TUC staff, some of whom were FETP graduates, were also involved in assisting with the development of computerised surveillance systems to assist with tracking the dead, injured, and missing. In early January, the Ministry of Public Health requested occupational and environment health teams from the Ministry of Public Health, TUC, and CDC to assess worker safety, health, and environment protections at the largest temporary morgue, handling approximately 3,000 bodies during the first three months after the tsunami. They were joined by the staff from the Armed Forces Research Institute for Medical Science, Bangkok. By mid-January, an estimated 300 persons per day were working at the temple.

Investigators learned that no overall site safety and health plan was in effect and although personal protective equipment was available, its use was at the discretion of the workers, often resulting in overuse and increased risk for heat stress and dehydration. Other deficiencies noted included: the infrequent use of eye protection; insufficient hand-washing facilities; the close proximity of rest, food and refreshment areas to forensic procedures areas, generating risk for contamination of food and refreshments; and limited worker training on bio- or physical safety. Multiple hazards were also noted, including electrical wires and open drains[5].

The investigative teams provided recommendations to the Ministry of Public Health to improve the morgue site and environmental safety. Fact sheets were developed in Thai and English regarding: 1) the low risk for infection from working with bodies or breathing air in the morgue; 2) what personal protective equipment to use when working at the morgue, and 3) what steps to take if splashed with liquid waste from a body or cut with a sharp object. In addition, the CDC staff developed guidelines for the appro-priate disposal of liquid waste from the morgue procedures. In late January, follow-up interviews with Victim Identification officials determined that many of the recommendations were implemented at the temporary morgue, including the distribution of fact sheets to workers, appropriate disposal of liquid waste, movement of food and refreshment areas away from work areas, and installation of hand-washing stations.

Conclusion

Among the conclusions of the May 2005 WHO Conference on the Health Aspects of the Tsunami Disaster in Asia was that the pre-existing governmental capacities determined the success of disaster response and the timing of health services restoration[6]. A prepared health sector could mitigate the impact of disasters by reducing avoidable deaths, injuries and illnesses. Shortly after that Conference, the Fifty-Eighth World Health Assembly urged Member States to develop preparedness plans that include building capacity to respond to health-related crises[7].

The Royal Thai Government's long-term commitment to building a public health workforce that is able to respond rapidly and effectively to public health crises was considered a critical component of its successful response to the tsunami disaster. Central to this public health workforce development is a commitment to field epidemiology training that complements academic training in public health. Through the FETP, Thailand's epidemiologists are provided with the experience of practising epidemiology in local settings.

The Thailand's FETP is mirrored by the success of the Epidemic Intelligence Service Program in the U.S., on which it is modelled. Since its establishment in 1951 to guard against biologic warfare and man-made epidemics, 2,500 Epidemic Intelligence Service Officers have been deployed to provide public health expertise in the U.S. and throughout the world (http://www.cdc.gov/eis/news/releases.htm). Recent disaster-related deployments in the United States include the September 11 collapse of the World Trade Center, anthrax bioterrorism, and the aftermath of Hurricane Katrina.

Recognising this achievement and the urgent need for epidemiologists in all sectors of health, the Thai Ministry of Public Health recently established the goal of training 200 additional field epidemiologists by 2014 through the FETP, enabling at least two epidemiologists to be located in each of Thailand's 76 provinces and eliminating staffing gaps at the central level. In addition, the Ministry of Public Health has recently established a network of 1,030 Surveillance and Rapid Response Teams in all regions, provinces, and districts to respond to public health emergencies, including avian influenza. The FETP graduates are expected to play leadership roles as part of the provincial Surveillance and Rapid Response Teams.

Thailand's capacity building approach requires a long-term government commitment to planning, partnerships, and collaboration. Field training and deployment of epidemiologists at all administrative levels is critical to a strong public health infrastructure that is capable of responding to disasters rapidly and effectively.

References

1. Provincial Civil Service Center for the Prevention of Disaster, Department of Disaster Prevention and Mitigation, Ministry of Interior, Thailand; as of September 5, 2005. Available at http://61.19.54.131/overall.php?pack=report_10. Accessed 12 May 2006.

2. CDC. Rapid health response, assessment, and surveillance after a tsunami – Thailand, 2004-2005. MMWR 2005; 54:61-4.

3. Tappero JW, Siraprapasiri T, Levine WC, Thanprasertsuk S, Dowell S, Limpakarnjanarat K, Mastro TD. Chapter 37: The Thailand MoPH - U.S. CDC Collaboration in Asia. In: Lu Y, Essex M, (editors). AIDS in Asia. First Edition. Kluwer Academic/Plenum Publishers, 2004: pages 541-559.

4. World Health Organization. Rapid Health Assessment Protocols for Emergencies. Geneva, Switzerland: World Health Organization; 1999.

5. CDC. Disposing Liquid Waste from Autopsies in Tsunami Affected Areas. Available at http://www.bt.cdc.gov/disasters/tsunamis/pdf/tsunami-autopsyliquidwaste.pdf. Accessed 12 May 2006.

6. Proceeding from the WHO Conference on the Health Aspects of the Tsunami Disaster in Asia, Phuket, Thailand, 4-6 May 2005.

7. Agenda item 13.3, 20 May 2005, WHA58.1.

Abstract

Inadequate water supply and sanitation services underscore the lives of billions of people in the developing world. This situation is compounded when natural disasters strike because the existing infrastructure is destroyed, and scarce resources are diverted to cope with the crisis and then the reconstruction. In comparison, many industrialised countries have prevention measures in place to reduce the risk of damage, and policies and actions in place to reduce the impact of the next disaster. Environmental health professionals from both government and non-government organisations can play an important role in disaster prevention, mitigation and response in these situations. However, the success of environmental health programmes does depend on the existing social inequities. This is because in many developing countries, the poorest and least powerful people already live in a situation with poor water supply and sanitation, which is compounded by natural disasters. *Asia Pac J Public Health 2007; 19(Special Issue): 18–24.*

Keywords: Environmental health professional, disaster prevention, mitigation, water supplies, sanitation, community vulnerability.

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Natural Disasters in Developing Countries: An Environmental Health Perspective

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Introduction

Every year more than 700 natural disasters occur across the world shattering lives, destroying assets, and disrupting communities, particularly in developing countries[1]. These cause increases in poverty, and undermine long-term efforts of developing countries to attain sustainable growth. The survival and growth of a population are strongly influenced by environmental health programmes and facilities. They can assist in sustainable growth as they are interdisciplinary, involving engineering, health sciences, chemistry and biology, together with a variety of social, management and information sciences[2]. They are also essential for population survival, particularly in the management of water and sanitation.[1,3,4]. Environmental health professionals providing assistance in disaster situations must work under economic, political, logistical and cultural constraints[3]. For example, roads, telephone lines, transportation and telephone links are often destroyed in natural disasters[4]. Public utilities such as water supply, sewerage disposal services and energy supplies can also be disrupted. A substantial number of victims may be homeless, and some portion of the country's economic base may be destroyed or damaged[1,4,5].

This article discusses the role of environmental health professionals from government and non-government organisations and the importance of their role in disaster preparedness, mitigation, response, and the lessons that can be learned from this process. Topics discussed in this article are the major issues associated with natural disasters, a summary of prevention and mitigation strategies, emergency preparedness, and how health professionals can learn from previous disasters.

The major issues

Disaster prevention measures and strategies in many industrial countries reduce the risk of disaster damage to essential infrastructure and urban areas making insurance rates affordable[5,6]. Conversely, in highly vulnerable developing countries, prevention measures and strategies are not always a priority. In situations such as the more frequent adverse weather events, population concentration in hazard–prone urban regions, poor quality housing, inconsistent application of building regulations and haphazard siting of industrial facilities can enhance the consequences of the disaster. With these conditions, most

insurance companies would be reluctant to take a financial risk by offering to provide insurance, or they would raise their premium making insurance unaffordable[5]. Furthermore, if insurance was available it is most likely that the majority of people who needed it most would not be able to afford it[5,7]. The major factors that contribute to disaster occurrence and severity in developing countries, and the associated environmental health outcomes are as outlined in Table 1.

In summary, more than 3,000 deaths, on average, occur per disaster in developing countries compared with an average of 500 deaths per disaster in high income countries[9]. However, the devastation caused by Hurricane Katrina in the United States in 2005 provides an example of the devastation that can occur in very wealthy countries with poorer sectors, and a lack of disaster preparedness. The death toll from Hurricane Katrina in 2005 exceeded 1,300[10]. Furthermore, many of the communities in areas that were heavily impacted by Hurricane Katrina had either not followed appropriate building codes that incorporate flood and wind protection, or had no building codes at all[10].

Those people who are living in poverty are most at risk from natural disasters and their public health consequences for the following reasons:

- They are least able to afford stable housing, for example, their houses cannot withstand seismic activity,

- They frequently live along the coast and are exposed to hurricanes, storm surges, or earthquake generated tidal waves. If they do not live on the coast, they live on flood plains subject to inundation,

- Due to their economic circumstances they live in substandard housing on unstable slopes that are susceptible to landslides, or are built next to

Table 1. Factors that contribute to disaster occurrence and severity in developing countries

Factors that contribute	Associated environmental health outcomes
Poverty	Limited resources for environmental health management for example, vector control programs
Social inequity environmental segregation due to poor land use, climate change, or rapid population growth. Climate change can disturb ecological systems that can affect the range and activity of vectors and infective parasites, water borne and food borne infective agents	Inequitable environmental health services for example water supply and waste disposal. More risk of poor environmental health outcomes as a result of events such as flooding, changes in geographical ranges and incidence of vector-borne diseases, increased or changed incidence of infectious diseases, for example diarrheal disease[8]

hazardous industrial sites, and

- They are not informed of appropriate lifesaving behaviours or actions that they can take when a disaster occurs[2,5,11-15]. For example, in the case of flooding, many people in poorer areas may not know how to swim[16].

In contrast, many industrialised countries are better prepared to manage when natural disasters strike because of the following:

- Ability to forecast severe storms,

- Enforcement of strict building codes for aseismic and fireproof construction,

- Availability of communication networks to broadcast disaster warnings and alerts,

- Provision of emergency medical services,

- Engagement in prevention and mitigation strategies that prepare the population and public institutions for possible disasters, and

- Education regarding prevention strategies[5,11,13].

It is noteworthy that even in wealthy countries with well designed and constructed infrastructure, the high population density in cities means that a large number of people may be vulnerable to hazards that would have little impact in a scattered rural community[2].

In many developing countries, these strategies are either not available, or have not been implemented. Some of this is due to the lack of aid for development activities[17] and the variable level of aid from industrialised countries. For example, other than in response to famines, flood and earthquakes, the assistance from the United States (US) for the world's poorest countries is relatively low. It ranks 10th in terms of per capita spending and only provides approximately US $10.00 per person[17,18]. In contrast, Norway provides approximately US $80.00 per person in aid for development activities to countries it supports. Foreign investment is often lower in countries that are perceived to be corrupt because corruption is seen as undermining economic growth and sustainable development[19].

Hence, many people remain increasingly vulnerable to the public health consequences of natural

disasters[17,18]. In these situations environmental health professionals have an important role to play when addressing issues such as lack of access to potable water and appropriate sanitation facilities. This is because in disaster affected communities or displaced persons camps, where public water purification activities have been disrupted the population has a greater risk of water-borne diseases[3]. For example, water contaminated with *Vibrio Cholerae* is estimated to have killed more than 50,000 Rwandan refugees in camps inside Zaire in July 1994[3].

The provision of potable water and sanitation is difficult after a disaster due to the damage to existing infrastructure. It is imperative that environmental health professionals try to set in place disaster management strategies that are available, appropriate for the country concerned and sustainable in order to alleviate the problems with water and sanitation management in disaster situations[17,18]. Inappropriate humanitarian action, and development processes can lead to increased vulnerability to disasters and loss of preparedness for emergency situations[2]. After the earthquake and tsunami of 26 December 2004, the Indonesian province of Aceh was devastated. An environmental health team from the Australian Defence Force (ADF) quickly established liaisons with their counterparts in civilian and military agencies as part of the disaster management strategy. Principal among these was the Indonesian Ministry of Health (MOH)[20]. Water and sanitation co-ordination meetings involving the civilian and military agencies were also established. These linkages facilitated the exchange of information, sharing of equipment, and access to laboratory results that greatly assisted the disease control effort[20]. Hence, the disaster management strategies were appropriate, sustainable, and alleviated some of the immediate environmental health problems.

In order for developing countries to reach their full potential for managing natural disaster situations, the following strategies can form a disaster management framework that can be adapted for use in developing countries by environmental health professionals. These strategies include the following: prevention and mitigation, vulnerability assessment, emergency preparedness, and learning from previous disasters[2,4].

Prevention and mitigation

- **Reducing community vulnerability**

In developing countries, community vulnerability can be reduced through long-term environmental health improvements and appropriate planning, prevention, and mitigation [2,4,6,12,14,18]. Improvements in water supply and sanitation systems are connected with vulnerability reduction in several ways. They reduce the risk of epidemics of diseases such as cholera and they improve the general health status of the population. This can make people more resilient when they face the additional stress of natural disasters[2,4,12]. Furthermore, water and sanitation projects organised on a self-help basis with the guidance of an environmental health professional from non-government and government organisations can strengthen cooperation between communities. This can allow for the development of other vulnerability reduction activities. For example, a community based organisation responsible for water improvements can become the core of a community safety committee[2, 4, 12, 18, 21].

Other mitigation strategies include ensuring that those people who are responsible for local water or sanitation initiatives are aware of any hazards and become involved in discussions with community members as a routine part of planning new works. For example, water and sanitation coordination meetings could be held as mentioned in the previous

section. Many of the same problems arise as those faced by planners for large–scale water-supply systems, including the protection of water sources for emergencies[2,18,21]. Furthermore, on-going public education in household water treatment and management, breastfeeding, food hygiene, hand washing, the use of latrines, waste disposal, drainage and vermin/vector control will reduce the vulnerability of a community before any emergency situation develops. This may involve the use of environmental health and safety regulations[2,21,22].

- **Environmental health and safety regulations**

Legal and administrative controls can play a part in reducing or preventing environmental health risks during some emergency situations in industrialised countries[2,6,22]. For example, regulations that specify how hazardous materials must be transported and stored can include provisions governing protection from disasters. This can reduce the risk of uncontrolled discharges during a sudden large-scale emergency that could contaminate the water supply, or cause other health problems[2]. This is often the case in developing countries where toxic wastes and polluting industries are relocated from industrial to developing countries[2,4]. Unfortunately, most developing countries cannot afford to pay for industrial and environmental health inspections that will ensure that environmental quality, and industrial safety rules are enforced[2,4]. This is an area that requires more support by international agencies and non-government organisations in order to lessen the vulnerability.

Zoning and land-use planning, and building codes are another area where rules and regulations can reduce risks, but can be difficult to enforce where people are living in poverty with no choice about where to live or how to earn a living[2,12,22]. Building codes, such as wind loading

codes or earthquake resistant standards for new houses have been very effective in reducing loss of life and property in extreme events. For example, in Darwin in 1974, tropical cyclone Tracey destroyed only three percent of buildings engineered to wind resistant codes, as opposed to 50 – 60 percent of non-code constructions [2]. The enforcement of such building codes would assist in reducing the vulnerability of the environmental health infrastructure, for example water treatment facilities, and sewage treatment plants.

▪ *Reducing the vulnerability of the environmental health infrastructure*

It is possible to reduce the vulnerability of environmental health infrastructure through location, design and maintenance [2,6]. Hazard mapping can reveal major risks, such as a water treatment plant sited on a flood plain, on an earthquake fault, or next to a chemical plant [2,4,12,22]. Hazard mapping can also be utilised to identify priority locations for hazard mitigation measures, for example flood-control dykes and avalanche-deflection walls. The World Health Organization provides a legislative and policy framework for hazard mapping that can be utilised by trained public health personnel and environmental health professionals from both government and non-government organisations [23].

However, decisions concerning actions to take are not simple. This is because the costs of relocating or protecting a facility will need to be considered, as well as how damage to a facility, such as a sewage treatment plant, could pose a public health threat [2,4,6]. Other facilities should also be protected in the event of a disaster to ensure that they are functional during the relief and recovery activities [2,4]. Properly trained and experienced environmental health professionals can play a role in this process.

▪ *Protection of other facilities*

Priorities for protection should include water-supply systems, waste-treatment plants, and laboratories [2,4,6]. Laboratories should be protected from disasters so that they are immediately available during relief and recovery activities for testing water, soil and other materials for contamination. The analysis of biological samples may also be required as part of the epidemiological surveillance [2,6]. This involves the systematic on-going collection, collation, analysis, and interpretation of data to allow for appropriate actions or investigations by environmental health professionals and others to take place should an outbreak of disease occur. This may also include the implementation of control measures, for example vaccination programmes, or spraying mosquito breeding areas with an appropriate type of pesticide [24].

Storm drains can contribute to flood mitigation, so if they are blocked by landslides or other disasters they should be repaired to prevent flooding as a secondary hazard [3,4]. Sanitary landfills and facilities for waste storage, collection, and disposal can produce significant secondary hazards if they are flooded or burned during a disaster, or if they are unstable and not properly sited, they can contribute to the mass debris flow [2,3]. The water supplies and sanitary facilities of hospitals and health centres also require attention, and need to be examined for possible weaknesses in emergencies. General hospitals and health centres should have a plan that includes the provision of alternative arrangements for water, power, and heat if centrally supplied services are interrupted [2-4,25]. Depending on the state of general hospitals and heath centres, and the availability of qualified health professionals, the provision of power, water and heat allows for some emergency medical treatment, including surgery to take place.

One example of international support of the review of infrastructure for vulnerability reduction is the United Nations Educational Scientific and Cultural Organisation's (UNESCO) Educational Buildings Programme [2]. This has helped to develop prototypes for schools resistant to earthquakes (in Armenia and Nepal), schools resistant to severe tropical storms (in Costa Rica and Vietnam) and schools on stilts to avoid flooding (in Bangladesh and Sri Lanka) [2]. Hence, planning to mitigate and prevent disasters can have great benefits when managed appropriately, and people from the local community are involved [6,24,26]. However, it is essential that these plans include a vulnerability assessment.

▪ *Vulnerability assessment*

Vulnerability and capacity assessments (VCA) are also known as risk analysis or threat assessments [2,27]. These types of assessment are widely used throughout industrialised countries, both in the workplace to prevent injuries and accidents, and as a disaster mitigation strategy [2,28,29].

In most industrialised countries, vulnerability assessments are able to be done as technology and finances are available. In developing countries, this is not always the case. However, this can be done if development funding is made available from other countries, or from organisations such as the United Nations Central Emergency Revolving Fund (CERF) [17].

The purpose of these assessments is to identify hazards and their possible effects on communities, activities or organisations, and their capacity to prevent or respond to disasters [2,12]. The VCA can provide information about the pre-disaster situation to enable emergency prevention, mitigation and preparedness measures to be conducted in an effective manner [2]. Furthermore, it can facilitate a rapid and relevant emergency response, based on an understanding of resource gaps that need to be filled with external support [2,12,14,27].

A full vulnerability assessment should include hazard mapping, vulnerability assessment of the water supply systems, assessment of environmental health vulnerability, and analysis of the community characteristics. Furthermore, the work of a

comprehensive vulnerability assessment and reduction can be assisted by environmental health professionals and should be continuously monitored and updated if it is to be effective. This is because the distribution of hazards, and vulnerability of people to them are affected by many issues, such as development projects, investments, urban growth, rural to rural migration and refugee influx[2,12]. The vulnerability assessment should be followed by emergency preparedness activities[6].

Emergency preparedness

- ### *The national emergency planning process*

Emergency preparedness is concerned with planning how to respond to disasters, rather than planning to mitigate, or prevent them[2,4,6]. Emergency preparedness activities include the following:

- National legislation and national policy for disaster management,

- Plans and procedures for disaster management and coordination of the emergency response at international, national and subnational levels,

- The strengthening of institutional and human resources for disaster management,

- The establishment and management of stocks for relief supplies and equipment and the identification of transportation options,

- Public education, public awareness and community participation in disaster management, and

- The collection, analysis, and dissemination of information related to emergencies and disasters that are likely to occur in the region[2,4,12].

Environmental health professionals can have an important role in ensuring that people who are in charge of local waste-disposal and water supply systems participate in overall health, water supply, and sanitation sector planning for emergencies, as well as being responsible for planning in their own facility[2]. Each water-supply and waste disposal system in a town, city or state, or district should carry out an extensive review of its' human and material resources, and the vulnerability of all the components of the system to the variety of hazards that may present in the event of a natural disaster[2]. This allows for the preparation of plans for temporary repairs that may be required should an emergency situation arise[2,12].

In addition, the management of water and sanitation needs consideration when organisations prepare and plan emergency shelters and settlements. This is often based on a variety of scenarios, involving different numbers of shelters and settlements in different locations where different resources are available[2,11,12]. Throughout this process, it is imperative that there is an agreed method of assessing the immediate environmental health needs of those concerned, and meeting them with the available resources. This type of planning, which involves environmental health professionals, includes, but is not limited to the following tasks:

- Evaluation of the immediate public health conditions and risks,

- Evaluation of the damage to public sanitary infrastructure and provision of advice on possible remedial measures,

- Evaluation of food and shelter needs,

- Mobilisation of personnel and equipment,

- Emergency action to control or eliminate environmental health hazards,

- The emergency restoration of the water-supply and waste disposal systems, and

- Report on the situation and actions taken[2,11,12].

An emergency plan that provides guidance on all of these issues can assist staff with identifying the hazards that have occurred as a result of a natural disaster, estimate their effects, and assess the likely population needs[2,11]. This requires planning at all levels, from the community level to the national and international levels to ensure that programmes for disaster prevention and mitigation are carried out according to clear objectives, with adequate resources and management arrangements[2,11,12]. This will ensure that key personnel understand strategies, resources, management structures, roles and resources for the emergency response and recovery.

For example in Banda Aceh, the ADF environmental health team, and engineers from the Combat Engineer Regiment (1CER) worked with the International Organisation for Migration (IOM) in order to plan and construct culturally appropriate showering facilities, laundries, and latrines in one of the internally displaced persons (IDP) camps housing more than 4,000 people[20]. Regular water and sanitation coordination meetings ensured that any problems were reported and managed by the appropriate authorities[20]. This type of collaboration is essential as effective emergency planning can only occur if all the key players agree on their roles and responsibilities[2-4,12]. Learning from previous disasters is the next step in this process.

- ### *Learning from previous disasters*

One way to improve emergency preparedness is the ability of organisations to learn from previous disasters, and to incorporate that learning into practice[2,22,30]. Unfortunately, many lessons fail to be taken into account. Staff turnover in government at all levels is one more impediment and some staff may never experience responding to disasters[2]. Furthermore, changes in government, such as elections, may reinforce the

effect of retirement and transfer and disrupt the continuity of administrative experience[2,12]. Despite this, there are some actions that can be taken to ensure that lessons are learned from each particular disaster[2,12]. This includes evaluating emergencies and disasters, vulnerability analysis of major projects and utilising environmental health and safety regulations[12].

Conclusion

Many public health issues that arise in the event of a natural disaster require the assistance of environmental health professionals. Much of this is as a result of the destruction of essential infrastructure, which increases the vulnerability of the country affected by the disaster. If this situation is to be improved, attention needs to be paid to the prevention of social inequities, and official development assistance needs to be more effectively provided to developing countries in proportion to need. This will assist developing countries to attain sustainable growth, and assist with the development of environmental health programmes and facilities that protect water and sanitation in the event of natural disasters. More support for the education, training and continuing professional development in environmental health would enable developing countries to better manage disasters and improve outcomes.

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tation that focused on the management of water and sanitation in natural disasters. This article has been developed from one of the chapters in the dissertation.

References

1. Freeman P. Infrastructure, Natural Disaster, and Poverty 1999. Available at http://www.iiasa.ac.at/Research/RMS/june99/papers/freemansolo.pdf. Accessed 29 May 2006.

2. Wisner B, Adams J. Environmental Health in Emergencies and Disasters. Geneva: World Health Organisation; 2002.

3. Lilliebridge S. Managing Environmental Health Aspects of Disasters: Water, Human Excreta, and Shelter. In: Noji E, (editor). The Public Health Consequences of Disasters. New York: Oxford University Press; 1997.

4. Noji E. The Public Health Consequences of Disasters. New York: Oxford University Press; 1997a.

5. Dayton-Johnson J. Natural Disasters and adaptive capacity. OECD Development Centre Working Paper no 237 2004. Available at http://www.oecd.org/dataoecd/30/63/33845215.pdf. Accessed 29 May 2006.

6. World Bank. Lessons from Natural Disasters and Emergency Reconstruction. Available at http://worldbank.org.oed/disasters//lessons_from_disasters.pdf. Accessed 29 May 2006.

7. Freeman P. Estimating Chronic Risk from Natural Disasters in Developing Countries: A Case Study on Honduras. In: Proceedings of the Annual Bank Conference on Development Economics-Europe Development Thinking at the Millennium 2000 June 26 - 28. Paris, France. Available at http://www.worldbank.org/research/abcde/eu_2000/pdffiles/freeman.pdf. Accessed 29 May 2006.

8. Woodward A, McMichael A. Environmental Health: A Global Perspective. In: Cromar N, Cameron S, Fallowfield H, (editors). Environmental Health in Australia and New Zealand. Melbourne: Oxford University Press; 2004.

9. Anderson M. Which Costs More: Prevention or Recovery? In: Kreimer A, Munasinghe M, (editors). Managing Natural Disasters and the Environment. Washington DC: World Bank; 1991.

10. Federal Emergency Management Agency. Hurricane Katrina 2005. Summary Report on Building Performance. Available at http://www.fema.gov/pdf/rebuild/mat/fema548/548-sumRprt0328fnl.pdf. Accessed 25 August 2006.

11. Noji E. The historical development of public health responses to disasters. Disasters 1997b; 21(4): 366-376.

12. Blaikie P, Cannon T, David I, Wisner B. At Risk: Natural Hazards, People's Vulnerability, and Disasters. London: Routledge; 1994.

13. Last J. Public Health and Human Ecology, 2nd Edition. Stamford, Connecticut. USA: Appleton & Lange; 1998.

14. Lewis J. Development in Disaster-Prone Places. Studies of Vulnerability. London: Intermediate Technology Publications Ltd; 1999.

15. Marmot M. Social determinants of health inequalities. The Lancet 2005; 365(9464): 1099 - 1104.

16. Oxfam International. The Tsunami's Impact on Women. In: Oxfam International; 2005d.

17. Oxfam International. Predictable Funding for Humanitarian Emergencies: A Challenge to Donors. Available at http://www.oxfam.org/en/policy/briefingnotes/bn1024_CERF_predictable funding. Accessed 29 May 2006.

18. Sachs J. The Development Challenge. Foreign Affairs 2005; 84(2): 78.

19. Transparency International. Corruption Still Rampant in 70 Countries, says Corruption Perceptions Index 2005. Available at http://transparency.org/policy_research/surveys-indices/cpi/2005. Accessed 29 May 2006.

20. Byleveld P, Kent M, McCall B. Operation Sumatra Assist: post - tsunami environmental and public health response in Banda Aceh. ADF Health 2005; 6:48 - 53.

21. de Veer T. Water Supply in Disaster and Emergencies. In: Smet J, Van Wijk C, (editors). Small Community Water Supplies: Technology, People & Partnerships. Delft: International Water and Sanitation Centre; 2002. p. 535 - 556.

22. Logue J. Disasters, the environment, and public health: improving our response. Am J Public Health 1996; 86(9): 1207 - 1210.

23. Briggs D. Environmental Health Hazard Mapping for Africa. Harare. World Health Organisation, 2000. Available at http://www.afro.who.int/des/pdf/health hazard.pdf. Accessed 26 October 2006.

24. Last J. A Dictionary of Epidemiology. 4th ed. New York: Oxford University Press; 2001.

25. United Nations Office of the Disaster Relief Co-ordinator. Mitigating natural disasters. Geneva: United Nations Office of the Disaster Relief Co-ordinator; 1991.

26. Daly J, Lumley J. The public health implications of natural and man-made disasters. Aust NZ J Public Health 2005; 29(5): 403.

27. Noji E. The ABC of conflict and disaster. Public health in the aftermath of disasters. BMJ 2005; 330(7504): 1379 - 1381.

28. Hopkins A. Whose Responsibility? Making Safety Work. Getting Management Commitment to Occupational Health and Safety. Sydney: Allen & Unwin; 1995.

29. Reason J. Managing The Risks of Organizational Accidents. Aldershot, England: Ashgate Publishing Limited; 1997.

30. International Federation of Red Cross and Red Crescent Societies. World Disasters Report 2005. Available at http://www.ifrc.org/publicat/wdr2005/contents.asp. Accessed 29 May 2006.

Abstract

This paper attempts to provide both a visual and written commentary of the post-Tsunami health and community-driven recovery strategies within conflict affected zones in Northern Sri Lanka. It explores examples of the impact of unsolicited, culturally inappropriate and conflict insensitive interventions initiated by both local and international teams, and how displaced communities attempted to mitigate the effects of inequitable aid practices. Though challenging, engaging communities early in the recovery process becomes necessary in order to reduce vulnerability and prevent 'aid-mediated' communal tensions. Hence the dictum 'hands in relief, eyes on 'development'' applies for post-disaster interventions. *Asia Pac J Public Health 2007; 19(Special Issue): 25–34.*

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Hands in Relief, Eyes on Development: Challenges and Community Responses in the Delivery of Humanitarian Aid in Conflict Affected and Tsunami Ravaged Districts in Northern Sri Lanka

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Introduction

Complex humanitarian emergencies (CHE's) such as the Sri Lankan ethnic conflict involve an intricate web of violent political, economic, military and social forces[1]. Violence in complex emergencies is targeted overwhelmingly at civilians, their livelihood systems, and social networks[2]. In view of this, devastating natural disasters that strike areas of protracted violent conflicts warrant a more precautionary and conflict sensitive humanitarian response. This paper explores this view, and analyses the impact of Tsunami relief[1] and development[3] aid has on communities living within conflict zones.

The author spent a year living and working in the conflict affected Northern districts of Sri Lanka with the World Health Organization (WHO). All photos featured were taken by the author. Wherever possible, the author sought verbal permission to photograph individuals featured in the photographs.

The Tsunami impact

The Tsunami that struck Sri Lanka in December 2004, devastated over 75% of Sri Lanka's coastal belt, with much of the destruction absorbed in the island's conflict affected North-Eastern provinces[4]. Within 15 minutes, the Tsunami's death toll

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1 *Relief aid: Any provision of aid during an emergency that is meant to attend to a person's immediate requirements for survival or recovery, which include, medical care, food, clothing, housing, social services, and protection when a person is faced with circumstances beyond her or his control (3).*
2 *Development-aid: The provision of emergency aid that simultaneously attends to peoples' immediate requirements for survival or recovery, while attempting to reduce societal vulnerabilities and increase societal capacities(3).*

reached 31,141 and caused the immediate displacement of approximately 850,000 people[4]. In grim comparison, the 25-year protracted civil war waged between the Liberation Tigers of Tami Elam (LTTE), Sri Lankan Government and other paramilitary organisations had resulted in a civilian death toll of around 65,000[5].

The Tsunami further compounded the vulnerability of the conflict-affected communities, uprooting them from their internally displaced (IDP) camps, and stalling development progress made since a fragile cease fire agreement in 2002. Significant needs for shelter, safe water supply and sanitation emerged. Many survivors were also traumatised by the disaster. WHO estimates that over 30,000 Sri Lankan Tsunami survivors will develop some form of depression or mental illness[6].

The destruction to public health infrastructure and health systems was also extensive[7]. The chronic human resource shortages within the war affected regions placed enormous strain on public health systems rebuilding after decades of war[4]. The local health personnel that survived continued to work despite their own grief and trauma.

To meet these urgent needs, a host of national and international Non-Governmental Organisations (NGOs), United Nations (UN) agencies, charitable groups and individual volunteers were mobilised in the 'zones of destruction' to assist the recovery process.

Congestion and conflict within the humanitarian landscape

Within two days of the Tsunami disaster, a mass influx of well intended 'compassionate aid' flooded into the internally displaced communities across the island. While development based organisations such as CARE and OXFAM amplified their pre-existing conflict-related development programmes towards the relief based activities, most agencies arrived in the

country for the first time[8]. By the end of January, one month after the Tsunami struck, there was an estimated 300 new international NGO's operating in Sri Lanka[9].

The urgency and humanitarian compassion was thoroughly appreciated by those in the Tsunami affected countries. However, the sheer number of actors, interests and mandates made the coordination of aid extremely challenging, leading to what some analysts have called "*an erosion of humanitarian space and responsibility*"[8]. Although the government of Sri Lanka expeditiously set up an emergency coordinating unit (CNO) within two weeks of the Tsunami, only half of the 'intervening' teams/ organisations had formally registered[9]. The resulting resource duplication, poor amalgamation into existing administrative systems and, most importantly, a lack of sensitivity to local conflict dynamics and culture attracted much criticism[8-12]. In some areas, inter-agency competition also undermined community capacity building networks previously established between development agencies[13].

The Tsunami of unsolicited aid and related manifestations of communal conflict

Aid organisations channeled large consignments of unsolicited relief items to internally displaced communities, such as to those living in this camp in Trincomallee district. This 'camp' was a Buddhist temple that had been used as a refuge for those displaced in the immediate aftermath of the disaster. The clothing depicted here was in a poor condition, and included donations of culturally inappropriate swimwear. The mounds of unwanted aid affected by mould, posed yet another environmental hazard to local authorities. However, the children of this shelter, resourceful, resilient and imaginative as ever, transformed the mound of clothes to their own veritable playground, albeit with possible adverse affects.

The Tsunami displaced people from a conflict-affected border village (Figure 1) who had been segregated by ethnicity during the two decades of civil war. Many of the IDP camps were demarcated by their ethnic identities: Singhalese, Tamil and

Figure 1. 'Vomiting aid': children playing in mounds of donated moulding clothes

Muslim. Discussions with camp administrators, community members and key informants across a sample of these 'ethnically defined' camps, revealed severe disparities in the types and forms of aid distributed to those displaced.

> "*We saw truck loads of new tents, materials and supplies driving past us to their [Muslim] camp. The Saudi government had sent them. We saw the sign on all the goods, they were only sending it to them [Muslim IDPs]. Is this really fair?"* (a resident of Singhalese ethnicity living in the 'Buddhist' camp).

Conflict-insensitive humanitarian assistance may also serve to enhance disparities between the needs of the Tsunami-affected population, and of those non-Tsunami affected families living in adjacent areas impoverished through decades of conflict or endemic poverty. As one resident from a war affected IDP camp[13] in a non-Tsunami affected zone stated,

> *"Please don't forget us… we see all the foreign people and white vehicles [NGO/UN vehicles] drive past us to go there [pointing to the coastal road], we feel very sorry, but please don't forget us, we're still suffering".*

Many of the unresolved post-conflict development concerns of communities still remained after the Tsunami[14]. A resident living in a partially damaged dwelling *within* the devastated area, but with a level of damage slightly below the threshold of the Government's criteria for Tsunami compensation stated,

> "*our home was bombed in the war, we ran and now we're here… but we only received half of the compensation to build our house, our neighbors are getting twice as much, there are many like us here who are very angry[4]".*

There were, however, innovative examples of participatory practices in aid-provision: the NGO *MEDair* working in Kalmunai in the Eastern province established an ongoing 'community programme evaluation committee', which allowed beneficiaries to voice out their grievances directly to the NGO managers across all stages of project cycle[16]. Creative solutions to mitigate aid inequity manifested within such participatory involvement models. For instance, the distribution of NFIs – Non-Food Items, which have always been criticised for creating cultures of dependency from the initial relief phases, were orchestrated through a novel mode of distribution: a community 'shop'. A list of 71 shopping items was devised through consultation with beneficiaries, and was amended during the course of its operations based on community feedback[16]. The 'shop' accorded the beneficiaries tailored choices and also minimised duplication of NFI aid distributed through 'competing' NGO's. The issues relating to NFI's being sold on local markets by beneficiaries, which commonly occurs with other modes of distribution (such as the 'handout' method), was also minimised.

The importance of conflict sensitive development practice

The extent to which inequitable aid interventions serves to propagate destructive patterns within affected communities, and resurface pre-existing post-conflict tensions is always a major concern when working in war zones. Many analysts warned that these tensions could be exa-

Figure 2. 'Navigating through tension': a World Health Organization vehicle carefully manoeuvres between the heavily armed military checkpoints (left) and destroyed local community dwellings (right) along the Tsunami devastated coast line of Jaffna's district. This coastal area was the site of many previous battles. A significant number of army officers within these bunkers drowned when the waves first struck. The local hospitals also reported a high degree of lacerations from survivors due to the use of barbed wire barricades along the coastal belt. In the post-Tsunami recovery phase the local communities were unsuccessful in their demands for these to be removed, and for requests on greater freedom of movement and fishing

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3 The author had spent a considerable time working in this IDP setting before the Tsunami struck.
4 The permanent housing budgets are 150,000 Rupees (US$3724) for conflict IDPs and around 500,000 Rupees (US$3724) for Tsunami IDPs (15).

cerbated if conscious efforts were not made by the humanitarian community to work in a conflict sensitive manner during the post-Tsunami period[8,14,15,17,18]. Jaffna District, for instance, is considered politically and strategically important in "*determining the resolution of the ethnic conflict and bringing lasting peace to Sri Lanka*"[15]. In Jaffna, the authority is constantly reshaped and contested between the conflicting protagonists: the Sri Lankan Government and LTTE. This 'two tier' administrative mechanism makes aid co-ordination a delicate challenge – especially when controversial infrastructural priorities have to be established. Predictably, political opportunism extended within weeks to the humanitarian arena. Inexperienced agencies were often caught between the dissenting voices. The timing of interventions, sensitivity to daily conflict dynamics, and wisdom of remaining 'inactive' were crucial elements for post-Tsunami programming success of agencies working in the North-East.

A review of the pre-Tsunami humanitarian landscape in the North and East, revealed that the predominant approach taken by many actors is to "*to work 'around' conflict" and to perceive "conflict as a 'negative externality' to be avoided*"[19]. Though controversial, working in a 'conflict sensitive manner' in war zones may require agencies to engage in dialogue and partnership with the key protagonists in the conflict. Many analysts state that the "*LTTE cannot be ignored if aid effectiveness is to succeed because they are a central stakeholder in the north and east*"[18]. Since conflict is a critical factor for sustainable development, the concept of 'working *on*' rather than 'working *around*' conflict becomes important for humanitarian relief and development agencies[19].

The dynamism of local primary health care workers

Ensuring continuity and equitable coverage of primary health care

Figure 3. Maternal and child health clinic being conducted by public health midwives at primary health care facility in Jaffna District. The clinic was newly constructed in 2005 after its total destruction due to heavy bombing of the area in 1990

(PHC) services for both the general population and the Tsunami displaced, placed a significant strain on the region's public health care system. The chronic human resource shortages due to the protracted conflict compounded these challenges. A public health midwife in a conflict-affected zone such as Jaffna for instance, covers a population catchment area nearly three times that recommended by the Ministry of Health[20]. PHC workers became key 'grass-root catalysts' in ensuring that the myriad of public health interventions and vertical programmes delivered through relief agencies, merged with the MOH programmes at the field level. Managing community expectations with those of NGO partners and Ministry mandates at the field is a daunting task, even for the most experienced staff[21]. Remarkably, despite these challenges, there were no reported disease outbreaks one year post-Tsunami[6] – a legacy of active surveillance and response systems, effective water and sanitation systems, community run health promotion programmes, and

a highly dedicated health care workforce.

Resilience of communities through decades of protracted conflict

The family depicted here had undergone multiple displacements over the past decade due to aerial bombardment of their home, military occupation and most recently, due to the Tsunami disaster. There are currently 63,810 such conflict affected IDPs in Jaffna district [15], with almost the entire population of Jaffna district been displaced at some stage during the 25-year war.

Despite their impoverishment, these communities showed incredible resilience in the aftermath of the Tsunami disaster. When asked as to how she managed to salvage her children's nutritional cards in the critical moments when the waves struck, the mother depicted stated "*We are always in a constant state of readiness; I always have my essentials packed in one bag… it's a habit from war-time*". Although longitudinal studies analysing the impact of the

Figure 4. A mother and her children living in an IDP camp near the devastated zone in Jaffna district

disaster in terms of psychological trauma and sequelae are lacking, it may be argued that the war ravaged communities are more resilient and better able to respond than communities living in non-conflict affected areas.

Collective wisdom from years through displacement also enabled communities and local social organisations to verbalise their needs. Displaced communities in the Northern conflict zone rejected the offer of expensive modern tented structures by two donor governments, to be provided as their 'transitional housing' (the name given to accommodation shelters whilst the IDP's waited for their homes to be re-built). As one male resident remarked, *"Please don't give us these tents, they are like furnaces you can't live in them during the day, only sleep in them at night… that's why we asked to use the local [Palmarah] trees and make roofs from it, it's much cooler and natural".* The use of local resources, the involvement of community in the construction of the temporary shelters and the resultant yields for local economies, were significant factors in contributing to sustainable development practices for these displaced communities. In contrast, the Tsunami-affected communities and

NGO's in the non-conflict affected Southern provinces, had immediately accepted the tent structures offered by the donors, and had to undergo considerable hardship until they were replaced many months later[14].

The fisher folk's genius in ensuring equity

Over 90% of those displaced from the Tsunami were from coastal fishing communities[4]. These coastal communities were often the targets of

individual charitable projects involving 'one-off' distributions of relief items such as fishing nets, boats and motor equipment. Inefficient and politically motivated Government, LTTE and UN/INGO co-ordination mechanisms were frequently cited by these humanitarian and development actors as their justification to act without collaboration with established networks [8,10,18]. Though in some cases highly effective in channelling aid to beneficiaries, the resulting practices ensured a greater concentration of relief efforts in those areas that were more accessible and less-conflict prone.

Within this development culture, there were outstanding examples of community-driven initiatives to mitigate such aid imbalances: local Fishing co-operatives and community-based women's micro-finance coalitions became crucial stakeholders in ensuring the equitable linkage of donations from aid agencies to fellow members of their displaced community[15]. The fisherman's groups organised collections of donated boats and equipment along key geographical locations in the devastated zone, and organised participatory loan schemes to ensure equal accessibility for all affected families - thereby mitigating aid-related tensions.

Figure 5. Men, women and children from the Tsunami devastated coast of Point Pedro, Jaffna district, prepare nets for fishing

Remarkably, there were many cases where fisherfolk, having received new boats, abstained from using them (despite donor pressure and livelihood losses), until an adequate quota was received to surrounding fishing co-operatives.

Post-conflict communities, having experienced and emerged from decades of war, appear to have inherent capacities and communal wisdom to mitigate against potential aid-mediated tensions.

Non-participatory development practice and reproductive health vulnerability

The special needs of women and disabled groups were often ignored in the design of IDP camps. The pit latrines for the Tsunami camp featured in Figure 6 was built approximately 50 metres away from the nearest accommodation shelter and water source. Due to the long distances and unlit access routes, female residents complained that they felt unsafe when using the latrines at night. The water source (a bore well) was also inconveniently located on opposite end of the camp site. Within the village context, women would usually utilise a separate water source within an enclosed area to wash the home made 'cloth-pads' used during menstruation. The current camp setting made such practices exceedingly difficult, and offered no alternative for protection.

Interestingly, a massive donation of sanitary pads to a UN agency in the North, was redirected to local district hospitals for use in gyneco-logical wards, after women in the affected coastal communities showed unwillingness to use them, and kept their preference for the home-made cloth-pad. In instances where the sanitary pads were used, they were often discarded into existing pit-latrines, causing blockages and further frustration. The problematic notion of building *for* rather than *with* the displaced communities is highlighted by these examples.

A collaborative project under-taken by international NGO's Save the Children and Oxfam in Ampara district provides a good model of working *with* communities in ensuring reproductive health needs[22]. Working through a community development model, the NGO established a Women's committee within each Tsunami displaced camp with the engagement of local authorities. The committees successfully established 'private areas' for women within the relief camps, organised women's health promotion programmes, and are currently active in setting up 'child friendly' environments and pre-schools for affected children[22].

Iatrogenic psychosocial interventions

The influx of sympathetic and enthusiastic volunteers to the Tsunami

Figure 6. A Tsunami displaced camp within the conflict zone

Figure 7. 'A psychosocial playground': This psychosocial intervention which utilised methods of forum theater and play therapy, targeted at the Tsunami affected children and adolescents in Jaffna district

relief camps, carrying their own toolboxes of 'psychosocial and trauma recovery' activities, added as much amusement as it did confusion to many of the beneficiaries and authorities involved in the recovery efforts[11]. At the field level, the Tsunami camp administrators and primary health care workers readily allowed unrestricted access by groups wanting to intervene with the label 'psychosocial'. The scarcity of adequate psychiatric and psychological services in the war-affected North Eastern provinces confounded this lack of awareness. Despite having the largest number of displaced and returning refugee populations, there were only two psychiatrists for the entire Northern region.

Most psychosocial interventions included one-off 'counseling and debriefing' sessions for survivors of the disaster, often by poorly trained volunteer staff. The effectiveness of the immediate post-disaster critical incident stress debriefing has been debated[23], and the negative impact of such measures within the Sri Lankan context has also been described[24].

In one case-study, a young adolescent girl in Jaffna district was visited continually by a revolving group of foreign and local counselors from various psychosocial teams. She explained later that she became traumatised by people wanting to ask questions about her loss, and that her perceived inability to express her views when asked these questions, added to her feelings of guilt and shame.

The hard-learned lessons and good practice from conflict-related psychosocial programming that occurred before the Tsunami, seemed to have been ignored[24,25]. The misguided belief that psychosocial interventions can be delivered as 'relief packages' to those affected in the same way as hygiene kits are distributed to those displaced was also prevalent.

The need for an integrated approach to psychosocial intervention

following disasters remains a challenge for humanitarian agencies and local authorities in post-disaster settings. Silove and Zwi[25] refer to nine guiding principles for cultural competence in mental health programmes following major disasters, and in translating 'compassion into psychosocial aid'. The collective wisdom of communities is also integral to the success of such programmes; as highlighted by a community leader at a focus group discussion, *"Please think of the kind of community life and social system that we, the people, lived in. The psychological needs of the community were looked after by the people themselves, mainly through extended family units...please take into account these local sensitivities when planning your counselling programmes..."*

Recognising community resilience and obstacles to participatory approaches

It is well acknowledged that local communities are often the sole responders in the initial aftermath of a disaster[26-30]. Despite this, there is a prevalent misconception that disaster-affected communities are too traumatised and incapacitated to engage in developmental efforts. A major principal of humanitarian delivery is to recognise refugee communities as the primary stakeholder, and not simply as 'passive recipients' of aid[31]. Such perceptions result in programmes that are formulated and implemented from a "top down" manner, with the consequences that "*key cultural and social variables affecting program effectiveness and acceptability are overlooked[32]*".

The resilience of conflict affected communities is determined not only by physical resource assets, but by their social capacity and intrinsic competencies – such as their ability to mobilize and solve communal conflicts[29,32]. Such intrinsic and extrinsic capacities increase a

community's ability to respond to events, and reduce susceptibility to disaster. As the case studies presented in this paper highlight, sustainability, relevance and effectiveness of an intervention can best be achieved when the affected communities are themselves involved in the design, management and implementation of the program.

Despite the growing recognition of community participation within CHEs and post-conflict settings[2], dominant biases in "conventional humanitarianism" and development affairs still favor immediate results[8], and "*rarely question whether an intervention should be avoided on ethical grounds[12]*". A national workshop facilitated by the United Nations and the Sri Lankan Government, highlighted that community participatory approaches were "an exception rather than the rule" in Sri Lanka's post-Tsunami landscape[9].

Another persistent debate is that participatory methods are inappropriate in rapid disaster responses due to 'a lack of time'. A recurring theme from critical reviews of participatory approaches to programming in humanitarian interventions by the World Bank[33,34], Canadian International Development Agency[35] and United States Agency for International Development[36], concludes that that there is little cause to avoid the use of participatory methods when "*there is no time[12]*". Such methods were also found to be "unmatched in fostering sustainability, strengthening local self-help capacities and in improving the status of women and youth[12]". According to the World Bank study, while participatory methodologies may require "*greater up front investment in staff training and operations expenditures*" (up to 15% throughout the life of programs), overall costs average lower than in programs that "*do not rely on local capacities[33,34]*". Despite these inherent advantages, participatory practice methodologies have not been widely embraced in disaster development practice[12,32,37].

Conclusion

Hands in 'relief', eyes on 'development' approach

Emergencies and disasters continue to pose a threat requiring not only emergency responses but efforts to increase the preparedness and resilience of people and institutions. This discussion has served to highlight the significant task of balancing humanitarian compassion with effective intervention, especially within conflict zones. It explored how interventions may unwittingly exacerbate community vulnerabilities and even undermine pre-existing 'conflict and peace sensitive' development frameworks. The roles communities themselves play in alleviating negative aid impacts were also explored.

Although it is well established that *all* aid is political[38], especially within conflict settings[2,39], it has been argued here that community based participatory methods coupled with improved sensitivity on the 'political footprints' of intervention, may negate the impact of inequitable humanitarian and development interventions. Absence of agreed standards within the humanitarian landscape with large numbers of implementing agencies is also highlighted as a source of potential conflict.

Formulating (and enforcing) regulatory mechanisms for NGO's, charitable or individual groups seeking to 'intervene' following disasters, becomes challenging due to complex political, foreign policy mandates, donor driven priorities, and resource limitations[40,41]. There are however a number of global efforts in providing an evidence base, guidelines and 'filters' for conflict sensitive humanitarian and development intervention[5].

An effective way of ensuring success in Tsunami recovery is to integrate these into a broader sustainable framework. Hence the dictum 'hands in relief, eyes on 'development'. Meeting needs is important, but in the transition towards recovery, affected communities need to be active participants in the exercise of re-building their lives and livelihoods. Post-Tsunami reconstruction should not simply be about constructing buildings, roads and economic infrastructure, but addressing underlying issues that have caused communities to remain vulnerable, marginalised, and trapped in a disadvantaged position. To separate Post-Tsunami community development from post-war reconstruction and development may fuel tensions and result in further marginalisation.

Devastating natural disasters striking zones of protracted violent conflicts warrant a more precautionary and conflict sensitive humanitarian response. Donors, policy makers, aid agencies, practitioners and any individual seeking to 'intervene' will need to be creative in their efforts, and be aware of how social and political footprints of aid impact on the affected communities.

References

1. Lautze S, Leaning J, Raven-Roberts A, Kent R, Mazurka D. Assistance, protection, and governance networks in complex emergencies. Lancet 2004; 364: 2134–41.

2. Williams HA Caring for those in Crisis: Integrating Anthropology and Public Health in Complex Humanitarian Emergencies. NAPA Bulletin 2001; 21: 1-17.

3. Maresko D. Development, Relief Aid, and Creating Peace: Humanitarian Aid in Liberia's War of the 1990s. OJPCR: The Online Journal of Peace and Conflict Resolution 6.1 Fall: 94-120 (2004) Available at http://www.trinstitute.org/ojpcr/6_1maresko.pdf. Accessed 30 August 2006.

4. World Health Organization Sri Lanka. Health System in the Tsunami affected areas of Sri Lanka, WHO/SEARO Publications, 2005.

5. United Nations Sri Lanka: Assessment of Needs in the Conflict Affected Areas. United Nations Development Program, Sri Lanka, 2003.

6. World Health Organization. Moving Beyond the Tsunami: The WHO Story. WHO/SEARO Publications, September 2005.

7. World Health Organization Sri Lanka. SRI LANKA Tsunami Response: Six Months and Beyond. WHO/SEARO Publications, 2005.

8. Harris S. Disaster Res-ponse, Peace and Conflict in Post-Tsunami Sri Lanka: The Congestion of Humanitarian Space. Department of Peace Studies, Centre for Conflict Resolution, University of Bradford 2006. Available at http://www.brd.ac.uk/acad/confres/papers/pdfs/CCR16.pdf . Accessed 30 August 2006.

9. Joint United Nations and Sri Lankan Government Report (June 2005). National Post-Tsunami Lessons Learned and Best Practices Workshop, Colombo, Sri Lanka, 8-9th June, 2005.

10. Fernando U, Hilhorst D. Everyday practices of humanitarian aid: Tsunami response in Sri Lanka. Development in Practice, 2006; 16: 3-4.

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5 The "Code of Conduct for the International Red Cross and Red Crescent Movement and NGO's in Disaster Relief" (42), SPHERE standards (27), the Humanitarian Practice Network (43), Guidelines on Conflict, Peace and Development Cooperation (44) and Health & Peace Building 'filters' (45) are notable examples.

11. Wickramage K. Sri Lanka's post-Tsunami psychosocial playground: lessons for future psychosocial programming and interventions following disasters. Journal Intervention (*In Press*). 2006.

12. Jennings R. Participatory Development as New Paradigm: The Transition of Development Professionalism. Proceedings for the "Community Based Reintegration and Rehabilitation in Post-Conflict Settings" Conference, Washington, DC, 2000.

13. Brune P. Personal communication, UNICEF field office manager, March 2005.

14. Bilateral Donor Group (2005) Bilateral Verification Missions to Tsunami Affected Districts in Sri Lanka, Asia Development Bank, 2005. Available at http://www.Tsunami-evaluation.org/... /0/bilateral_donors_mission_to_LK_districts_20050314.pdf. Accessed 30 August 2006.

15. Williams J, Wickramage K, Gunesekara N. Assessment of Tsunami Recovery Implementation in Jaffna District, In: Rebuilding Sri Lanka: Assessment of Tsunami Recovery Implementation. Asia Development Bank, 2005.

16. Lee ACK. Real Time Evaluation of Medair's Tsunami Emergency Response Programme in Sri Lanka, Field visit May 29 – June 9, 2005. Pp14-15

17. Bennett J, Bertrand W, Harkin C, Samarasinghe S, Wickramatillake H. Evaluation Findings: Tsunami Evaluation Coalition Coordination of International Humanitarian Assistance in Tsunami-Affected Countries, Sri Lanka. ALNAP pub., Overseas Development Institute, December 2006. Available at http://www.Tsunami-evaluation.org/home. Accessed 30 July 2006.

18. Harris S. Sri Lanka: Aid effectiveness - A scoping of development partner perceptions for DFID-SEA. UK Government's Department for International Development – South East Asia (DFIDSEA) publication, 2005.

19. Goodhand J. Aid, Conflict and Peace Building in Sri Lanka. Conflict, Security and Defense group pub., King's College London, UK. July, 2001.

20. Herath HM. Manual on the Management of Divisional Health Services Based on Primary Health Care. Sri Lanka Ministry of Health Publications 1999, pp16-17.

21. Sivarajah N. Personal Communication, WHO Jaffna Field Office Manager, March 2005.

22. Oxfam International. Learning the Lessons of the Tsunami – One Month On, Oxfam Tsunami External Bulletin, 25 Jan 2005, pp6.

23. Gray MJ, Maguen S, Litz BT. Acute psychological impact of disaster and large scale trauma: limitations of traditional interventions and future practice recommendations. J Prehospital Disaster Med 2004; 19: 64-72.

24. Galappatti A. Psycho-social Work in the Aftermath of the Tsunami: Challenges for Service Provision in Batticaloa, Eastern Sri Lanka. Journal Intervention 2005; 3 (1): 65 – 69.

25. Silove D, Zwi A. Translating compassion into psycho-social aid after the Tsunami. Lancet 2005; 365: 269.

26. *Médecins Sans Frontières* Refugee Health. An approach to emergency situations. 5th Edition. Macmillan Education Pub, 1997.

27. The Sphere Handbook English: Humanitarian Charter and Minimum Standards in Disaster Response. 2nd ed. Oxford: Oxfam, 2004.

28. Cosgrave J. Initial Findings: Tsunami Evaluation Coalition. ALNAP pub., Overseas Development Institute. December 2005. Available at http://www.Tsunami-evaluation.org/home. Accessed 30 July 2006.

29. Storie D. Disasters, Dollars and Development, When Disaster Strikes, TEAR Australia, Target Issue 2, 2005. Available at http://www.tear.org.au/resources/target/052/02.ddd.htm. Accessed 30 August 2006.

30. Leonard HB. Tsunami Management Challenges. Harvard Business School, 2005. Available at http://www.library.hbs.edu/Tsunami/Tsunamichallenges.html. Accessed 30 August 2006.

31. Pottier J. Why aid agencies need better understanding of the communities they assist: the experience of food aid in Rwandan Refugee Camps. Disasters 1995; 20: 324-337.

32. Balancing Imbalances: Facilitating Community Perspectives in Time of Adversity. In: Caring for those in Crisis: Integrating Anthropology and Public Health in Complex Humanitarian Emergencies. Williams HA. (editor). NAPA Bulletin 2001; 21: 1-17.

33. The World Bank. The World Bank Participation Sourcebook, Washington: World Bank, 1996. Available at http://www.worldbank.org/wbi/sourcebook/sbhome.htm. Accessed 30 August 2006.

34. Aycrigg M. Participation and the World Bank Success, Constraints, and Responses. Draft for Discussion for the International Conference on Upscaling and Mainstreaming Participation of Primary Stakeholders: Lessons Learned and Ways Forward. World Bank Publications, Washington, DC. 1998.

35. Canadian International Development Agency (CIDA), Mainstreaming Participatory Development: Experiences and Lessons of the Interagency Group on Participation, CIDA, June 1997.

36. The United States Agency for International Development (USAID), Participation at USAID: Stories, Lessons and Challenges. USAID Participation Forum Summaries, 1999.

37. Scholdan B. Addressing the root causes: Relief and development assistance between peacebuilding and preventing refugee flows. The Journal of Humanitarian Assistance; July 2000. Available at http://www.jha.ac/articles/a058.htm. Accessed 30 August 2006.

38. Anderson M, Woodrow P. Rising from the Ashes: Develop-ment Strategies in Times of Disaster. Boulder: Westview Press, 1989.

39. Salama P, Spiegel P, Talley L, Waldman R. "Lessons learned from complex emergencies over past decade". Lancet 2004; 364: 1801–13.

40. Charny JR. Upholding humani-tarian principles in an effective integrated response. J Ethics and International Affairs 2004; 18 (2): 13 – 20.

41. De Torrenté N. Humanitarianism Sacrificed: Integration's false promise. J Ethics and Inter-national Affairs 2004; 18 (2): 3 – 12.

42. International Meeting on Good Humanitarian Donorship, Stockholm (2003). Principles and Good Practice of Humanitarian Donorship Link. Available at http://www.sida.se/content/1/c6/02/18/82/Meetingconclusions.pdf. Accessed 30 August 2006.

43. Humanitarian Practice Network. Available at http://www.odihpn.org/. Accessed 30th August 2006.

44. Guidelines on Conflict, Peace and Development Cooperation (1997) The OECD Development Assistance Committee (DAC). Available at http://www1.umn.edu/humanrts/instree/OECDdev.htm. Accessed 30 August 2006.

45. Zwi AB, Bunde-Birouste A, Grove N, Waller E, Ritchie J. The Health and Peace-building Filter and The Health and Peace-building Filter: Companion Manual. Sydney, School of Public Health and Community Medi-cine, University of New South Wales. Available at http://www.sphcm.med.unsw.edu.au/SPHCMWeb.nsf/page/AUSCAN. Accessed 30 August 2006.

Abstract

The objective of this study is to evaluate the perceptions of Internally Displaced Persons (IDPs) in tsunami relief camps on provision and quality of health care services, during the aftermath of the disaster. A randomly selected health administrative area in the Southern Province of Sri Lanka is selected. Two approaches using both quantitative and qualitative methods. The study assessed the perceptions of IDPs regarding on provision and quality of health care facilities, using an interviewer administered questionnaire (survey) in 200 family units. In-depth interviews were conducted with IDPs and relevant health authorities. A majority (88%) of the people was satisfied with the immediate medical assistance. However 48% of IDPs and authorities felt that frequency of visits paid by medical teams have decreased over time. Fifty-three percent were dissatisfied with the toilet facilities provided. A majority was satisfied with health education (82%) and supply of drinking water (80%). Tsunami survivors felt that health services provided during the intermediate phase was unsatisfactory compared to the immediate phase. We recommend attention to ensuring ongoing access to health care and to improving the sanitary facilities in the camps. *Asia Pac J Public Health 2007; 19(Special Issue): 35–39.*

Keywords: Tsunami, disaster management, healthcare provision, mobile medical teams, displaced people.

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Are Tsunami survivors satisfied with the provision and quality of healthcare they received?

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Introduction

Natural disasters cause massive suffering to humans and damage to property. The American Red Cross[1] defines a disaster as *"an occurrence such as hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, earthquake, drought, blizzard, pestilence, famine, fire, explosion, volcanic eruption, building collapse, transportation wreck or other situation that causes human suffering or creates human needs that the victims cannot alleviate without assistance".*

The Asian Tsunami of 26th December 2004 inflicted great damage on life and property and resulted in multiple health needs[2,3]. Provision of satisfactory healthcare services to these displaced people was a major responsibility of the health care providers, such as, government officials, local and foreign volunteers and non governmental organisations.

After surviving such an event, basic needs must be met: food, shelter, medical care and psychological care. Many sources, national and international, governmental and non-governmental supported the displaced people[2]. Many strong institutions supported by civil society and non-governmental organizations helped the national authorities to provide and coordinate health care since the first hours of relief[4]. The health care provided by various teams was based on public health strategies with the priority given to water, nutrition, sanitation, immunization, environmental and mental health and women's health, ensuring access to dependable health services and an effective health system supply chain while maintaining coordination between sectors.

Provision of such care on a regular basis and in a sustainable manner is a difficult task, mainly due to the fact that disasters of such magnitude destroy infrastructure and undermine and reverse development especially in a developing country like Sri Lanka[4]. Therefore, it is important to evaluate the quality as well as the quantity of the health care received by the Internally Displaced People (lDP) during the aftermath of Tsunami. Such evaluations are important as the relief efforts must be accountable both to the affected population and donors[5]. Furthermore, such an evaluation would yield findings that may be useful in planning disaster management strategies in the future. One aspect of such evaluation is assessing

the perception of the tsunami affected people on the health care provided for them

Method

The main objective of this study was to evaluate the perceptions of the IDPS in tsunami relief camps on provision and quality of health care services in the aftermath of the disaster. Accordingly, the following research questions were formulated.

1. What are the different sources of health care available for IDPs during the aftermath of tsunami?

2. What are the perceptions of IDPs regarding the availability of health care during the aftermath?

3. What are the perceptions of IDPs on quality of health care provided by the medical teams?

4. Is there a difference in perceptions of IDPs regarding the provision and quality of health care during,

   a) Immediate phase (from 26th December 2004 to 31st January 2005)

   b) Intermediate phase (from 1st of February to 1st of July 2005)

Hikkaduwa, one of the health administrative areas in the southern province of Sri Lanka, was selected as study setting considering feasibility, accessibility and the fact that it was one of the areas severely affected by the tsunami.

Both quantitative (Survey - Questionnaire for IDPs) and qualitative (Focus Group Discussions (FGD), and in-depth interviews) were used to find answers for above research questions.

The objective of the survey was to identify the perceptions of IDPs using an interviewer administered questionnaire. The interviewer administered questionnaire was pretested prior to administration and included Likert scale items, structured, semi-structured and open-ended questions. The items in the questionnaire were formulated based on the field experience of the authors and information obtained from the literature review. The questionnaire was divided into five sections based on the research questions. The sections included; provision and quality of immediate relief, sanitary facilities, water supply, treatment for the chronic diseases, health education and psychological assistance during the aftermath of tsunami.

Survey – Interviewer administered questionnaire

Stratified random sampling was carried out. Four tsunami relief camps were randomly selected from an official list obtained from government authorities of the Ministry of Health area. Approximately, 500 families were living in each camp and 50 family units (one tenth of the population) were taken from each camp which was randomly selected using the list of tents. A tent was taken as a family unit and if there were two families in the same tent, one was selected randomly. A total sample size of 200 family units was taken.

Only the IDPs who were living in the relief camps from the initial phase of the disaster were considered for this study and the questionnaire was administered to the most senior member of each family present at the time of data collection. Informed consent was obtained before collection of data from the chief householder at the camps. When there were only children (below 18 years) present at the time of data collection, they were excluded from the study.

Focus group discussions with internally displaced persons

Research questions areas were discussed in detail during the FGDs with IDPs in the camps. FGDs were conducted to evaluate the perceptual differences in the health care facilities during the immediate and inter-mediate phases. This was a session of one hour duration conducted at one of the relief camp. One of the four camps randomly selected for administration of the questionnaire was chosen on the basis of the highest number of occupants. We included the head of the camp, people with chronic diseases who needed long term medication identified through the questionnaire and those who needed maternal and childcare. Ten to fifteen of the above specified study population were randomly selected. Their responses were recorded for analysis. There were equal numbers of males and females.

In-depth interviews with health authorities

In-depth interviews were conducted with relevant health authorities to identify the different sources of health care services, steps taken by the officers and problems faced by them. The relevant authorities, including the Medical Officer of Health (MOH) of Hikkaduwa, Assistant MOH, disaster relief project officer, two Public Health Inspectors were interviewed by the authors at the MOH office from 1st of July to 7th of July 2005. Temporarily appointed four coordinators of the respective camps were also interviewed at their field offices during the same period.

Results

Majority of the respondents for the survey population were between age 31–50 years. Nearly two thirds of the population was female. The data obtained from the questionnaire survey and the FGD is presented according to previously identified sections.

Provision and quality of immediate relief

Sixty three percent of the population stated that they did not require any treatment immediately following tsunami. Out of the 37% who required immediate medical assistance follow-

ing tsunami, 89.2% said that they received treatments for their injuries without delay. Immediate medical assistance has been provided by various institutions (Table 1).

Table 1. Place of immediate treatment

Place of immediate treatment	Percentage
Government Hospital	28.6
Private Hospital	19.5
Mobile medical Team	29.3
Other	22.6
Total	100.0

This was also revealed at the focus group discussion.

> *"We received immediate medical assistance from the Boossa Navy Camp Hospital, Karapitiya Hospital before the mobile medical teams arrived."*

Management of chronic diseases
Eighty four out of 104 (80.7%) who had chronic diseases before tsunami had received treatments without interruption following the disaster. The views of those who received treatment were;

> *"We were examined by the doctors who visited the camps. They gave us medicine they had and sometimes as the prescribed drugs were not available, we were referred to the government hospital. On most occasions, we could not go as we had no money to cover up the expenses. Sometimes, it was difficult to leave the camp as we had other family commitments."*

Services provided by the medical teams
Ninety two percent of the sample population had received the services of visiting medical teams. Only 11%

of the population considered the number of visits in the first month following the disaster as inadequate.

Ninety percent of the study population was satisfied with the services provided by the medical teams during the first month.

Figure 1. Level of satisfaction about the visiting medical teams
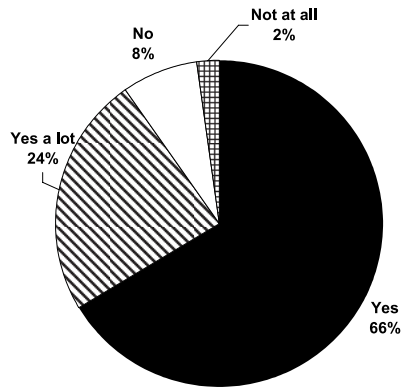
This was further highlighted in the focus group discussion. *"We could get treatments for most of our diseases especially for our children's skin infections. Almost all the doctors did an excellent job."* "

But 48% stated that the medical teams did not visit them adequately after the first month. They went on to say that *"during the last* 2-3 *months, no medical teams visited us. Although normal hospitals and clinics were functioning properly, we could not go because we hare no money to pay for transport and medicine."*

Provision and quality of toilet facilities
Eighty two percent of the sample population have received advice on maintaining proper sanitation in the camps. Interestingly, all the respondents who received advice stated their satisfaction regarding the information they were given. Nevertheless, they find it difficult to adhere to the advice given to them.

Fifty three percent of the sample population said that they were not satisfied with the toilet facilities in camps.

**Figure 2. Satisfaction about toilet facilities**
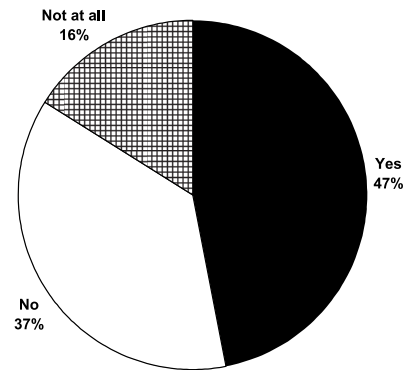
The following comments of the focus group discussion supported this view.

> *"Initially, semi-permanent toilets were built during the first month after tsunami. The semi-permanent toilets drain into small cylinders and now they are over flowing because a large number of people use the toilets."*

Provision and quality of potable water
Eighty three percent of the sample population was satisfied about the cleanliness of drinking water.

**Figure 3. Satisfaction about the provision of water**
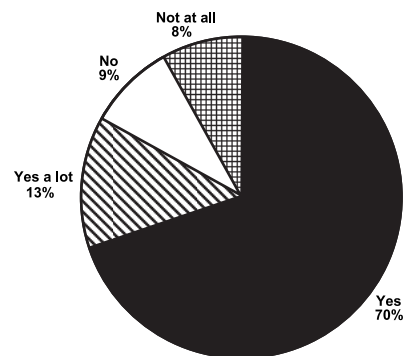
However, during the FGD they mentioned about inadequacy and the poor quality of the drinking water supply during the past few weeks.

Provision and quality of health education

Eighty six percent of the sample population said that they are satisfied about the quality of health education and psychological assistance they received during the aftermath of tsunami.

Figure 4. Satisfaction about the provision of psychological assistance
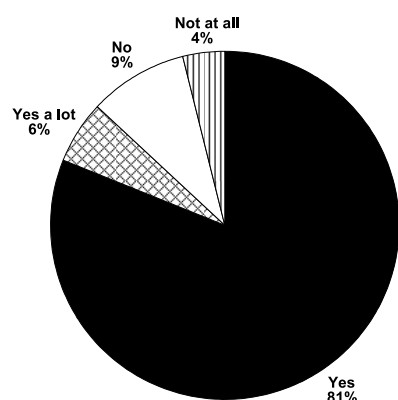
They mentioned *"During the first two months, doctors came to see us and sometimes talked to everyone in the camp individually, especially foreigners who came with their translators."*

Interviews with health authorities

Initially, there had been 40 camps in the Hikkaduwa Medical Officer of Health (MOH) area. Out of these, only 13 were in existence at the time of study. (By July 2005, eight camps were still in existence). People who lived in small camps were moved into major camps of the area. About 25 medical teams have visited the camps since they were established. Special education programs have been conducted by the Public Health Inspector (PHI) and the Public Health Midwives (PHM) in their respective areas on checking the quality of drinking water, preparing solution for cleaning and hand washing techniques. Public Health Midwives has conducted education programmes on child health and good food hygiene. They were supplied with water filters, mosquito nets, food covers and

equipments for children. These were donated by local and foreign organizations. Special antenatal clinics and education programmes were conducted by the consultants. Community leaders were trained on basic heath care practises and they supervised these activities in their camps. Statistical data on IDPs was collected by the MOH offices and regularly updated. These data was useful for distribution of donations, They mentioned some families have registered into two camps and it was impractical to cross check manually as these data was not computerized. Some families not affected by the Tsunami were also registered in order to be eligible for the donated houses. The officers expressed the need for an integration of health care and administrative services (eg. Divisional Secretariat) in order to limit the above deficiencies.

Discussion

It is important to ensure delivery of healthcare to those with the greatest and most immediate need[6]. In providing healthcare during the aftermath of Tsunami, one of the main problems faced was the damage to the local health care infrastructure[7]. This was further complicated by the fact that affected countries such as Sri Lanka had limited resources[8]. Therefore, the local authorities needed the assistance of other outside sources to re-establish the services and to achieve pre-disaster status.

The immediate response to the tsunami was to help local authorities in the provision of life saving care, mobilizing supplies, and assessing health needs. Within the first few weeks, medical staff and supplies were moved into the region by many authorities[9]. Until the local health structure was re-established, visiting medical teams had to provide the necessary medical care to IDPs in collaboration with the local health authorities. This study showed that the IDPs were satisfied with the adequacy of visits and services provided by the

medical teams during the immediate aftermath of the Tsunami. However, there was dissatisfaction regarding the continuity of care. The need for assistance by those who still live in the camps may continue for years[6]. Therefore, it is important to ensure ongoing access to health care for those IDPs. Following the first few months, the healthcare structure was re-established to provide services to those in need. Although it has not reached the pre- disaster status with reallocation of physical and human resources a satisfactory level of function has been achieved. Therefore the local health care structure is capable of providing on-going medical care to Tsunami survivors.

Access to safe drinking water is one of the most urgent needs of IDPs[9]. Eighty three percent of the study population expressed their satisfaction regarding the provision and quality of drinking water. There is a potential for infectious disease outbreaks due to poor sanitary facilities in Sri Lanka[10]. Similarly, in this study, a majority of this population were dissatisfied with the sanitary facilities provided. This is an area which needs improvement and attention of the authorities.

Conclusion and Recommendations

There should be more coordination and equal distribution of visits by the mobile medical teams to the relief camps. It would be better if these visits are regulated by the local authoritative body. It is important to form quick response disaster management teams and train the volunteers along with the existing staff on guidelines of disaster management. The health authorities must ensure the quality and sustainability of sanitary facilities provided by the other local government authorities (eg. municipal council, water board) through inter-sectoral collaboration.

This study highlights the need to provide high quality and sustainable healthcare service for IDPs during the aftermath of a disaster. Even though

there are unique differences among the Tsunami affected countries, the effects on health and the need for assistance is similar. Therefore, the lessons learned during the aftermath of the Tsunami are applicable for all the affected countries. Furthermore, such knowledge can ensure that the health and emergency medical relief and limited resources are well managed during future disasters[11].

Study limitations

The study covers only one health administrative area in the southern province of Sri Lanka. Due to time constrains and other logistical difficulties, the study could not cover all the tsunami affected areas in Sri Lanka. The pre-Tsunami socio economical status was different among various affected areas and therefore, the recovery was varied. Success of health education programmes depends on the educational status of the residents in that area. Southern province is one of the developed areas in the country and has easy road access to the capital city and health care facilities are freely available. Therefore, these factors could have contributed to its recovery after the tsunami.

Note
This study was conducted as part of the MBBS undergraduate course in the Community Medicine Stream in the Faculty of Medicine, Colombo.

The research proposal was approved by the department without ethical clearance as it included only perceptions of health care services and did not include any personal details and experiences.

References

1. ARRL and American Red Cross MOU 2005. Available at: http://www.arrl.org/FandES/field/mou/redcro.html. Accessed 22 April 2005.
2. Karunathilake I. (Editor) Guidelines for Disaster Management. Faculty of Medicine, University of Colombo; 2005.
3. Department of Census and Statistics, Sri Lanka. Final Report - Census on the Buildings and People Affected by the Tsunami Disaster – 2004.
4. Griekspoor A, Nabarro D, Loretti A, Smith I. Change will not happen overnight. BMJ 2005; 330: 250-251
5. Banatvala N, Anthony BZ. Public health and humanitarian interventions: developing the evidence base. BMJ 2000; 321: 101-105.
6. Walker P, Wisner S, Leaning I, Minear L. Smoke and mirrors: deficiencies in disaster funding. BMJ 2005; 330: 247-250.
7. Centre for Disease Control and Prevention. Rapid Health Response, Assessment, and Surveillance after a Tsunami Thailand 2004-2005. MMWR 2005; 54(03): 61-4. Available at http://www.cdc.gov/. Accessed 22 April 2005.
8. Bremer R. Policy development in disaster preparedness and management: lessons learned from the January 2001 earthquake in Gujarat. India. Prehospital and Disaster Medicine 2003; 18(4): 372-84.
9. WHO. WHO response to tsunami 2005. Available at http://www.who.int/tsunami/en! Accessed 22 April 2005.
10. WHO. Tsunami and Health Situation 2005. Available at http://www.whosea.org/LinkFiles/Situational_Reports_11-_8Jan05.pdf. Accessed 22 April 2005.
11. Noji EK. The public health consequences of disasters. Prehospital and Disaster Medicine 2000; 15(4): 147-57.

A Tsunami Related Tetanus Epidemic in Aceh, Indonesia

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Abstract

In January 2005, a tetanus epidemic was discovered amongst survivors of the Boxing Day Tsunami in Aceh, Indonesia. Our aim was to describe the extent of the tetanus outbreak in tsunami survivors admitted and describe the case outcomes from one hospital. All clinicians were instructed to report suspected cases to a centralised organisation using a standardised data collection tool. Active case finding was carried out by a trained team that visited hospital wards in Aceh. Of the 106 cases, 79% was above 25 years old (the median age was 40 years) and 62% was male. The mortality rate in Aceh was 19% and that of in follow up cases was 17%. Fifteen of the follow-up cases were admitted with severe tetanus associated with superficial wounds, three of whom had a history of immersion. Supplies to treat the tetanus cases in this epidemic were initially limited as disaster relief agencies were not prepared for the resultant tetanus epidemic. The mortality rate of 17%, was significantly less than was usual for tetanus in adults (>50%) and children (80%) in underdeveloped countries. To reduce mortality and morbidity, rapid disaster relief organisations should include supplies for vaccination and treatment of tetanus cases and consider early tracheotomy for severe cases. *Asia Pac J Public Health 2007; 19(Special Issue): 40–44.*

Keywords: Aceh, tetanus, tsunami, vaccination.

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Introduction

On December 26, 2004 an earthquake in the Indian Ocean generated massive tsunamis that devastated the surrounding countries, especially the coastal areas of Aceh, Indonesia, 100 miles east of the epicenter[1]. In response to the tsunami, assistance was mobilised in an unprecedented manner including mobilising international teams of medical, humanitarian, and other aid and relief workers[2].

The official death toll in Aceh from the tsunami was 129,830[3]. Although most of these deaths occurred on the day of the tsunami itself, some of the survivors died shortly after that due to associated injuries. One cause of delayed death in Aceh was tetanus. Tetanus spores are ubiquitous in the environment and germinate when introduced into favourable environments, such as traumatic wounds[4]. The gram-positive, anaerobic bacillus *Clostridium tetani*, produces a potent neurotoxin causing classical tetanus presentations that includes the tetanic spasms, dysphagia, risus sardonicus, trismus, and autonomic dysfunction[4].

Although tetanus is rare in high resourced countries due to vaccination, the eradication of tetanus globally remains elusive with estimates of deaths attributable to tetanus worldwide at one million a year[5]. In high resourced countries, mortality attributed to tetanus has been estimated between 15% - 40%[6,7] while in low resourced countries, estimates are as high as 70%[5,8]. Seven per cent of neonatal deaths worldwide is due to tetanus[9] even though, maternal vaccination is the most cost effective means of prevention of neonatal tetanus[10].

Treatment of tetanus depends on neutralising the toxin, (tetanus toxoid vaccine and immunoglobulin) eradicating the organism, (wound debridement and antibiotics e.g. Flagyl) and preventing complications (protecting the airway, reducing spasms and treating autonomic dysfunction). Cost effective treatments such as the use of magnesium in tetanus are showing promise in third world countries where ICU resources are limited[11].

Since 1980, the Indonesian health department has targeted maternal vaccination and childhood vaccination against tetanus in Aceh[12]. In this paper, we provide an account of this tetanus epidemic.

Methods

Clinical doctors and nurses in eight hospitals across Aceh received a

standard case definition of tetanus. All hospitals agreed to notify all suspected cases of tetanus that fulfilled the case definition to the tetanus investigators from the Indonesian Ministry of Health, the World Health Organization (WHO) and the Global Outbreak Assessment and Response Network (GOARN). Validation of reported cases and active case finding was carried out by the team with assistance from relief agencies during visits to hospitals.

The case definition for tetanus was clinical based and included one of the following signs, trismus of the facial muscles, (masseter and neck), risus sardonicus and or painful muscular contractions without any other apparent cause[13]. The spatula test for trismus causes masseter contraction (a major jaw muscle used in chewing) and is a simple and reliable bedside test for the diagnosis of early tetanus and laboratory confirmation of *Clostridium tetani* is not required in the majority of case presentations[14].

Only patients admitted in the Zainil Abidin Hospital, Banda Aceh, with suspected tetanus were examined and classified using Abletts criteria[15] for tetanus and followed up for their treatment and outcome. During the early stages in the response to the natural disaster, medical records were not always inclusive of changes in treatment as medical supplies became available (Pictures 1 & 2).

Data were entered into a database developed with EPInfo Version 6 software (Centers for Disease Control and Prevention, Atlanta, Ga).

Results

The WHO recorded a total of 106 cases from all sites in Aceh province (Figure 1). There were 59 tetanus patients in Banda Aceh city and the largest cohort of cases, 35 were found in the Zainal Abidin hospital. All tetanus patients presented within one month of the tsunami, with presentation on average by day 14 post-tsunami. In the Zainal Abidin

Picture 1.

Picture 2.

cohort, all cases presented at least 48 hours after the onset of symptoms.

The age range of all tetanus patients was from one year to seventy years of age with a median of 40 years (Table 1). The majority (79.4%, 95% CI 70.3%, 86.5%, *p*<0.0001) of cases were adults above 25 years of age and male (62.3%, 95% CI 52.3%, 71.5%, *p*<0.0001).

The treatment regime included administration of tetanal immune globulin (TIG) and/or anti-tetanic serum (ATS) to neutralise the toxin, absorbed tetanus toxoid vaccine (ATT) for prevention, sedatives for relief of severe pain associated with spasm, surgical debridement or amputation and antibiotic treatment of

Figure 1. Number of cases of tetanus by date of admission to hospitals, Aceh province, 30 December 2004 to 28 January 2005. (n=101, *5 cases with date of admission unknown)
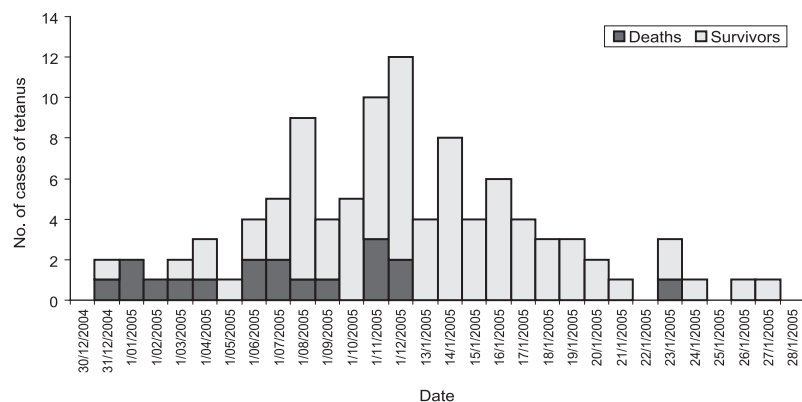
Table 1. Distribution of tetanus cases by age and gender

Age (years)	Male N (Col%) [95% Confidence Intervals]	Female N (Col%) [95% Confidence Intervals]	Total N (Col%) [95% Confidence Intervals]
<25	9 (13.6) [6.4, 24.3]	13 (32.5) [18.6, 49.1]	22 (20.7) [13.5, 29.7]
>25	57 (86.4) [75.7, 93.6]	27 (67.5) [50.9, 81.4]	84 (79.4) [70.3, 86.5]
Total	66 (62.3) [52.3, 71.5]	40 (37.7) [28.5, 47.7]	106 (100.0)
p-value	<0.0001	0.002	<0.0001

the wound and co-morbidities, intubation and ventilation was required in severe cases to prevent asphyxiation and respiratory distress from spasms. The following treatment relates to 35 patients in Zainal Abidin hospital where the authors were based.

Anti-tetanus treatment
All 35 patients were given ATT. Most were given TIG (500 to 4000 units) and/or ATS (20,000 units per day for up to 4 days) as it became available. With 15 TIG vials available for the entire Banda Aceh delayed treatment with TIG was common.

Antibiotics
All 35 patients at Zainil Abidin hospital received a combination of Metronidazole and a 3rd generation cephalosporin (for co-morbid conditions). The route of administration of Metronidazole (oral, intravascular (IV) or nasogastric tube) was dependent on availability of IV Metronidazole.

Wound debridement
Complicated wounds were grossly contaminated and required repeated surgical debridement and secondary repair. Surgical interventions were carried out initially in tents. Ten patients were admitted with severe tetanus associated with healed superficial wounds. Poor dentition was noted in three cases of tetanus all of whom had superficial wounds and a history of immersion during the tsunami.

Co-morbidities
Sixteen of thirty five patients were admitted into the ward with clinical evidence of aspiration pneumonia. Bacteriological tests were not immediately available. Multi-resistant microbes from wounds and sputum were noted in patients who had already received blind broad spectrum coverage. Co-morbidity with Malaria (1), and Pulmonary TB (3) were diagnosed in four cases on clinical presentation and radiology.

Inpatient days
Length of stay (LOS) was associated with grade of Ablett. Grade 1 had an average LOS 6.8 days, Grade 2 had an averaged LOS of 9.16 days while Grade 3 was 18.2 days.

Sedation
All but one patient (Ablett Grade 1) received sedation to reduce the spasms and for pain management (Picture 3). Of the 34 patients sedated,

all received Diazepam and severe cases received I.V. Morphine while in supply. When Diazepam and Morphine was unavailable, Ketamine was administered (with Atropine to decrease secretions), but was not well tolerated by the tetanus patients. Four patients with severe tetanus were treated with a Magnesium infusion when it arrived, which also reduced the autonomic dysfunction (sweating, hypertension).

Ventilation management
Tracheotomy was performed to prevent asphyxiation and assist respiration in four cases with severe tetanus. They were ventilated for

Picture 3.

Table 2. Frequency and description of presentation of patients by Ablett grades

Grade (number of patients presenting)	Severity	Signs and Symptoms
Grade 1 (N=6)	Mild	Trismus
Grade 2 (N = 14)	Moderate	Muscle rigidity (trismus, dysphagia, risus sardonicus, neck rigidity, opisthotonus) and fleeting spasms not embarrassing respiration
Grade 3 (N =15)	Severe	Muscle rigidity and severe spasms

airway management for several days. One patient with severe tetanus required emergency cricoidotomy for acute laryngeal spasm and was later converted to a formal tracheotomy.

Outcome

Two fatalities due to asphyxiation did not receive early tracheotomy. No more deaths occurred with the practice of elective tracheotomies performed on the remaining four patients with severe tetanus.

The overall mortality rate from tetanus in Aceh was 19% (20/106). In the first hospital to open (Kesdam military hospital) the mortality rate in tetanus cases was 67% (6/9). Aspiration pneumonia in combination with tetanus was the cause of four deaths of the six deaths, two of whom died with sputum retention. In Zainal Abidin hospital, the case fatality rate was 17% (6/35) and 28 were discharged well with one patient requiring a long term tracheotomy.

Discussion

This outbreak of tetanus surprised both health officials and relief agencies in Aceh, Indonesia. A similar epidemic of tetanus (139 cases / 41 deaths CFR= 29.5%) was noted after the South Asia earthquake in 2005[16], and another was noted after the Jogjakarta earthquake in 2006[17] (81 cases /31 deaths CFR= 38.7%). The mortality in both of these tetanus epidemics was significantly higher than the mortality in the Aceh tsunami-related tetanus epidemic which had an unprecedented international medical response. The mortality rates in our report of this tetanus epidemic could have been reduced further if the international disaster relief organisations had expected a tetanus outbreak and supplied both tetanus prevention and tetanus treatments.

It is likely that the magnitude of the outbreak in our report was underestimated. Many factors impeded case finding; access to health care was limited as the tsunami resulted in the destruction of roads and health care facilities and patient care resources such as lack of food, clean water, fuel, transportation and accommodation.

There are three possible scenarios that could have resulted in under-reporting of tetanus associated deaths; (1) patients with tetanus were unable to reach hospitals for care, and (2) patients who refused amputation and discharged themselves, and (3) tetanus patients in hospital with serious injuries may have died before their tetanus was clinically evident.

The first two possibilities will have most likely affected our estimation as early onset of symptoms, less than seven days, is associated with high mortality[18]. Over-reporting due to false diagnosis of tetanus is unlikely as clinical diagnosis of tetanus has been demonstrated to be reliable[18].

The Indonesian 2000 census indicated that male to female ratio in Aceh is close to 1:1[19]. Yet, there were significantly more male adults with tetanus. This gender difference may be the result of an extensive immunisation programme in Aceh province from 1980s onwards[20] protecting the young and female tsunami survivors. The vaccination programme targeted at children, adults prior to marriage and antenatal vaccination. The reported excess of mortality in females and children during the tsunami may also have contributed to the disproportionate cases in male adult survivors[21].

Tetanus has been described as a third world disease needing first world treatment[22]. The current recommended therapy in the high resourced countries requires quality ICU for 33 - 40 days[6,7] and despite this, high mortality rates still exist in highly resourced healthcare systems[6,7,23-25]. The treatment of tetanus patients varied between institutions in Aceh. The high mortality at Kesdam may be a reflection of the severity of cases that attended the first available operating hospital in Banda Aceh. Zainal Abidin hospital may have benefited by a high concentration of surgical support required for the large number of patients. In under resourced countries, the excepted mortality rates for adult tetanus can be over 50% and 80% for infant tetanus[22]. Yet, the overall mortality rate of 19% in this epidemic is a testimony to the capabilities of the relief organisations working in disaster situations.

Chest complication was the main cause of fatality and was consistent with other reports[22]. A mixed bacterial infection from immersion ("tsunami lung") may have contributed to our tsunami survivors' mortality. It is possible that some tetanus cases with superficial wounds were infected with spores through poor dentition[23]. During natural disaster relief, aggressive and early use of tracheostomy and the use of Magnesium should be considered to treat tetanus in disaster situations when ventilation is not available, doctors are familiar with its use and it is cost effective[9,22].

Our account demonstrates that tetanus epidemics occur after disasters, especially in communities where vaccination coverage may be questionable, but reasonable outcomes are achievable even with relatively rudimentary facilities. We believe disaster relief organisations consider tetanus preparedness to ensure mortality from this preventable disease is minimised. Preparedness could include adequate tetanus treatment supplies, including active and passive immunisation for patients, supplies for community vaccination programmes, and a protocol advocating early tracheostomy and magnesium in severe tetanus cases.

References

1. Lay T, Kanamori H, Ammon CJ, *et al*. The great Sumatra-Andaman earthquake of 26 December 2004. Science 2005; 308 (5725): 1127-33.

2. World Health Organization. Situation Report 4. Geneva, Switzerland: World Health Organization; 2005. Available at http://www. who.int/hac/crises/ international/asia_tsunami/sitrep/ 04/en. Accessed 17 January 2006.

3. The Reconstruction Agency for Aceh and Nias [BRR] and Indonesian Red Cross, June 18, 2005; Office for the Coordination of Humanitarian Affairs [OCHA], June 2005.

4. GalazkaA, Gasse F. The present status of tetanus and tetanus vaccination. Curr Top Micro Immun 1995; 195: 31-53.

5. Dietz V, Milstien JB, van Loon F, *et al*. Performance and potency of tetanus toxoid. Implications for elimination neonatal tetanus. Bull WHO1996; 74: 619-628.

6. Trujillo MH, Castillo A, Espana J, Manzo A, Zerpa R. Impact of ICU management on the prognosis of Tetanus. Analysis of 641 cases. Chest 1987; 92 (1): 63-65.

7. Sun KO, Chan YW, Cheung RTF, So PC, Yu YL, Li PCK. Management of tetanus: a review of 18 cases. Journal of the Royal Society of Medicine 1994; 87: 135-137.

8. Hesse IF, Mensah A, Asante DK, Lartey M, Neequaye A. Adult tetanus in Accra, why the high mortality? An audit of clinical management of tetanus. West Afr J Med 2005; 24 (2): 157-61.

9. Lawn JE, Cousens S, Zupan J. Lancet neonatal survival steering team. 4 million neonatal deaths: When? Where? Why? Lancet 2005; 365 (9462): 891-900.

10. Demicheli V, Barale A, Rivetti A. Vaccines for women to prevent neonatal tetanus. Cochrane Database Syst Rev 2005; 19 (4): CD002959.

11. Attygalle D, Rodrigo N. New trends in the management of tetanus. Expert Review of Anti-infective Therapy 2004; 2 (1): 73-84.

12. Yusuf B, Solter S, Bertsch D, Arnold RB, Impact of a tetanus toxoid immunization mass campaign on neonatal tetanus mortality in Aceh Province, Indonesia. Southeast Asian J Trop Med Public Health 1991; 22 (3): 351-6.

13. Communicable Disease Toolkit for Tsunami Affected Areas. Surveillance System for Emergency Phase WHO. Available at http://www.who.int/hac/techguidance/pht/communicable_diseases/cds_ewarn_tsunami.pdf. Accessed 17 January 2006.

14. Apte NM. Karnard DR. Short report: spatula test a simple bed side test to diagnose tetanus. Am J Trop Med Hyg 1995; (53): 386-387.

15. Ablett JL. Symposium on Tetanus in Great Britain, Leeds. 1967

16. WHO South Asia Earthquake Situation Report. No. 19, (139 cases of tetanus). Available at http://www.who.int/hac/crises/international/pakistan_earthquake/sitrep/en.index.html. Accessed 17 January 2006.

17. Health Cluster Bulletin No. 5 Indonesia earthquake 27 May 2006. Available at http://www.searo.who.int/Link_Files/Indonesia_-_Emergency_Situation_Report_Bulletin_05.pdf. Accessed 25 October 2006.

18. Veronesi R, Focaccia R. The clinical picture. In: Veronesi R, (editor) Tetanus: Important New Concepts. Amsterdam. Excerpta Medica 1981: 183-206.

19. Indonesia 2000 Population Census. BPS statistic Indonesia.

20. Anwar Z, Djamil H, Pardede N, Ismail R, The pattern of the causes of death in children in rural swampy area of South Sumatra, Indonesia. Paediatr Indones 1987; 27 (5-6): 93-8.

21. Carballo M, Hernandez M, Schneider K, Welle E. Impact of the Tsunami on reproductive health. J R Soc Med 2005;98 (9):400-3.

22. Delport SD. Neonatal tetanus- an opportunity for prevention. South African Med J 1990; 77: 78-9.

23. Saltoglu N, Tasova Y, Midikli D, Burgut R, Dundar I. Prognostic factors affecting deaths from adult tetanus. Clinical Microbiol Infect 2004; 10 (3): 229.

24. Reis E, Freire E, Alexandrino S. Tetanus in an ICU in Portugal. International Journal of Intensive Care 1994/5; 1 (4): 120-121.

25. Bardenheier B, Prevots DR, Khetsuriani N, Wharton M, Tetanus surveillance – United States 1995-1997. MMWR CDC Surveill Summ 1998; 47 (2): 1-13.

Abstract

Although natural disasters may cause massive loss of human life and destruction of resources, they also present affected populations with a rare opportunity to access external resources. Nevertheless, many post-disaster medical relief intervention programmes only focus on the provision of acute medical services and the control of communicable diseases. Currently, no specific study has examined why chronic medical needs seem to be insufficiently addressed in disaster relief interventions. This paper review current knowledge about how natural disasters affect people with chronic medical needs, assess possible factors in disaster preparedness and response that pre-empt addressing chronic medical needs and suggest possible ways to overcome these barriers. Unawareness and insensitivity of relief workers towards chronic medical conditions, the practice of risk rather than need-based assessments, a focus on acute needs, the lack of reliable indicators and baseline information, and the multi-dimensional characteristics of chronic medical problems all pose serious challenges and probably deter the government and post-disaster relief agencies to deal with diseases of a chronic nature. It is important to increase the awareness and sensitivity of the stakeholders towards chronic medical problems during all phases of planning and intervention. Relevant assessment tools should be developed to rapidly identify chronic medical needs in resource deficit settings. Community partnership and collaboration that promote local ownership and technical transfer of chronic disease management skills will be essential for the sustainability of services beyond the disaster relief period. Potential programmes might include the technical training of local staff, establishment of essential drug and supply lists, and the provision of a range of medical services that may address chronic health needs. *Asia Pac J Public Health 2007; 19(Special Issue): 45–51.*

Keywords: Disaster medical relief, chronic disease, needs assessment, natural disaster, resource allocation, sustainability, community partnership, SPHERE.

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Medical Interventions following Natural Disasters: Missing out on Chronic Medical Needs

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Introduction

In 2000, the WHO reported that non-communicable diseases accounted for up to 59% of the total mortality in the world and 46% of the global burden of disease[1]. These diseases often have the greatest effect and worst consequences in the developing world and in the poorest segments of the population[2]. It is estimated that chronic conditions will be responsible for 78% of the disease burden in developing countries by 2020. With limited resources and expertise, many of these developing countries will have to concurrently respond to the double burden of both acute infectious diseases and chronic diseases.

In recent years, the international disaster response guidelines such as the Sphere Project's Humanitarian Charter and Minimum Standards in Disaster Response[3] have advocated for the inclusion of non-communicable diseases as part of the minimum standards of humanitarian medical interventions. Nevertheless, many post disaster medical relief intervention programmes only focus on the provision of acute medical service and the control of communicable diseases. Moreover, it could be argued, that disasters not only cause massive loss of human life and the destruction of resources, but

may also present the affected populations with a rare opportunity to access external resources and to improve access to services. Frequently, emergency medical relief agencies remain at a disaster affected region for more than six months post-disaster to provide assistance. With their technical expertise, resources and manpower, these external medical relief resources have significant potential to support the restoration, reconstruction and improvement of health services in disaster affected areas. For example, the low cost interventions that are geared towards disease prevention and reduction of chronic medical complications may be established alongside the emergency primary health care services provided during the relief phase.

Thus far, no specific study has examined if chronic medical needs can and should be addressed in the post-disaster interventions. If a case can be made to include chronic medical needs in the post-disaster emergency planning, it will also be useful to examine the factors that currently hamper the proper assessment of these needs and inclusion of appropriate interventions in the emergency response. We will explore these issues further in this paper. More specifically we aim to (1) review current knowledge about how natural

disasters affect populations with chronic medical needs, (2) analyse possible factors in disaster preparedness and response that pre-empt addressing chronic medical needs, and (3) suggest possible ways to overcome these barriers.

While a similar case can probably be made for addressing chronic medical needs in conflict-affected populations, the dynamics of conflict and the response options are sufficiently different; thus in this article we limit ourselves to natural disasters.

Methods

The WHO[1] has expanded the definition of chronic condition from traditional "non-communicable diseases" (e.g. diabetes, cancer and asthma) to include conditions that require extended periods of health care support such as persistent communicable conditions, long-term mental disorders as well as ongoing physical impairments. However, for this study we limit the scope to "traditional non-communicable disease" only. In addition, due to the specific focus on natural disasters, we limited the literature search to natural disasters and deliberately excluded man-made disasters and conflicts. A medical literature search and web site review was conducted using PubMed, Medline, Eldis, Reliefweb and Google Internet search engine with keywords like: "chronic medical needs", "disaster", "heart disease and disaster", "diabetes mellitus and disaster", "asthma and disaster", "disaster medical guidelines". Sources of articles included a mix of scientific studies, field reports, and documents provided by the organisations for medical relief. Personal experience in many disaster response settings, in particular a recent exploratory mission of assessing older people's health needs after the Kashmir earthquake[4], has provided the necessary background. The disaster cycle model, as presented in Figure 1, proves a useful framework to discuss factors hampering the inclusion of chronic

medical needs in the disaster response.

The following are some limitations to this study: i) the exclusive use of publicly available documentation in English, ii) inconsistencies in quality of the used materials, and iii) under-reporting on health experiences in post-disaster settings in developing countries.

Research analysis

The literature search initially yielded approximately 150 relevant articles related to various chronic medical needs in natural disasters. Eighty three percent of these studies were conducted in developed countries (e.g. the US and Japan), while most studies conducted in developing countries were only available as unpublished grey literature or agency technical reports. About 10% of the articles identified were in languages other than English, but with a translated title indicating relevance. Most of these were from countries that were prone to natural disasters, such as Japan and China. Given the sophistication of the earthquake related research in Japan and the high frequency of natural disaster occurrences in countries like China and India, a pitfall of our study was the necessary exclusion of these papers due to the language barrier.

We also conducted a literature search on health experience of the post-natural disaster older people as we believe the burden of chronic disease usually falls upon older people. The results of this additional search did not change the selection of articles as most of the studies on the post-natural disaster older people focused on the excessive mortality of the older population group[5-16] rather than on the chronic health conditions of the survivors.

Results

(I) How disasters affect populations with chronic medical needs?

Overall, there is great scarcity of literature addressing the issue of chronic medical needs during

disasters. However, there is some evidence that people with chronic medical problems are negatively affected by natural disasters in both developing and developed countries. A study of the health status of populations affected by floods in China[17] from 1996-1999 reported a higher prevalence of eight chronic diseases in flooded areas when compared with non-flooded areas. In New Orleans, a post-flood study showed that about 25.4% of adults in the affected population had at least one or more chronic medical problem[18,19]. A study in Japan showed a 3.5 fold-increase of myocardial infarctions and double frequency increases of stroke cases in people living close to the epicentre of the Hanshin-Awaji earthquake in 1995 within the first four weeks, while an increase in cardiac mortality continued for about eight weeks after the earthquake[20]. Another Japanese study found a strong link between the extent of damage due to a catastrophic earthquake and an increase in morbidity rates for both acute (pneumonia and peptic ulcer) and chronic diseases (such as asthma)[21]. Furthermore, asthma was reportedly worse after the Tottoir-Ken Seibu earthquake in 2004, and acute asthma attacks were more likely to occur within the first week after the earthquake[22]. Acute and chronic respiratory failure and acute exacerbation of bronchial asthma each made up 6.8% of the total hospital admissions for respiratory problems one month after the Great Hanshin Earthquake in 1995[11]. Earthquakes might also trigger and exacerbate gastric ulcer[23,24], with bleeding often reported as a complication. Other studies showed that earthquakes adversely affect chronic renal failure requiring dialysis[25,26]. During the Turkey's Marmara Earthquake in 1999, research showed that the earthquake had a negative impact on glycemic control and quality of life (QOL) of people with type 1 diabetes[27], while for the Kobe earthquake, Japanese researchers

revealed that chronic, life threatening stress as a result of a disaster worsened metabolic control (HbA1c) in patients with diabetes mellitus[28-30]. These studies also revealed that pre-quake quality of life levels only got re-established after the extended periods of time. Other research showed an increase in the number of newly diagnosed diabetes patients following the earthquakes in Los Angeles[31] and Armenia[32] respectively. A CDC study in 2004 on needs and the health status of older people after Hurricane Charley showed that the disruption of medical care for pre-existing conditions (CVD, diabetes and physical disabilities) had led to a 32% increase of adverse effects of medical outcomes in some areas.

The literature search leads to three conclusions. First of all, although many clinical findings were based on aggregated data and the associations may be subject to ecological fallacy, the overall pattern indicates that the population groups with pre-existing chronic medical problems tend to be worse off post-natural disaster. Secondly, the pre-existing care for chronic medical needs may be seriously disrupted, with reported of adverse outcomes. Finally, most available documentation is from developed countries, and only limited information on the experience of populations with chronic medical problems in developing countries can be found. Although similar chronic disease complication patterns can be expected from patients regardless of country of origin, the lack of reporting may reflect the lack of understanding, concern and expertise to deal with people with chronic disease in the developing countries. Further analysis in the following section attempts to show how factors in disaster preparedness and response processes may prevent the uptake of addressing chronic medical needs in field practice.

(II) Factors influencing attention to address chronic medical needs before and after a disaster

Figure 1 shows a model that highlights decision making moments in relief resource allocation post natural disaster. This disaster-cycle model[32] views sudden impact disaster as a continuous time sequence of five different phases of operational importance: a pre-disaster phase; the immediate impact of the event; the initial relief response based on an initial needs assessment, followed by a relief programme modification based on further assessments; and finally work on longer term rehabilitation and reconstruction.

(1) Pre-disaster

In general, the degree of socio-economic development will influence the availability of medical services and health resources for a particular population. For developed countries that have resources and experience in dealing with chronic medical problems, services for chronic medical needs can be comprehensive, and disaster preparedness planning[33] should also include needs of patients with non-communicable diseases during emergency. However, in low-income developing countries, fragmented medical services and limited health resources typically limit access to appropriate care for people with chronic medical problems. Frequently, in rural or poor regions, where a disaster tends to disproportionally affect the most vulnerable[34], patients may not even be aware of the existence of their chronic medical problems and needless to say, preparedness and awareness of chronic medical needs during disaster would be non-existent. Thus, the ability for disaster affected populations to handle chronic the medical needs of post disaster varies vastly according to the pre-existing availability of services and care. This implies that if disaster medical relief groups attempt to address chronic medical service during relief interventions, they would have to overcome the lack of pre-existing local service structures, including human resources and technical knowledge, and the absence of a government strategy to sustain

Figure 1. Decision making moments in relief resource allocation post natural disaster

(2)
Event/Impact
Immediate relief response

(3)
Emergency Relief
Initial Need assessment

(1)
Non-disaster/ Interdisaster Pre-existing, normal

(4)
Emergency Relief
Program modification + reassessment

(5)
Rehabilitation
Strategy Long term strategic development
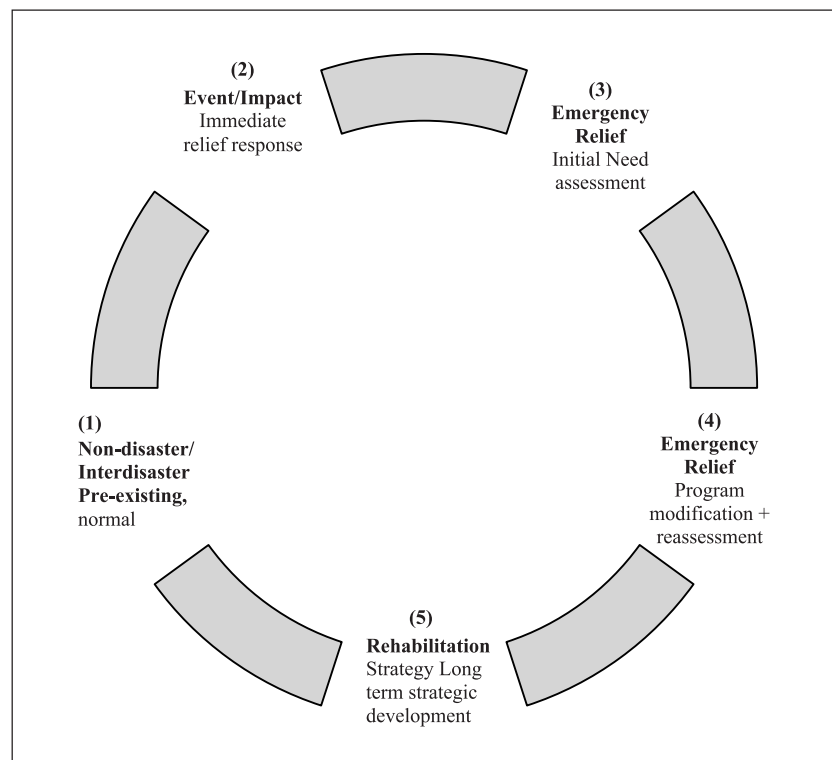
services created for chronic medical conditions during a relief operation. This set of constraints alone usually deters emergency relief agencies to venture into the arena of managing non-communicable chronic conditions.

(2) Impact

During a disaster, the massive loss of life, destruction of health services and structures have often impaired the ability of both government and relief agencies to provide relief beyond essential life saving procedures. Even for countries with disaster preparedness plans, resources for regular primary health care services may be re-directed to emergency services. As a result, chronic medical needs would be sidelined. As pointed out in the previous section, an association between exacerbation of chronic medical conditions and disasters is reflected in the literature. To further complicate the process, relief workers might also unknowingly complicate the medical condition of population groups through their insensitivity towards specific needs of patients with chronic medical conditions. For instance, adverse drug interactions may go unnoticed and dietary needs of diabetes and hypertensive patients may not be addressed in food distribution in disaster relief operations[4]. Unless sensitivity and knowledge of relief workers towards chronic medical needs increases, medical interventions will remain less efficient and effective.

(3) Initial needs assessment

While it is critical to respond quickly to save lives and prevent suffering, obtaining valid information to make evidence-based, appropriate and relevant relief decisions is just as important. Health needs are those needs that can benefit from a service or intervention along the pathway of care, namely, health protection, health education, disease prevention, diagnosis, treatment, rehabilitation and terminal care. Health needs assessment is a systematic method of identifying unmet health and healthcare needs of a population and making changes to meet these unmet needs. Although assessing health needs prior to intervention appears to be evidence-based, it should be noted that traditional needs assessment tends to focus on identifying health risks rather than health needs. These health "needs" assessments focus on minimising potential health risks or hazards (such as possible disease outbreaks) instead of supporting ongoing chronic medical/health needs which have been present prior to disaster.

In addition, most health need assessments only identify acute health problems[3]. Standardised essential data set of different agencies for rapid needs assessment did not identify chronic medical disease as essential data to be collected during assessment[35]. Despite the fact that 25% of people using health facilities following the earth-quake of Kashmir, Pakistan, were older people, none of their chronic health conditions were managed because these needs were not characterised or targeted during the initial relief assessment[4].

Furthermore, unreliable population data, highly mobile populations, poor security, difficult access, and extreme terrain will render direct, accurate collection of health statistics improbable. The lack of pre-existing information on prevalence of chronic problems makes estimation of needed resources more difficult. Proxy measures are often used instead. In the US, the use of the Behavioral Risk Factor Surveillance System (BRFSS) was reported in 2004 to estimate the prevalence and number of people with chronic diseases such as diabetes, heart disease, stroke, hypertension, and current asthma who lived in the New Orleans-Metairie-Kenner area. This information can assist the medical and public health community in assessing the needs of people with chronic diseases after disasters and in planning relief efforts. However, needs assessments in difficult areas like Iraq, South Sudan and Somalia, often come down to assessments of "availability of health facilities" or "presence/absence of health services"[36] Although these indicators may capture access to health services, they do not provide the information that truly reflects the health problems or related needs of the population.

Moreover, factors that affect health outcomes are multidimensional. Many health needs assessments focus on simple measures such as mortality and neglect other relevant health determinants that may have contributed to morbidity. Ill health may be caused by the lack of basic necessities for healthy living such as access to clean water and sanitation or food and nutrition, poor environmental factors, and inadequate housing and security. Relief operation recommendations drawn from single sector assessments will be inadequate to address all aspects of underlying health needs. It is also important to identify the capacity and performance of the local health services. Access to drugs and trained personnel will affect the health of the population. Challenges to the collection of field information will deter intervention planners from conducting in-depth assessments. Overly simplistic health indicators (mortality rates and malnutrition) are not sufficient to capture possible solutions to addressing real needs.

Despite the criticism of the relevance and accuracy of needs assessments, perhaps the most likely culprit in making chronic disease invisible during disaster relief intervention is the fact that formal assessment was not found to be the most important trigger for response. Results of formal assessments were often marginal to decision making[36]. In practice, many health interventions are based on normative needs determined by relief workers, rather than on unmet needs of the most vulnerable. If the relief workers are not sensitive to potential chronic medical needs of an affected population, it will be unlikely that decision makers in disaster relief programmes will include chronic medical needs.

Overall, the lack of awareness and insensitivity of relief workers and, needs based assessments that are primarily focused on health risks and acute needs, together with the lack of reliable indicators, baseline information, and multi-dimensional characteristics of chronic medical problems all pose serious challenges and deter government and relief agencies to deal with diseases of a chronic nature.

(*4*) & (*5*) Programme modification and Rehabilitation

In a situation such as a disaster, competition over limited resources, the lack of know-how and the absence of institutional strategies to deal with chronic medical problems provide poor incentives for medical care workers to deal with chronic conditions. In addition, in developing countries where pre-disaster health services are limited, it will be unlikely to find relevant local staff with adequate knowledge of drug use and skills to support the management of chronic disease. The lack of appropriate human capital, supporting structures, history of multidisciplinary collaboration and government's policy that would be required to sustain services beyond the emergency will often hamper the management or development of relevant chronic disease strategies post-disaster. Furthermore, the absence of relevant field-friendly clinical diagnostic criteria, uncertainty in drug availability and the lack of rehabilitation facilities also pose additional challenges to provide chronic medical service in resource deficit settings. Fundamentally, many disaster medical interventions are acute in nature and targeted on short-term outcomes. Unless relief agencies or governments have strong underlying development ethos or policies that encourage community participation in the process, the concept of planning the long term strategies and sustainable exit planning are simply neglected.

Table 1 provides a summary of the identified factors that may impede the provision of care for chronic medical needs in the disaster affected populations.

(III) What can we do?

In order to make chronic disease management part of the medical response in developing countries affected by conflict, it will be important to take steps in all phases of disaster planning and response. Disaster preparedness will need to incorporate plans to deal with chronic non-communicable diseases should disaster strike. Locally available data will assist in determining disease patterns and prevalence rates, which will be helpful in formulating a response including the stockpiling of appropriate drugs and supplies. Similarly, international relief agencies will need to incorporate expected needs regarding chronic diseases in their contingency planning and be prepared to deal with these diseases, which may include awareness and technical training of their staff. Awareness of the needs of often older, chronically ill people will be a key element during the initial relief phase and will include identification of patients and maintenance of their treatment, possibly through active case finding. Once more extensive needs assessments can take place to modify the initial relief programmes and to prepare for longer term rehabilitation and reconstruction, chronic medical needs will have to be taken into consideration as well. As a guide, various possible, low-cost activities are listed in Table 2 using Leavell's[28] distinction in primary, secondary and tertiary prevention.

Table 1. Factors that may hinder the provision of medical care for chronic conditions during the post disaster medical interventions

(1) Pre-disaster

No services available (resource deficit setting)

No human and technical resources

Chronic medical needs not included into disaster preparedness and planning.

Not government policy priority

(2) Impact

Acute needs take priority

Relief workers unawareness (iatrogenic problems)

(1) (3) Needs assessment

Risk-based rather than need-based

Acute need focus

Assessment issues (mobile population, difficult access, lack of appropriate indicators)

Multidimensional outcomes which require multi-sector collaboration

Lack of sensitivity of relief workers towards chronic care needs

(4) Rehabilitation

Opportunity cost of investing limited resources in chronic medical service

Lack of technical know how of relief workers

Absence of institutional strategy to deal with longer term strategies

The absence of relevant field-friendly clinical diagnostic criteria, uncertainty in drug availability and lack of rehabilitation facilities

Table 2. Potential low cost activities and programmes that might prevent as well as support chronic medical needs of population in developing countries

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Primary Prevention

Educate the affected population about chronic disease prevention and awareness (e.g. dietary /habit, exercise, smoking cessation, alcohol use, injury prevention)

Secondary Prevention

Identify and assess health risk (cardiovascular risk) during opportunistic consultation

Opportunistic screening of chronic medical condition (hypertension, diabetes)

Establish patient management plans for chronic medical problems based on local resources availability

Support establishment of chronic medical service through training and coordination

Tertiary Prevention

Educate health care workers to prevent and detect chronic disease complications through training and coordination.

Act as a liaison to support the development of multidisciplinary service among different sectors in to promote communication and partnership.

Establish disease target monitoring according to local service availability

Support development of disease surveillance programmes at local setting

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In pursuing these activities, agencies should ensure that these activities can be incorporated and sustained in the (re-)emerging health system following reconstruction. The temporary additional resources, in terms of funds and technical capacity, often seen in post-disaster, may be put to use to give a boost to previously neglected care for chronic diseases, but should remain within the longer term realities of the health system at hand. Community partnership and collaboration that promote local ownership and technical transfer of chronic disease management skills will be essential for the sustainability of services beyond the disaster relief period.

Conclusion

The current scarcity of data in the literature points to the necessity for more research on the extent of needs of people with chronic, non-communicable diseases, in particular of older people who may suffer from multiple chronic conditions. Such research may lead the way to improved needs assessment tools and intervention models during disaster responses. This may not only save lives and reduce unnecessary suffering, but may also have longer term effects. As pointed out by Stephenson and Dufrane[37,38], disaster relief has long term implications on the affected area. From a public health perspective, it will thus be important to seize the opportunity during disaster relief to decrease the global burden of chronic disease. Fundamentally, expanding the concept of medical disaster intervention to include chronic medical needs in different stages of disaster planning, response and rehabilitation may benefit local populations in a sustainable way.

References

1. Noncommunicable Diseases and Mental Health. Innovative care for chronic conditions: Building Blocks for Action. Global Report. Geneva: WHO, 2002: 1-98.
2. Ibrahim MA. Editorial: Unfortunate, but timely. Epidemiol Rev 2005; 27: 1-2.
3. The Sphere Project. Humanitarian Charter and Minimum Standards in Disaster Respone. Handbook, Edition 2004, Geneva. Available at http://www.sphere project.org. Accessed 11 April 2006.
4. Chan EYY, Gainey V. Older People Health Need Assessment in Kashmir Pakistan: HelpAged International, 2006.
5. Nishikiori N, Abe T, Costa DG, Dharmaratne SD, Kunii O, Moji K. Who died as a result of the tsunami? Risk factors of mortality among internally displaced persons in Sri Lanka: a retrospective cohort analysis. BMC Public Health 2006; 6: 73.
6. Jani AA, Fierro M, Kiser S, *et al*. Hurricane Isabel-related mortality – virginia, 2003. J Public Health Manag Pract 2006; 12(1): 97-102.
7. Jonkman SN, Kelman I. An analysis of the causes and circumstances of flood disaster deaths. Disasters 2005;29(1):75-97.
8. Chou YJ, Huang N, Lee CH, Tsai SL, Chen LS, Chang HJ. Who is at risk of death in an earthquake? Am J Epidemiol 2004; 160(7): 688-95.
9. Hatamizadeh P, Najafi I, Vanholder R, Rashid-Farokhi F,

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Sanadgol H, Seyrafian S, *et al.* Epidemiologic aspects of the Bam earthquake in Iran: the nephrologic perspective. Am J Kidney Dis 2006;47(3):428-38.

10. Liang NJ, Shih YT, Shih FY, *et al*. Disaster epidemiology and medical response in the Chi-Chi earthquake in Taiwan. Ann Emerg Med 2001; 38(5):549-55.

11. Tanaka H, Oda J, Iwai A, *et al*. Morbidity and mortality of hospitalized patients after the 1995 Hanshin-Awaji earthquake. Am J Emerg Med 1999; 17(2): 186-91.

12. Deaths associated with Hurricane Hugo – Puerto Rico. MMWR 1989; 38(39): 680-2.

13. Earthquake-associated deaths – California. MMWR 1989; 38(45): 767-70.

14. Carter AO, Millson ME, Allen DE. Epidemiologic study of deaths and injuries due to tornadoes. Am J Epidemiol 1989; 130(6):1209-18.

15. Dobson AJ, Alexander HM, Malcolm JA, Steele PL, Miles TA. Heart attacks and the Newcastle earthquake. Med J Aust 1991; 155(11-12):757-61.

16. Flood-related mortality – Missouri, 1993. MMWR 1993; 42(48): 941-3.

17. Li SQ, Tan HZ, Li XL, *et al*. A study on the health status of residents affected by flood disasters. *Zhonghua Liu Xing Bing Xue Za Zhi* 2004; 25(1): 36-9.

18. Ford ES, Mokdad AH, Link MW, *et al*. Chronic disease in health emergencies: in the eye of the hurricane. Prev Chronic Dis 2006; 3(2): A46.

19. Baggett J. Florida disasters and chronic disease conditions. Prev Chronic Dis 2006; 3(2): 66.

20. Kario K, Ohashi T. Increased coronary heart disease mortality after the Hanshin-Awaji earthquake among the older community on Awaji Island. Tsuna Medical Association. J Am Geriatr Soc 1997; 45(5): 610-3.

21. Matsuoka T, Yoshioka T, Oda J, *et al*. The impact of a catastrophic earthquake on morbidity rates for various illnesses. Public Health 2000; 114(4): 249-53.

22. Tomita K, Hasegawa Y, Watanabe M, Sano H, Hitsuda Y, Shimizu E. The Totton-Ken Seibu earthquake and exacerbation of asthma in adults. J Med Invest 2005; 52(1-2): 80-4.

23. Katakami Y. Earthquake-induced stress: relationships and trends noticed in health examination data from survivors of the great Hanshin-Awaji earthquake (Jan. 17, 1995). *Rinsho Byori* 1998; 46(6): 599-604.

24. Takakura R, Himeno S, Kanayama Y, *et al*. Follow-up after the Hanshin-Awaji earthquake: diverse influences on pneumonia, bronchial asthma, peptic ulcer and diabetes mellitus. Intern Med 1997; 36(2): 87-91.

25. Erek E, Sever MS, Serdengecti K, *et al*. An overview of morbidity and mortality in patients with acute renal failure due to crush syndrome: the Marmara earthquake experience. Nephrol Dial Transplant 2002;17(1):33-40.

26. Yashiro M, Muso E, Itoh-Ihara T, *et al*. Significantly high regional morbidity of MPO-ANCA-related angitis and/or nephritis with respiratory tract involvement after the 1995 great earthquake in Kobe (Japan). Am J Kidney Dis 2000; 35(5): 889-95.

27. Sengul A, Ozer E, Salman S, *et al*. Lessons learnt from influences of the Marmara earthquake on glycemic control and quality of life in people with type 1 diabetes. Endocr J 2004; 51(4): 407-14.

28. Inui A, Kitaoka H, Majima M, *et al*. Effect of the Kobe earthquake on stress and glycemic control in patients with diabetes mellitus. Arch Intern Med 1998; 158(3): 274-8.

29. Salman S, Sengul AM, Salman F, *et al*. Influence of earthquake on the quality of life of patients with

type 1 diabetes. Psychiatry Clin Neurosci 2001; 55(2): 165.

30. Kirizuka K, Nishizaki H, Kohriyama K, *et al*. Influences of the Great Hanshin-Awaji Earthquake on glycemic control in diabetic patients. Diabetes Res Clin Pract 1997; 36(3): 193-6.

31. Kaufman FR, Devgan S. An increase in newly onset IDDM admissions following the Los Angeles earthquake. Diabetes Care 1995;18(3):422.

32. Armenian HK, Melkonian A, Noji EK, Hovanesian AP. Deaths and injuries due to the earthquake in Armenia: a cohort approach. Int J Epidemiol 1997; 26(4): 806-13.

33. Flume P, Gray S, Bowman CM, Kerrigan C, Lester M, Virella-Lowell I. Emergency preparedness for the chronically ill. Am J Nurs 2005;105(3):68-72.

34. Wells J. Protecting and assisting older people in emergencies. Humanitarian Network Paper: ODI, 2005.

35. Bradt D, Drummond CM. Rapid epidemiological assessment of health status in displaced populations – an evolution toward standardized minimum essential data sets. Prehospital Disaster Med 2002;17(4):178-185.

36. Darcy J, Hoffmann C-A. According to Need? Need Assessment and Decision-making in the Humanitarian Sector. Humanitarian Policy Group Report: Overseas Development Institute, 2003: 1-75.

37. Stephenson RS, DuFrane C. Disasters and development: Part 1. Relationships between disasters and development. Prehospital and Disaster Medicine 2002; 17(2): 110-116.

38. Stephenson RS, DuFrane C. Disasters and development: Part 2: Understanding and exploiting disaster-development linkages. Prehospital and Disaster Medicine 2002; 17(3): 170-174.

Abstract

This paper describes the results of an investigation into how the December, 2004 tsunami and its aftermath affected the human rights of the survivors. Teams of researchers interviewed survivors, government officials, representatives of international and local non-governmental organisations, UN officials, the military, police, and other key informants in India, Sri Lanka, the Maldives, Indonesia, and Thailand. We also analysed newspaper articles, reports released by governments, UN agencies, NGOs, and private humanitarian aid groups, and we examined the laws and policies related to survivors' welfare in the affected countries. We found worsening of prior human rights violations, inequities in aid distribution, lack of accountability and impunity, poor coordination of aid, lack of community participation in reconstruction, including coastal redevelopment. Corruption and pre-existing conflict negatively impact humanitarian interventions. We make recommendations to international agencies, states, and local health service providers. A human rights framework offers significant protection to survivors and should play a critical role in disaster response. *Asia Pac J Public Health 2007; 19(Special Issue): 52–59.*

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Human Rights and Mass Disaster: Lessons from the 2004 Tsunami[1]

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Introduction

The tsunami of December, 2004 devastated thousands of communities along the coastline of the Indian Ocean killing more than 240,000 people. Tens of thousands went missing and are presumed dead, and more than a million people were displaced. Those most affected by the tsunami were the poor, including fisher folk, coastal workers with small retail or tourist businesses, workers in the tourism industry, migrants, and those who farmed close to coastal areas. The majority of those who died were women and children[2].

While relatively greater attention has been paid to the plight of refugees protected under the Refugee Convention[3] and civilians affected by mass violence in armed conflict who are accorded special status under international humanitarian law[4] and the Geneva Conventions[5], the international community has not addressed directly what mechanisms might apply when the human rights of those displaced by natural disaster are violated. In recent years, the United Nations has issued guidelines for the protection of internally displaced populations (IDPs), those who do not cross international borders, whose protection and support must come from the state of which they are citizens[6]. The category of the internally displaced includes those who are forced to move from their homes due to "natural or human-made disasters." It is important to note that while refugees and civilians in armed conflict are guaranteed rights under international law, the IDPs fall under a set of guidelines that offer a standard of care but do not have the force of law at this point in time. Therefore, states are under no international legal obligation to care for their IDPs. Existing human rights norms provide some protection, but are not tailored to the specific vulnerabilities of IDPs, and therefore expose the displaced to deprivation of rights. In fact, when a state is in the throes of civil war or intrastate conflict, the state itself may displace vulnerable populations. Further, when a massive disaster strikes, the state simply may not have the resources to care for its people. Such was the situation in the months following the tsunami.

An additional international effort to assure that humanitarian aid will be delivered in an ethical manner has been developed by international humanitarian agencies in response to

concerns that no guidelines of this sort existed. The Sphere Project produced a Humanitarian Charter and Minimum Standards in Disaster Response for humanitarian assistance to "establish minimum standards in core areas of humanitarian assistance" and "improve the quality of assistance to people affected by disasters, and to enhance the accountability of the humanitarian system in disaster response"[7]. The standards, framed as rights, apply to food, water, sanitation, health, and shelter; the project also articulates technical indicators to monitor implementation of these guarantees. The goal is to promote voluntary compliance with these minimum standards among humanitarian agencies and states in order to provide those affected by disasters with access to a life with dignity. The guiding principles for internally displaced populations and the Sphere standards together provide benchmarks against which to measure the success of the tsunami relief and reconstruction efforts in fulfilling the basic human rights of survivors. One way that humanitarian interventions in the wake of mass disasters may be judged is by their success in promoting and protecting the rights of those who survive as measured by international instruments that protect the right to health such as the International Covenant on Economic, Cultural, and Social Rights[8]. A recent positive development has been that in the wake of the tsunami, the United Nations has developed operational guidelines for states and aid agencies to promote a rights-based approach to assistance to those displaced by natural disaster, in the absence of an international treaty[9]. The effectiveness of health-related interventions can be maximised by using a human rights analysis to evaluate their appropriateness.

The horror of the tsunami challenged the capacities of governments, non-governmental organisations, the international humanitarian community, and health professionals to deliver services that would meet the needs of those who had lost every-thing. It was an opportunity to examine closely the linkages between health and human rights. As Jonathan Mann observed[10], "the promotion and protection of human rights and the promotion and protection of health are fundamentally linked." Along with the provision of clean water, shelter, food, and sanitation and attending to the emotional needs of the survivors, ensuring respect for human dignity and protection from those who would seize the opportunity to violate the rights of the most vulnerable becomes a critical aspect of the aid effort.

Soon after the tsunami, scattered reports appeared that women and children were at risk to become victims of human trafficking for the sex industry, placed in forced labour or indentured servitude. While there was little evidence that this had occurred, international agencies raised the alarm[11]. The Human Rights Center at the University of California, Berkeley and the East-West Center in Honolulu, Hawaii collaborated to examine this question and further, to investigate whether human rights violations were taking place in the affected states.

While the literature on disaster management has developed in the past few years[12-15], most recently spurred by threats of bioterrorism, the framework of human rights has received little attention in the arena of natural disasters. Yet, the effects of Hurricanes Mitch and Katrina, the earthquakes in Gujarat, Pakistan, Iran and Turkey, and the catastrophe of the tsunami immediately raise questions to which human rights treaties and international law might provide answers. We know from consideration of past disasters that the most vulnerable populations (the poor, the excluded, those at the margins of society) are the most affected. The poor often live in areas which are subject to greater risk e.g. in the *favelas* of Brazil, in the townships of South Africa, and in the squatter camps that surround the new megacities of Africa; thus geography and poverty play a role in who is most affected by natural disaster. In these same areas, access to health care is limited and endemic disease weakens communities. We know too that if these disasters occur in the context of war or violence that a community in which there is little infrastructure or in which food security has been compromised will be at significantly greater risk. Further, if there is an ongoing war or mass violence or where torture, disappearances or extrajudicial executions have occurred, large segments of the population may already be displaced and living in precarious situations.

South Asia has undergone massive change in the last twenty-five years. The so-called "tiger" economies have catapulted once poor countries into the global marketplace, yet the wealth is unevenly distributed. While many have grown rich, many others toil for little pay; some make their living as they have for generations – from the sea or agriculture - with no resources set aside for bad times. Marginalised populations facing discriminatory practices because of ethnicity or religion or because they are refugees or are otherwise poor are exploited by employers and by governments as well. Despite the fact that many of these states have signed international human rights treaties[16], pledging to promote human dignity and to uphold important protections for all of their citizenry, in practice, these protections may be a charade. Where this is the case, a natural disaster will worsen the predicament of those whose rights are poorly supported.

Methods

Shortly after the devastating tidal wave, multilateral and nongovernmental international organizations began to raise questions about how the basic rights and human dignity of tsunami survivors were being compromised by corruption, discriminatory practices based on gender, ethnicity or caste, forced displacement and by inconsistent responses by aid workers[17]. In March and April 2005, with

these considerations in mind, in collaboration with researchers in five countries that were severely affected by the tsunami - India, Indonesia, the Maldives, Sri Lanka, and Thailand - we carried out an interview survey of a representative sample of survivors and key informants in order to evaluate the effects of the tsunami on the human rights of those who were affected. This was designed primarily as an ethnographic study to include interviews, group meetings, document analysis, and observation in affected areas[18].

The objectives of the study are as follows:

1. to assess the nature and extent of pre-existing human rights problems and their impact on vulnerable groups prior to the tsunami;

2. to investigate violations of human rights in the post-tsunami period;

3. to examine the response of governments and aid agencies to reports of human rights abuses; and

4. to identify human rights violations that may develop or persist during the reconstruction phase.

Researchers used a semi-structured questionnaire to gather the data. The questionnaire and procedures were approved by the Institutional Review Board of the University of California, Berkeley. Ethical concerns that might arise in such a study emerge from the possibility of placing respondents at risk for retaliation. We asked respondents about discrimination in humanitarian assistance, human rights violations, corruption, trafficking, child abduction, and forced labour. We addressed human rights violations prior to the tsunami as well. Interviews of survivors were anonymous. Key informants had the option of anonymity and if they were public figures, they were aware of what was acceptable to say.

We asked similar questions in all five countries. In some cases, survivors were interviewed in a group setting, particularly in shelters or temporary housing camps for displaced people. It proved difficult at times to interview one or two people since they would be joined quickly by anywhere up to 40 survivors, all of whom wanted to express opinions. We identified key informants – defined as individuals directly responsible for developing or implementing policies or practices that affected post-tsunami relief – through contacts with researchers, international, and local organisations. These informants included representatives of government aid or other agencies, police, army officers, UN disaster relief personnel, and representatives of non-governmental human rights and aid organisations. In India, we surveyed individuals living along the coast of Tamil Nadu, the worst hit state, and in the districts of Cuddalore, Nagapattinam, Kanyakumari and Kancheepuram. In Sri Lanka, we interviewed in three provinces, Northeastern (Batticaloa and Ampara), Southern (Galle and Matara), and Western (Colombo). In the Republic of the Maldives, research was done in Male', Hulhumale', and Guraidhoo. In Thailand, interviewers worked in eighteen communities on the coasts of the Andaman Sea and the Gulf of Thailand. Finally, in Indonesia, field research was undertaken in nine refugee areas, Banda Aceh, Aceh Besar, Sigli, Bireuen, Pidie, Lloksuemawe, Aceh Utara (all in Aceh), Medan and Deli Serdang (in North Sumatra). In sum, the population that we sampled came from areas where massive damage and displacement had occurred.

Researchers also consulted archival documents; including newspaper

Table 1. Sources of data

Country	# Key Informants	# Survivors
India	16	58
Maldives	22	15
Sri Lanka	22	92 (includes groups)
Thailand	34	32
Indonesia	41	27
TOTAL	135	224

articles, and reports on the conditions and experiences of tsunami survivors, as well as laws, policies, and guidelines issued by national governments and international organisations.

Results

While the five countries differ widely in wealth and resources, their histories and cultures, forms of government, and exposure to on-going conflict, we found six themes that were common to all the affected countries[19]. These commonalities reveal significant gaps in disaster preparedness, the downside of international assistance, ignorance of the international standards that govern the protection of displaced populations, and of great concern, from the perspective of this study, we learned of a range of human rights violations to which governments responded very poorly.

Gender violence and health
While there were few reports of actual rape in displaced persons camps in Sri Lanka, both our research and that of non-governmental organisations revealed that women were at risk. Survivors and key informants reported incidents of attempted molestation and coercion especially by camp leaders. Women were being groped and touched in the dark, and the lack of privacy for women and girls was especially problematic in Muslim camps. For example, distribution of underwear and panties was carried out in public with embarrassing comments, sanitary napkins were kept under control of male camp leaders and distributed in amounts that forced women to return repeatedly (this also was reported in the Maldives and Indonesia). The lack of attention to reproductive needs and contraceptives was problematic in situations where men insisted on sex. Further, there was little attention in the early months to the special needs of pregnant or lactating women (who had lost children) or the needs of elderly women with special nutritional or health needs. These incidents not only

compromised the basic human dignity of the women but also exposed them to STD infections including HIV, unwanted pregnancies, pregnancy complications, rape and molestation and other gender-related risks to their well-being.

Lack of government attention posed health risks

A Thai relief worker reported:

"To the casual visitor it might look as if the government has done a good job here, but in reality, it hasn't. It is like the pachee roy naa (cilantro) that we Thais put on top of what might be a so-so meal to make it look and smell good. The camp was built to last three months, but residents were recently told that they will have to stay here at least a year…We have no 24-hour health staff or a surveillance system to treat infectious diseases. We often have no milk powder or supplemental food for children… recently the soup kitchen was closed".

A diabetic woman in a fishing village reported that she had not gone to the hospital because she recently had been denied health as she was born at home and thus had no birth certificate to prove her Thai citizenship. Seriously injured during the tsunami, she was now bedridden; her right leg had turned gangrenous, and without immediate care, would require amputation. Her husband had received 4,000 baht from the local government administration to fix his boat but that was insufficient to cover repair. They had to borrow an additional 10,000 Baht to buy analgesics and other medications.

Exacerbation of prior human rights violations

Examples of these were the instrumental use of aid delivery to control perceived threats to internal security, lack of migrant protection, lack of trust in government based on prior abuses, corruption threatening property rights, and gender violence. In some cases, humanitarian aid agencies ignored prior human rights violations and unwittingly, became collaborators with the abusing parties.

Prior conflict interfered with aid delivery and protection of the displaced. In Indonesia, the military in Aceh demanded that IDP's be housed in barracks controlled by the army. Adult males were most vulnerable to accusations of being part of the Free Aceh movement with the possibility of dire consequences. In Sri Lanka, the decades long war between the government and the Tamil Tiger movement interfered with humanitarian relief and there were reports of aid being sidetracked and used as propaganda. In Tamil Tiger controlled areas, there were reports of IDP's in camps having little freedom. Tragically, the abduction of children to serve as soldiers continued after the tsunami, compounding the fears of those displaced. In India, on-going discrimination against the lowest castes resulted in little attention being paid to their needs while in Thailand, Burmese migrant workers who did not die as a result of the tsunami went into hiding for fear of being arrested; the bodies of their co-workers went unclaimed. In the Maldives, the human rights violations that have characterised the government of President Gayoom for twenty-seven years resulted in the exclusion of IDP's from any significant input into the reconstruction process. Reports of women being abused either directly by men or indirectly by agencies ignoring their unique needs demonstrated a complete disregard for gender equity in protection.

Inequities in aid distribution

There were multiple causes for our finding of maldistribution of aid including, the withholding of aid from certain ethnic, religious, or discriminated subgroups such as castes, inequities based on political influence, bureaucratic inefficiencies, and exclusion of specific groups based on government definitions of victimhood.

In Sri Lanka, reconstruction funds favoured the south coast over the east, attributed by the survivors to the fact that the Prime Minister maintained a home in the south; aid agencies appeared to assist one village but not the next – decisions that puzzled the villagers and led to resentment; corruption seemed to have a major influence on how government aid was apportioned in the Maldives and Sri Lanka. Thai government offered free medical care to foreigners but excluded Burmese migrants. In Indonesia and Sri Lanka, aid in conflict areas was profoundly influenced by either the military or rebels and in India, the Dalit who assisted the fishermen but who lived away from the coast received no assistance.

Impunity and lack of accountability

Human rights vulnerabilities were insufficiently addressed due to the lack of state action in responding to tsunami victims, lack of independent redress mechanisms, lack of political will to investigate abuses, and lack of reporting of human rights violations by humanitarian aid agencies.

Government accountability was lacking in all the countries that we studied. Further, humanitarian aid agencies hesitated to report human rights violations for fear that the governments would prevent them from continuing their work. Further, some NGO's acted unethically in building inappropriate housing, and in neglecting to establish follow-up programmes. Survivors had no access to mechanisms through which to address their complaints against the state or private groups.

Poor coordination of relief aid

Relief efforts of multiple institutions and organisations were not harmonised due to a lack of coordination among humanitarian and aid agencies, different levels of government, competing agendas, and lack of NGO accountability. The tsunami elicited an outpouring of funds and an influx of humanitarian aid agencies. Some of the aid agencies were the large UN agencies, many were smaller but reputable groups, and some appeared

out of nowhere offering assistance but with their own agendas such as proselytising or securing funds for their own use. Housing was built without government consultation or even consultation with the local community. In some cases this led to construction on flood plains that would become inhabitable. One agency might provide water tanks that were never filled. Central offices a world away made decisions that did not meet the needs of the people. And mistrust of government by local NGO's led to their acting on their own and resisting government oversight – all of which led to processes of reconstruction that were less than efficient and would lead to a need to revisit prior programmes.

Low public confidence in coastal redevelopment

There was a lack of clarity among survivors in coastal areas regarding the conditions under which the coastal areas would be rebuilt. Officials responded to the environmental damage with nontransparent policy recommendations that appear to marginalise or even disenfranchise the poor. An important response to the tsunami by the governments of India, Indonesia, Sri Lanka and India was to support the creation of "buffer zones" along the beach areas of these countries. However, there was little consultation about the size of these zones and little transparency in how the government reached its decisions. Some governments offered financial incentives to move inland but provided no assistance if the homes were rebuilt within the zone. In the Maldives, the so-called "safe island" plan to move people to new islands that had safeguards against flooding leaves little choice to those who would prefer not to move. Land rights became a contentious issue for those who relied for decades on legal custom to occupy their homes. In Thailand, the lack of legal title exposed these survivors to rapacious developers. These planning decisions threatened the livelihoods of those

who depend on their proximity to the sea such as fishers and those who support the fishing industry.

Lack of community participation

In all the countries, survivors had little to no input into any of the planning that was taking place in the capital cities far from the destruction.

Community participation rarely took place when decisions were made about reconstruction and rebuilding programmes. In some cases, decision-makers discredited or ignored the views and opinions of local communities. Many survivors perceived the government as aloof and non-responsive. Donors and aid agencies often prioritised timely outcomes over deliberative processes that allowed for community participation and discussion. Some agencies deliberately excluded certain groups because they were viewed as only serving "their own." The UN Guiding Principles on Internal Displacement state: "Special efforts should be made to ensure the full participation of IDP's in the planning and management of their return or resettlement and reintegration." This process of exclusion has led to poor planning, disaffected survivors and great resentment of government.

Discussion

Our findings illustrate that a human rights framework can offer a useful analysis of the processes of reconstruction that follow mass disaster. Pragmatically, what does this mean? While Gostin and Mann[20] have proposed a strategy for assessing the human rights implications for health policies, the evaluation becomes more acute in situations of mass disaster. Several assumptions underlie this approach; first, human rights are interrelated and indivisible. They cannot be separated from effective disaster response. Health professionals must move away from focusing solely on the direct physical and psychological consequences of the disaster to recognising that lack

of identity papers has consequences for health access; that maldistribution in aid that emerges from ethnic or caste discrimination has implications for access to food and shelter, and that government corruption disturbs supply lines especially to the most vulnerable. The second assumption is that health professionals have both the expertise and the obligation to assess health risks broadly and to advocate for attention to these other factors that inhibit assistance. The third assumption is that during the aftermath of disaster, multiple organisations (local and national, government, multi-lateral, and international non-governmental) will offer assistance. The challenge is to coordinate and to develop a strategy that reflects the differing realities of the country in question. Human rights violations – discrimination, denial of access to health care, sexual violence or abuse – have implications for the health and well-being of survivors. Whether it be a history of civil conflict, violence towards women, the rebuilding of homes in flood zones, abduction of children, or corruption and aid inequities, these violations impinge significantly on how well the displaced populations will do both in the short and long-term. In this regard, the reluctance of humanitarian organisations in Aceh to insist on secure housing for women IDPs, away from military barracks, contributed to the vulnerability of the population aid groups sought to assist.

The duplication of similar problems that emerged in the United States following Hurricane Katrina reveals that it is not only a country's resources that determine the efficacy of humanitarian assistance but also, the lack of coordination, pre-existing vulnerabilities, opportunistic developers and other manifestations of power imbalances bedevil even wealthiest of countries. As in the tsunami-affected countries, ignorance of international human rights norms as described in the UN guidelines for the internally displaced revealed the lack of attention to lessons that are

learned from international disasters. A human rights framework can be used to identify priorities and strategies for public health diagnosis and intervention by expanding the health lens to examine more closely the larger political, social and environmental dynamics that may impinge on humanitarian intervention. A human rights analysis then involves the following steps:

1. An analysis of the pre-existing patterns of human rights violations in the affected country with particular attention to vulnerable groups (women, children, the elderly, minorities, refugees).

2. An analysis of the international treaties that the state has signed and ratified and which bind its government to act under international law. It is important that health-related humanitarian interventions be based upon the rights accorded to survivors under international law and accepted guidelines such as the UN Guiding Principles on Internal Displacement and the newly-adopted UN Operational Guidelines on human rights and natural disasters.

3. On-going advocacy by health professionals at both the national and international levels particularly those on the ground as the inequities and human rights violations become apparent. Working through the UN, the World Health Organization, the ICRC as well as through such health agencies as the International Organization for Migration and Médecins Sans Frontières, along with human rights advocacy organisations such as Amnesty International, Human Rights Watch, Physicians for Human Rights, and humanitarian agencies such as Save the Children, Oxfam or CARE in a coordinated fashion becomes an essential element of health interventions. The goals of advocacy are two-fold: first, in

the acute situation, to assure equitable and unimpeded distribution of aid, and second, to promote health rights as a legacy in the rehabilitation and reconstruction phase of the disaster response.

4. On-going monitoring of programmes to assure that the goals developed by central or regional offices are implemented in the field and coordinated both with other aid agencies and with government health planning. Such monitoring should include monitoring of human rights violations.

5. Health professionals should encourage the use of epidemiologic survey tools to maximise the knowledge base that emerges from anecdotal data gathering. It is especially important to assess disaster effects subsequent to a tragedy like the tsunami at a regional level. Epidemiology can also contribute to a better understanding of human rights violations and their relationship to health effects.

Limitations

This study has some limitations. The qualitative design is limited by questions of selection bias, language constraints, time constraints, on-going conflict, class and ethnic suspicion. We have suggested that a more comprehensive geographic multistage cluster sample survey would be an important next step; however, there has been little interest from international agencies in pursuing a regional approach.

In each of the countries that we studied, there were significant human rights problems that antedated the tsunami. Many of these are entrenched in a culture of corruption and impunity (all the countries) or have been mired in violence and war (Sri Lanka and Indonesia). We are aware that changes in these areas are incremental and at times, agonizingly slow. It is indeed

difficult to assess whether increased international access to Aceh as a result of the tsunami led to the peace agreement or whether changes within Indonesia itself would have led to the same end-point. Certainly, our reports indicated that the military in Aceh actively interfered with aid distribution and that even now, problems persist in rehabilitation although the peace agreement has mitigated military involvement[21]. Events have worsened in Sri Lanka, no changes have occurred in the Maldives. Progress continues in India but human rights violations remain[22]. However, the human rights commissions of these countries remain active in assessing the tsunami's impact[23]. Finally, a recent report from Actionaid indicates that as of January, 2006, the human rights concerns continue to influence the process of reconstruction across the region[24]. The findings of this report suggest that on-going vigilance is critical if the rights of the survivors are to be assured.

We therefore make the following recommendations with the recognition that the promotion and protection of human rights is a state obligation under international law:

1. UN agencies and NGOs should take into account the prior human rights context of the particular country in their aid and reconstruction policies and programs.

2. States should increase accountability and transparency of public and private aid providers.

3. State agencies should strengthen coordination with UN and NGOs during the reconstruction phase of the tsunami catastrophe.

4. States, international agencies, and local aid organisations should improve community participation in reconstruction planning and implementation.

5. Particular attention must be paid to those affected by ongoing armed conflicts.

With respect to health professionals, we suggest the following:

1. Those engaged in international relief work should familiarise themselves with those elements of international human rights law that impact the health and well-being of survivors.

2. That health professionals work with established government, human rights agencies and the United Nations to assure that care delivery be minimally affected by prior human rights violations especially in the context of civil war and that access is open and unimpeded.

3. That health professionals utilise their expertise to leave a legacy of sustainable health benefits to affected communities.

Acknowledgements

References

1. This paper is a revised and shortened version of a report issued in October, 2005 by the Human Rights Center, University of California, Berkeley and the East-West Center titled "After the Tsunami: Human Rights of Vulnerable Populations". The full report may be viewed at www.hrcberkeley.edu. Accessed 26 April 2006.

2. 2004 Indian Ocean Earthquake Available at http://en.wikipedia.org/wiki/2004_Indian_Ocean_earthquake. Accessed 26 April 2007.

3. Convention Relating To The Status of Refugees. New York: United Nations General Assembly Resolution 429(V), December 14, 1950.

4. International Humanitarian Law. Geneva:ICRC available at http://www.icrc.org/web/eng/siteengO.nsf/iwpList2/Humanitarian_law?OpenDocument. Accessed 26 April 2007.

5. Summary of the Geneva Conventions of August 12,1949 and Their Additional Protocols of June 8,1977. Available at http://genevaconventions.org. Accessed 26 April 2007.

6. Guiding Principles on Internal Displacement. New York: United Nations. (E/CN.4/1998/53/Add. 2, February, 1998). Available at http://www.ohchr.org/english/issues/idp/standards.htm. Accessed 26 April 2007.

7. The Sphere Project, Humanitarian Charter and Minimum Standards in Disaster Response (Sphere Handbook). Oxford: Oxfam Publishing, 2000. Available at http://www.spherepro ject.org/handbook/hdbkpdf/hdbk_full.pdf. Accessed 26 April 2007.

8. Article 12, International Covenant on Economic, Cultural, and Social Rights. (Entry into force January 3, 1976). Available at http://www.ohchr.org/english/law/cescr.htm. Accessed 26 April 2007. India, Indonesia, Sri Lanka, and Thailand all have ratified the treaty.

9. Protecting Persons Affected By Natural Disasters: IASC Operational Guidelines on Human Rights and Natural Disasters, June 2006. Available at http://www.humanitarianinfo.org/iasc/content/news/newsdetails.asp?newsid=43&publish=0. Accessed 26 April 2007.

10. Mann J, Gosttin L, Gruskin S. Health and human rights. Health and Human Rights 1994; 1(1): 7-23.

11. Tsunami children Lost, Vulnerable. CBS News, January 5,2005 available at http://www,cbsnes.com/stories/2005/01/04/wprld/main664712.shtml. Accessed 26 April 2007. Policy Guidance on Trafficking in Women and Girls. New York: United Nations. Available at http://www.un.org/womenwatch/daw/news/news2005/nat-traf.htm#pol-traf. Accessed 26 April 2007. Also see Morse, JA. Few Reports of Increased Human Trafficking in Tsunami-hit nations. Washington: US Department of State, 2005. Available at http://www.usinfo.state.gov/usinfo/Archive/2005/Jan/13-651273.html?chanlid=washfile. Accessed 26 April 2007.

12. Noji E. The Public Health Consequences of Disaster. New York:Oxford University Press, 1997.

13. Logue JN. Disasters, the environment, and public health: improving our response. Am J Public Health 1996:86(9):1207-10.

14. Auf der Heide E. The importance of evidence-based disaster planning. Ann Emerg Med 2006: 47(1): 34-49.

15. Lopez-Ibor, JJ, Christodoulou, G, Maj, M, Sartorious, N, Okasha, A, (editors). Disasters and Mental Health. New York: John Wiley & Sons Ltd, 2005.

16. For a list of the major human rights treaties and declarations, see www.unhchr.ch/htm/intlinst.htm. Accessed 26 April 2007.

17. Eighth Practitioners' Forum on Human Rights in Development (UN Thematic Working Group on Human Rights in Development). Human rights implications of the 26 December tsunami, Friday, March 4, 2005, Bangkok, Thailand. See also Human Rights Issues in the Post-tsunami Context, INFORM, Human Rights Documentation Centre, Colombo, Sri Lanka, February, 2005 and

Wijemanne, Hiranthi, The Tsunami in Sri Lanka and Women, UNU Public Forum to Commemorate International Women's Day, 8 March 2005, Tokyo, Japan. All on file with authors. See also Amnesty International, The Role of Human Rights in the Wake of the Earthquake and Tsunami, A Briefing for Members of the Consultative Group on Indonesia,19-20 January, 2005 and Action Network for Migrants (ANM), Situation Assessment of Migrants in the Tsunami-Affected Province of Phang Nga, January 26, 2005 (on file with authors). From very early on, the UN Office for the Coordination of Humanitarian Affairs (OCHA) put out regular reports of international aid and government responses via its Tsunami News and on its reliefweb website.

18. Collaborating organizations were International Centre for Ethnic Studies, Kandy, Sri Lanka, College of Public Health, Chulalongkorn University, Bangkok, Thailand, Human Rights Commission, Male, Maldives, Centre for Democracy and Human Rights Studies (DEMOS), Jakarta, Indonesia, and Madras Institute of Development Studies, Chennai, India.

19. The research in Indonesia occurred prior to the peace agreement signed by the Free Aceh Movement and the government of Indonesia on August 15, 2005. Our findings with respect to the militarization of aid likely were improved after the agreement although the fear of the populace is longstanding. Our findings in Sri Lanka were made prior to the agreement with the LTTE in June, 2005 to allow for aid distribution. However, that agreement was subsequently suspended by the Sri Lanka Supreme Court and was followed by assassinations and an increased violence. As of this writing, Sri Lanka is facing a return to civil war primarily in the northeast of the country.

20. Gostin L, Mann JH. Towards the development of a human rights impact assessment for the formulation and evaluation of public health policies. Health and Human Rights 1994; 1(1):58-80.

21. Global Exchange. Aceh: Peace After the Waters? Aceh: Challenges of Reconstruction and Peace One Year Later. San Francisco: Global Exchange, March, 2006.

22. Ganguly M. After the Deluge: India's Reconstruction Following the 2004 Tsunami. New York: Human Rights Watch 2005: 17(3C),

23. De Chickera A. The Tsunami and Human Rights: A Framework for the Reconstruction and Rehabilitation Process. Disaster Relief Monitoring Unit, Human Rights Commission of Sri Lanka, Colombo: 2005. See also Fernando, L. National Human Rights Commission's Response on Post-Tsunami. Colombo, Sri Lanka: 26th October, 2005

24. Action Aid International. Tsunami Response: A Human Rights Assessment. Johannesburg, SA: Actionaid International, January, 2006. Available at http://www. actionaid.org.uk/_content/documents/tsunami_HR01.pdf. Accessed 26 April 2007.

Crisis into Opportunity: Setting up Community Mental Health Services in Post-Tsunami Aceh

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Abstract

The Asian Tsunami killed more than 130,000 people and made 400,000 homeless in Aceh, an area in Indonesia already affected by over thirty years of conflict. This paper examines an approach taken by an International Non-Governmental Organisation (INGO) to address emergency mental health and psychosocial needs in an integrated way, by providing a continuum of care incorporating psychosocial support for the wider community and clinical services for the more severely affected. The model included outreach to the indigenous system. Psychosocial activities were developed in partnership with the local communities. Community-based clinical mental health services were established by identifying and building locally-based capacity at the primary health care level, and potentially sustainable services were established in collaboration with the Ministry of Health. By December 2005, four hundred and eighty three patients had been seen. More than one third suffered from serious mental disorders that predated the Tsunami. Thus, crisis provided an opportunity to address longstanding community mental health needs. The lessons learned from this approach are also discussed. *Asia Pac J Public Health 2007; 19(Special Issue): 60–68.*

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Introduction

Mental health interventions in emergencies have been a topic of continuing debate regarding the relevance of western constructs of trauma, optimal therapeutic interventions, the relative importance of clinical support for the individual as opposed to social communal activities and the role of outsiders in culturally complex and unfamiliar settings[1-4]. However, there is a growing consensus in the literature[5,6] urging for a balanced pragmatic approach[7].

Observations in a variety of conflict and disaster situations suggest that self recovery is the norm for the majority of people, and that they will be appropriately assisted in the first instance by social interventions that address their basic needs for information, security, shelter sustenance, and the respectful treatment of the dead. However, around 5% may have enduring emergency related mental health problems that require skilled assistance[8]. These problems often occur in impoverished contexts where the pre-existing mental health needs have never been properly addressed[9].

Tsunami-affected Aceh was a case in point. Fiercely independent with a homogenous conservative Islamic population (97% Muslim), Aceh was never colonised by the Dutch and joined the post war union of Indonesia only on condition that it be granted special status. Instead it was incorporated into Indonesia's Northern Sumatra. Demands for autonomy escalated into calls for independence and violent conflict in 1976. The fighting between the Indonesian National Army (Tentara Nasional Indonesia TNI) and the Aceh Freedom Fighters (Gerakan Aceh Merdeka) continued for over 30 years until August 2006. Official estimates are that 30,000 people were killed or went missing during the 30-year conflict. However, unofficial estimates are far higher.

The prolonged conflict, including a period of martial law beginning in 2003, resulted in the neglect and isolation of the province. The population of 4.5 million depends primarily on agriculture and fishing

and resides on the flat coastal plains. This made them particularly vulnerable when the Tsunami struck on December 26, 2004. Destruction along the coast was three hundred miles long and up to six miles wide in places. At least 130,000 people were killed, 400,000 were left homeless and 44% lost their livelihoods. In some villages more than 70% of the community died, and much of the infrastructure that knitted the province together was destroyed.

Prior to the Tsunami, formal mental health resources consisted of a one 220-bed mental hospital filled to 150% capacity; one full-time psychiatrist, two part-time psychiatrists and approximately one hundred and eighteen nurses attached to the hospital. Patients in remission but abandoned by their families lived alongside forensic patients who could not be managed in prison. There were no psychologists or social workers. Treatments were predominantly biological including ECT (without anaesthetic), and poly-pharmacy with high levels of medication.

There were virtually no services at district hospital or primary health care level. The majority of the population depended on traditional healing systems for serious psychiatric complaints. The Tsunami disrupted both modern and traditional systems. The hospital was inundated with water that destroyed all records, pharmaceutical products and equipment and the sanitation system. When the hospital was reopened, it was guarded by the TNI soldiers whose methods of containment included throwing stones at chronic patients trying to leave. Facilities belonging to traditional healers were also destroyed. The destruction of roads made referral impossible in the first few months after the disaster.

Developing a continuum of care
International Medical Corps has been working in Indonesia since 2000, and in the immediate aftermath has provided an emergency medical response in Banda Aceh and in three other districts. Two international mental health professionals, i.e. a psychiatrist and a psychiatric nurse joined the team in February 2005 to construct a mental health response.

We planned to address psychosocial and mental health needs in an integrated way by providing a continuum of care incorporating psychosocial support for the wider community and clinical services for the more severely affected, including outreach to the indigenous system. At the same time we wanted to identify and build locally based capacity so that whatever services we developed could be sustained in the long term.

On the first few days of post disaster we were faced with a displaced, grieving population that had lost extended families and in many cases their entire community and familiar landscape. The normal mechanisms of support appeared unavailable. In the small village of Gle Jong, for example, 100 out of 600 survived. There were no children under 12, and only 14 women survived. Men survived disproportionately throughout Aceh as many had been at sea fishing or in the market in town[11]. One indication of the desire for familiarity and continuity was the fact that although the government built temporary barracks for the displaced, by April 2005, many people had chosen to return to the sites of their former homes constructing makeshift shelters and tents until better housing was provided. At the same time after shocks continued, combined with a second major quake on March 28, 2005 which killed 1000 people. People were confused and terrified, lacking clear information as to the real risks of further Tsunamis and earthquakes, and how to protect themselves.

The primary health care clinic often became the first port of call for people who had nowhere else to turn to. In the first four months, the post disaster IMC Primary health care (PHC) teams worked between fourteen to eighteen hours for seven days a week. One hundred consultations a day were not unusual, with somatic complaints associated with grief and loss forming a high percentage. Two Acehnese nurses were added to the PHC teams in each district to address these mental health needs. They received training from a team of four international mental health professionals.

Psychosocial support
In this paper, psychosocial support is defined as any activity that helps people understand what has happened, mourn, rebuild connections with others, and restart their normal lives. Engagement in water and sanitation, construction and livelihood support made it possible to respond to the community requests in a holistic way. Local staff actively engaged with their communities and researched their needs through home visits, group meetings and consultations with local leadership. The resulting activities included rebuilding sports fields for volleyball and soccer; the building of "Quiet houses" to assist mourning (see box); and community education activities, both to inform people about the Tsunami, to address stigma, and increase the understanding of serious mental disorders. This included the provision of handouts in Bahasa Indonesia on key topics[12] and a World Mental Health Day (10 October) where 1500 people attended a festival, partly organised by patients, at the psychiatric hospital, which had been persuaded to open its doors to the public for the first time. To reach more people, IMC also remobilised traditional Acehnese methods of healing through music and dance. This engaged the entire community as women sewed costumes, taught the children the songs and moves, and transformed their tragedy into music and movement. Two hundred and twelve dancers rehearsed nightly for two months in twelve refugee centers on the North coast, culminating with a festival in which 4,000 people celebrated.

Figure 1. Dancers photograph

The Quiet House

The concept of a Quiet House was born after eight months of observing how few Acehnese visited the Mass Grave site in Banda Aceh. Approximately 20,000 people were buried in a small piece of land, with no names, no identification and no acknowledgement of their life. Nothing grew there. Driving from the airport, one might witness a lone figure standing or sitting on the ground in quiet meditation or prayer. Many looked and commented but few stopped. The IMC psychosocial team talked with community leaders to understand how to assist the Acehnese people in their mourning at this site.

The consultations resulted in IMC committing to build a Quiet house in collaboration with the local community. It would overlook the gravesite and provide shelter, privacy and beauty for the relatives of the dead without the traffic of the main road intruding. The house was designed to emphasise traditional culture and built by local people in less than 10 days, under IMC supervision. It was landscaped with flowers and trees. To give comfort, the Imam wrote a well-known Muslim Prayer "From him (Allah) we come and to him (Allah) we return."

One of the local workers became tearful explaining. "I think my family are buried here but I don't know. This is why I don't come here… but now I can come and talk to them. It is very important for the people of Aceh to have a place where they can come and feel a sense of loss and family again. We will build a very beautiful house for people to sit and come together". The Governor of Aceh also contributed with a smaller house, paid for by his own money. Many now visit, and the hope is to now encourage the construction of Quiet Houses at each mass gravesite in Aceh. SM

1. *Clinical services plus capacity building*

In the disaster's immediate aftermath, there were few local staff available and international staff had to provide direct services. Once the local staff were identified and employed, they began working alongside the primary health care teams initially in mobile sites, such as outside the mosque or in temporary shelters. As Puskesmas (large primary health care facilities) were reconstructed and refurbished, the mobile clinics were relocated. Fixed clinic consultations were usually combined with frequent home visits to camps, tents or wherever the patient resided. The clinical service was combined with a programme of weekly theoretical training seminars with an on-the-job teaching and supervision that continues to the present day. Because Banda Aceh hospital was full beyond capacity, referral was not an option. Therefore training aimed to enable the nurse to identify and manage both minor and severe mental health problems, using medications prescribed by the local GPs. Weekly training was also given to all the IMC primary health care staff at all sites to help them understand psychotropic medication and identify and appropriately manage cases, such as the large number of somatic complaints, themselves.

The IMC-trained mental health nurses are now being absorbed into the government to run Puskesmas and currently provide mental health services alongside the government staff. There are all together 27 Puskesmas in four of Aceh's 21 districts. Meanwhile the government has begun the basic training of 249 government-employed nurses in mental health and provided further short courses on mental health for 165 GPs'. However, it lacks the resources to provide adequate clinical supervision for these trainees and has asked the IMC international supervisors to assist in mentoring the government trained doctors and nurses working at these Puskesmas. In addition, the final year medical students and interns doing their psychiatry posting at the mental hospital receive teaching from the IMC psychiatrist who runs an out-patient clinic there.

A continual clinical audit was conducted to allow us to evaluate our work. By 1ˢᵗ December 2005, 483 patients have been treated: 226 men and 257 women, the majority around

Figure 2. Age and gender of patients seen at IMC mental health clinics, Mar-Dec 2005
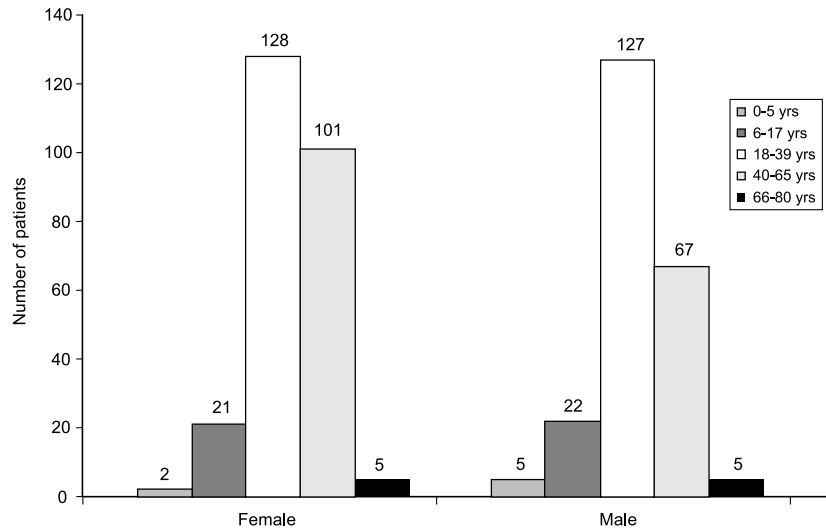
Table 1. Breakdown according to ICD 10 Diagnoses

ICD 10 code	ICD10 DIAGNOSIS	No.
F 00-F03	Dementia	5
F 06	Organic brain syndrome	2
F 12.2	Substance dependence	2
F 12.5	**Substance induced psychosis**	*5*
F 20-23	**Schizophrenia, schizotypal and delusional disorders**	*85*
F 30-31; 32.2	**Bipolar disorder/manic episode/psychotic depression**	*11*
F 32	**Depression**	*120*
F 41-42; F44-49.3	**Neurotic and somatoform disorders**	*41*
F 43.1- 43.2	**Reaction to severe stress and adjustment disorders**	*92*
F 60	Personality disorders	2
F 70-F79	Mental retardation	9
F 80-85	Developmental Disorders including PDD	3
	Epilepsy	14
	No psychiatric diagnosis	49
	Information unavailable	43

the ages of 18 and 40. There are a significant number of middle-aged women. (See Figure 2)

Three hundred and three (62%) of them are Tsunami affected, 215 (44%) having been displaced and one hundred and thirty three (27%) have lost at least two members of their immediate family. Fifty six (11%) are conflict affected.

Table 1 shows the breakdown of our caseload by final diagnosis according to ICD 10. Depression is the most common diagnosis, and this is closely followed by a variety of psychotic disorders which have now outnumber stress related disorders. There are also a growing number of patients suffering from epilepsy and mental retardation. There is, therefore, a need to develop the capacity to manage such problems at the community level.

At least one hundred and eighty nine (39%) patients consulting the mental health clinic had problems that predated the Tsunami. Not surprisingly, a large proportion of this group suffered from serious mental disorders such as psychoses, while a greater proportion of those with post-Tsunami problems suffered from stress related disorders and depression. These figures highlight the manner in which emergency services can bring to light and address previously unmet needs in the community

Figure 3 shows that the majority of those with problems predating the Tsunami had consulted traditional healers while the majority of those with post tsunami difficulties had not. This might be partly due to the fact that people had new difficulties post tsunami that they did not conceptualise in traditional ways as 'mental illness' and secondly because the healers services were also disrupted.

The main therapeutic approaches included a combination of individual and family approaches and medication. In contrast to the West, Acehnese patients rarely wanted to be seen alone. Sometimes as many as 30 family and community members would participate, meaning that community psycho education and treatment were combined. Western methods such as systemic and cognitive approaches seemed acceptable and effective. Working through the local staff, with Bahasa Indonesia speaking supervisors familiar with Indonesian and

Table 2. Numbers of patients with pre and post Tsunami problems

Diagnoses	Number with problems	
	Pre-dating Tsunami	Post-dating Tsunami
Psychotic disorders	49	38
Depression	41	61
Stress related disorders	21	53
Anxiety disorders	18	16
Seizures	6	5
Mental retardation	4	5
Others	7	2
No Psychiatric Diagnosis	24	22
Assessment not completed	19	18
Total	189	220
No information	74	

Figure 3. Percentage of patients who attended a traditional healer prior to IMC

Table 3. Problems of those with no psychiatric diagnosis

Problem	No.
Sad	14
Aches and pains	12
Anxious	10
Headaches	5
Poor sleep	3
Behaviour problems	2
Poor family support	2
Polio	1

schizophrenic patient to start a small business, or communally as through the support of collective funerals for communities where many have had no ceremony and wish to have one.

2. *Outreach to traditional healers*
From the outset, we had a policy of engaging with the indigenous healing system. In Aceh, as in many Muslim countries, traditional healers fall into two main categories. The first based firmly on the religious establishment using a model of causation based on good and evil and the treatments emphasise prayer and good deeds to ward off evil. The second group, ie. using the "Dukuns" is more folk-based. This model involves witchcraft or possession by evil spirits from mountains and trees, and the treatments involve talismans and herbs, although they may also include readings from the Koran. Dukuns also divide themselves into 'good' and 'bad'' the latter group being those who cast harmful spells for payment. Both religious and folk groups also acknowledge the naturalistic causes of illness such as environmental disturbance, food, change in season, lifestyle imbalance, etc. Dukun training requires an apprenticeship of around 12 – 20 years.

An outreach consisted of regular meetings with healers at all sites to discuss different approaches and share knowledge. The aim was not to challenge or undermine their system but to learn from each other, and see in what areas we could be complementary. The result of this dialogue has been greater under-standing of the scientific concept of mental illness by the traditional healers, and greater understanding of Acehnese values and culture by us. There was a consensus that while the traditonal healers have much to offer in the treatment of disorders such as conversion, somatic complaints and grief, an allopathic treatment is preferable to chaining for the severely disturbed. The traditional healers also have a significant role in the follow up of such patients to assist with compliance and community

Acehnese culture, has enabled this therapy to be based in the meaning system of the patients themselves.

A number of patients did not meet the criteria for a formal diagnosis, but had a wide variety of sub-clinical symptoms, often associated with grief, that were often combined with social difficulties as shown in Table 3.

The provision of a continuum of care meant we could address clinical and social needs appropriately, sometimes on an individual basis such as providing a start up funding for a

support. This non-hostile approach to those who sought traditional help has fostered a system of shared care and cross referral. (See Vignette)

Vignette: A 28-year-old Acehnese male had had symptoms since the age of 16 including agitation, irritability, violent behavior paranoid thoughts, hallucinations occasional depression and suicidal thoughts. He had self-medicated with cannabis. The family initially relied on the healer whose interventions had been a com-bination of sedative herbal pro-ducts, meditation, and family/ community education and support. The treatments effectively calmed the patient for brief periods, and helped the family and community tolerate HS' instability. However, the severe symptoms continued resulting in the patient being chained to a post in a field indefinitely. At this point, the family consulted the IMC team who treated the patient with a combination of allopathic medicine, education for family and healer on what to expect with a chronic condition, and how to foster compliance. All symptoms had disappeared in 6-8 weeks and both healer and family grasped the role allopathic medicine can play in eliminating restraints and restoring dignity and indepen-dence. Currently, HS' condition remains stable and he is able to enjoy previous recreational activities, socialize appropriately with family and friends, perform limited work tasks, and even advocate for and assist others with similar symptoms. HS

Typically, the healers' holistic focus and longstanding relationship with the community means they can play a role in decreasing the fear and stigma that can limit the recovery process. The IMC's additional education and medication therapy helps the patient to sustain psycho-logical stability and function with greater dignity and independence.

Negotiating entry and ensuring legitimacy

There is always a question of the INGO legitimacy in emergencies. The IMC's approach is to ensure that its interventions are designed in close collaboration with the relevant government ministries and follow internationally agreed guidelines such as the Sphere Standards.[10] The Ministry of Health in Jakarta has set up a separate division for mental health services. However, decentra-lisation of power and budgetary allocation to both the provincial (PHO) and district (DHO) levels meant that its role was only advisory. All INGO's had to negotiate entry for all activities with both. The PHO would agree on the operational areas of the NGOs, taking into considera-tion the type of activity and the need in that particular area. The final say rested with the DHO who would occasionally reject programmes approved by the PHO. Midway through 2005, the Government of Indonesia, by issuance of a presiden-tial decree, set up a Reconstruction and Rehabilitation Body *(Badan Rekonstruksi dan Rehabilitasi BRR)* part of whose mandate was to oversee the activities of the INGOs. From then all INGOs and their project activities had to be approved by the BRR, who consulted with the PHO over medical projects but retained the final authority. To enhance coordination, the BRR employed an online project mapping system. Compliance was mandatory. In the immediate after-math of the Tsunami, the IMC requested and obtained permission from the PHO and the respective DHOs to operate in the four districts of Banda Aceh, Aceh Besar, Pidie and Aceh Jaya. Because the IMC was providing capacity building in clinical mental health services and addressing unmet psychosocial needs, it developed very good relations with the PHO who repeatedly sought its technical advice.

A second aspect of legitimacy specific to Aceh was that while Indonesian doctors could have filled many of the human resource needs in Aceh, after 30 years of conflict, many local people were still suspicious of them, hence the need for outsiders to assist in building the local capacity.

Inter-agency collaboration and coordination

As in many complex emergencies, the United Nations in collaboration with the Indonesian government initially took the lead in setting up inter-agency coordination meetings for the various sectors including health. On this occasion, the response of the inter-national community was unpre-cedented and in the first instance chaotic. Large numbers of inter-national agencies arrived to offer psychosocial support of various kinds, which mostly focussed on addressing the survivors' traumatic responses. The majority of the agencies partici-pated in the weekly psychosocial coordination meetings. The develop-ment of inter-agency agreed guidelines for psychosocial interventions provided an agreed framework of best practice and appropriate action. Participation in mapping exercises to see who was working where and doing what, led eventually to a rational distribution of activities.

Because the IMC focussed on areas of psychosocial and mental health activities that were not being addressed by other agencies, it remained outside these conflicts, and this was perhaps one of the reasons that the role of coordinating the psychosocial working group fell to the IMC. By the second half of the year, there was excellent cooperation between all players exemplified by the participation of all agencies in the design and execution of the World Mental health day described above.

Inter-agency collaboration takes time and practice and was a challenge for some of the newly formed INGOs at the outset. In the first few months prior to the comprehensive mapping exercise, there were disputes and

tensions of various kinds. "Turf wars" where one agency intruded into another's area of operation could usually be quickly resolved at the coordination meeting, as the needs were so great there was space for all. Other issues which remained sources of conflict included definition of the term 'psychosocial" and its relation to mental health. There was also concern about stand-alone trauma services, and the emergence of a number of poorly trained unsupervised trauma counselors. This was one of the factors that led to the DHO rejecting some programmes. Ethical concerns around media work and research resulted in the development of a consensus over do's and don'ts for field workers. Another concern was 'evangelisation' as the standing of all foreign NGOs could be affected by one group's activities. In fact there was no evidence of overt activities, although some agencies had been quietly asked for restraint.

Discussion

The polarised debate over the significance of traumatic reactions as the focus for mental health assistance in an emergency context has resulted in many agencies choosing to divorce psychosocial activities entirely from the health sector in order to avoid 'pathologising' their clients. This further fragments the provision of care and can add to the stigma of mental illness by leaving those with more severe problems entirely in the biological domain[6].

We have found that an integrated approach that combines social and communal interventions with community education, and an easily accessible clinical care can support the recovery process of those who are well, while providing non-stigmatising treatment for the minority who are unwell. IMC and others have successfully applied this model of care in other emergencies[13-16]. Success of the service can be measured by the repeated requests from new communities to repeat our psychosocial

interventions in their locations. The main difficulty of setting up such projects is to make it clear to the community what can and cannot be done. Our failure on two occasions to recognise that the beneficiaries had unrealistic expectations as to what could be achieved led to frustration and conflict rather than relief.

The clinical model fitted well with the MOH policy as it was developed in the middle of 2005 and resulted in the request to extend our model of clinical training to the government staff. The growing number of referrals of serious mental disorders at all sites suggests we are meeting the needs of a previously underserved population.

Crisis does provide an opportunity. Firstly, governments are suddenly made aware of the mental health needs that cannot be addressed by the limited hospital-based services. Secondly, donor funds are available. The disadvantages are that models of care, even if used in other emergencies, must still be rapidly adapted to the current political and cultural context. The training of community mental health nurses for example was unique to Indonesia. Other care providers have been more appropriate in other countries, for example midwives in Sri Lanka[15] and community health officers in Sierra Leone[16]. One size does not fit all. It is also vital to ensure that the same cadres of local health personnel are not being overburdened with multiple trainings in multiple disciplines with no time left to integrate them or indeed to work. Such emergencies occur in areas where there has rarely been a baseline assessment of need and in which it would be unethical to delay service provision while conducting one. Therefore, rapid culturally appropriate needs assessments must be combined with service provision while dealing with limited access, poor security, disrupted social networks and the lack of infrastructure.

In this situation, the government of Indonesia showed energy and

foresight in seeking consultation in May 2005, with outside experts such as WHO, and key NGO stakeholders to develop a model of community-based mental health care. It also immediately began developing a curriculum and rapid training of nurses and GP's already employed at Puskesmas level.

Aceh still lacks a coherent strategy for developing and sustaining community-based services. District based psychiatric teams should support the CMHS with acute units to relieve the burden on the overstretched facility in Banda Aceh, where conditions remain degraded. There is no current plan as to how to develop them, nor a coherent model for integrating mental health training into the medical and nursing schools, so that Puskesmas-based services can be sustained in the long term. Moreover, as nurses are currently being more thoroughly trained than GP's but not allowed to prescribe psychotropic medication, this may result in tensions among professionals in clinics.

For any NGO that wishes to engage in capacity building and reforming mental health services on the back of a disaster, the main challenge is persuading donors to take a long term perspective. Much can be done in six months, but the time required to bring a para-professional with no previous knowledge of mental health to a position where they can function completely independently, appears to be two years[13]. Donors also need to understand that trauma counselling programmes although popular with the media, fail to serve the wider mental health and psychosocial needs of the population, and often result in a cadre of poorly trained counselors unable to integrate into the established health system. Another limitation is the global shortage of mental health professionals, particularly psychiatrists[17]. An effective training programme requires on-the-job supervision. Finding supervisory staff that have the requisite broad range of skills and

cultural sensitivity, and who wish to leave well-established home practices in order to develop community services in difficult environments remains a challenge. Finally, while quality of training is evaluated through conventional pre- and post-knowledge tests and clinical skills exams, it is difficult to evaluate service impact in the absence of a baseline. Clinical audit, mapping referral pattern, presenting problems, diagnoses and management are the option that at least provides one continuing measure of need. The default (failure to return for a follow up) rate also provides feedback on the acceptability of the service.

Lessons learned

➢ Governments, donors and agencies would all benefit from the agreed international guide-lines to provide the framework for psychosocial and mental health work in emergencies and in the following transition period. This could allow governments to challenge bad practice and guide donors as to where to offer support. Sphere standards provide a good framework but give no guidance as to how to act. The forthcoming Inter-Agency Standing Committee (IASC) guidelines now in review will go much further[18].

➢ Effective mechanisms for inter-agency cooperation and colla-boration with governments are essential to ensure appropriate and legitimate project activities.

➢ Skilled mental health assistance should be integrated into primary health care teams from the outset, through locally employed and support staff. This would provide the support for emergency physicians to deal with mass grief and loss, allowing them time to concentrate on major physical complaints. This would also

provide a unique opportunity for the training of local staff in dealing with future disaster, which is essential in geologically vulnerable areas such as Indonesia.[1]

➢ Clinical audit shows that the post-conflict and post-disaster mental health problems encompass the full range of disorders and require a comprehensive response rather than selected services focussing only on traumatic reactions.

➢ Clinical mental health inter-ventions should run in con-junction with social activities that assist mourning; foster social reintegration and address com-munity development needs, creating a continuum of care. This holistic approach appears to be the best way of meeting the complex and multiple needs of disaster affected individuals and communities, without patho-logising them.

➢ This requires an integrated approach by agencies with a wide skill base committed to good inter-agency cooperation.

➢ In low income regions mental health services can be rapidly decentralised to the rural com-munity through the training of para-professionals.

➢ In training such staff short theoretical courses without adequate follow-up supervision are not sufficient and can result in poor practice.

➢ Serious psychiatric disorders can be managed in the community, if staff are adequately trained, supervised and supported.

➢ Effective treatment combined with public education pro-grammes are the best means to reduce the stigma attached to serious mental disorder

➢ Collaboration with indigenous healing systems is possible and essential for the development of culturally appropriate models of care.

➢ INGOs can pilot intervention models to try out national strategy. Ideally this should take place in the framework of an agreed national strategy.

Conclusion

The recent peace agreement in Aceh, brokered by the Norwegians and took place on 15 August 2005 was the fourth agreement signed over the period of conflict. It has resulted in an almost complete withdrawal of the TNI from Aceh and a widespread hope that this time the peace will hold. The provision of security and human rights is the essential basis for any mental health programme. [4]. There is now the opportunity to extend services of all kinds, including mental health to a much-neglected sector of the population. The models of care developed in the Tsunami areas need comprehensive external evaluation and consolidation and they include the creation of a training programme for students that will sustain capacity in the long run and the creation of district mental health teams to provide adequate supervision and support. The challenge is for donors to complete the task begun.

Acknowledgements

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1 The recent earthquake in Yogyakarta has taken 6000 lives and left more than 130,000 homeless. IMC sent national staff trained in Aceh to develop the mental health response.

References

1. Bracken PJ, Petty C. (editors). Rethinking the Trauma of War. Free Association Books: London. 1998.

2. Eyber C, Ager A. Conselho: psychological healing in displaced communities in Angola. Lancet 2002; 360: 871.

3. Summerfield D. A critique of seven assumptions behind psychological trauma programmes in war-affected areas. Soc Sci Med 1999; 48: 1449-1462.

4. Grove N, Zwi AB, Sillove D, Tarantola D. Psychosocial health and human rights: fair weather friends? Examining post-tsunami interventions in conflict-affected areas. Australian Journal of Human Rights 2006; 11(2): 71-93.

5. Weiss MG, Saraceno B, Saxena S. Mental health in the aftermath of disasters: consensus and controversy. J Nerv Ment Dis 2003; 191(9): 614-615.

6. Van OM, Saxena S, Saraceno B. Aid after disasters. BMJ 2005; 330: 1160-61.

7. World Health Organisation, Mental Health in Emergencies, Mental Health and Substance Abuse, Geneva: WHO. 2003.

8. WHO, Briefing Note on Psycho-Social/Mental Health Assistance to the Tsunami affected Region, Mental Health and Substance Abuse, Geneva: WHO. 2003.

9. Silove D, Ekblad S, Mollica R. The rights of the severely mentally ill in post-conflict societies. Lancet 2000; 355: 1548-1549.

10. Sphere, Humanitarian Charter and Mininmun Standards in Disaster Response. The Sphere Project, Geneva. 2004.

11. OXFAM, The Tsunami's impact on women. OXFAM International: Oxford. 2005.

12. Stube DB. Warriors and Lovers: Understanding the Responses to Horror. 2005. Available at http://www.imcworldwide.org/loc_indonesia_stube.shtml. Accessed 12 April 2006.

13. Tennant C, Silove D. The development of a mental health service in East Timor: an Australian mental health relief project. Bulletin of the Board of International Affairs of the Royal College of Psychiatry 2006; (8): 17-19.

14. Ventevogel P, Kortmann F. Mental health care in primary health care: experiences from Eastern Afghanistan, Developing Mental Health 2004; 2: 2.

15. Budosan B, Jones L, Wickrama-singhe WAL. Tsunami relief and reconstruction: The development of mental health care services in Kalmunai, Ampara district, Sri Lanka: the first seven months of the project. 2005.

16. Asare J, Jones LM. Tackling mental health in Sierra Leone. BMJ 2005; 331: 720.

17. Mental Health: Evidence and Research. Mental Health Atlas. World Health Organisation; Geneva. 2005.

18. Inter Agency Standing Committee, IASC guidance on Mental Health and Psychosocial Support in Emergency Settings. Geneva: Inter Agency Standing Committee. 2006.

Neglected Issues and Voices

Abstract

The 2004 Tsunami highlighted the silence which surrounds gender issues, in particular the incidence of rape and sexual abuse of women and girls displaced by natural disasters and conflict. They include lack of recognition of women's sanitation needs, the need for safe, private places to bathe, secure spaces for single women and girls, lack of contraception, accessible sexual and reproductive health care, and legal measures to be taken against men who rape and abuse women. Reports of violence against women and increased domestic violence have been documented in all tsunami affected countries. Women from across the affected region came together in New York, March 2005 at the meeting of the UN Commission for the Status of Women to review the implementation of the Beijing Platform for Action. Through their efforts at that meeting, a United Nations Resolution was passed in which Governments made commitments to address gender issues and sexual abuse in disaster situations. *Asia Pac J Public Health 2007; 19(Special Issue): 69.*

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Gendered Dimensions of the 2004 Tsunami

"The silence regarding violence against women is louder than the roar of the tsunami waves"[1]

Background

As data on the horrendous death toll from the December 2004 tsunami is finally processed, it has been confirmed that by far the largest number of people who died were women and girls.

The challenge

During the ensuing humanitarian aid and reconstruction efforts, the needs of women and girls have been marginalised, and they are fighting to have their voices heard in the decision making process. Increases in the prevalence of sexual and gender based violence (SGBV) and consequences such as forced marriage, are ongoing sequelae of the disaster, and yet these issues are not often publicly identified and are even less frequently addressed. Our work, and that of others, have shown that women in all the affected countries experienced gender specific challenges and in many cases abuse in the post-disaster context. Widespread sexual violence against women and girls displaced by the disaster has been documented along with inadequate gender appropriate health care[2] and evidence of camp environments that promote unsafe living and disrupt cultural norms and behaviours placing women at increased risk of abuse[3].

The response – promoting innovation and resilience

Through grassroots and international advocacy efforts, women across the affected countries have come together to speak out about and against this violence. As a result of their advocacy efforts a resolution was passed at the United Nations CSW, Beijing plus 10 meeting held in New York in March 2005. The acceptance of this resolution focused the attention of the international community and key donor and receipt governments on the need to address SGBV in disaster contexts, and provided grassroots women with a powerful tool to support their ongoing advocacy.

References

1. Chew L. 'Breaking the Wave of Silence: How Women are Regrouping in the Aftermath of the Tsunami', Raising our Voices Newsletter, Global Fund for Women 2005. Available at http://www.globalfundforwomen.org/newsletter/2005-04/tsunami.html. Accessed 22 May 2007.
2. Lalasz R. The Indian Ocean Tsunami: Special Challenges for Women Survivors', Population Reference Bureau 2006. Available at http://www.prb.org. Accessed 22 May 2007.
3. Rees S, Pittaway E, Bartolomei L. Waves of Violence – Women in Post-Tsunami Sri Lanka. Australasian Journal of Disaster and Trauma Studies 2005 (2) accessed Jan 16 2007. Available at http://www.massey.ac.nz/-trauma/issues/2005-z/rees.htm. Accessed 22 May 2007.

HIV Vulnerabilities and Conflict Dynamics Understanding HIV vulnerabilities in the context of Nepal's conflict

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Abstract

The purpose of this research is to understand how Nepal's conflict is affecting vulnerabilities to HIV and exposure to the virus among females and males. Data was primarily collected during a three-week exploratory field study of Surkhet district in 2005. Twenty key informants and 35 stakeholders were interviewed, with the results triangulated by six focus groups. Documentary sources complement this data. A sociological model is designed depicting how the impact of the conflict and the responses of those affected have given rise to three different vulnerabilities to HIV: imposed contextual, conditional contextual and internalised. The paper concludes that the majority of those affected by Nepal's conflict are more vulnerable to the disease and that exposure to the virus may be increasing with forced displacement and migration. *Asia Pac J Public Health 2007; 19 (Special Issue): 70–71.*

Keywords: **HIV, vulnerabilities, stakeholders, virus, migration.**

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A study was conducted by UNAIDS-Nepal to understand how Nepal's decade-long conflict is affecting people's vulnerability and exposure to HIV[1]. Findings from the field show the effect of the con-flict on the lives of women, men and children, who are also students, widows, migrants, sex workers, dis-placed people, women impregnated by security officers and the 'low' caste *Badis*. The data was primarily collected during a three-week exploratory field study of Surkhet district in 2005. Twenty key infor-mants and 35 stakeholders were interviewed, with the results tri-angulated with six focus groups. Documentary sources complement this data.

The study shows that the dynamics of Nepal's conflict have stimulated mobility, bringing together recently transient communities while intensifying high risk cultures. Novice sex workers and migrants are moving to locations where they are more exposed to HIV. High risk communities of young women sexually involved with itinerant security officers, displaced male students and potentially sexually liberated Maoist fighters are being created. The conflict has led to the marginalisation of certain groups of people such as the social isolation of internally displaced people, the invisibility of unaccompanied displaced girls and the stigmatisation of impregnated single women. It has also increased the number of widows and victims of marital rape, and brought 'low' caste Badis closer to contracting HIV because of their increased economic difficulties. At the macro-level, protective measures such as schooling and health care are less accessible.

Increased exposure to HIV is difficult to estimate because of the dearth of accurate data for remote villages, but the increase in mobility within the country and across the border due to peace talks and renewed conflict facilitate the spread of the virus. Current statistics suggest that IDUs predominate in Nepal's concentrated epidemic[1]; but inhabitants of severely affected districts and isolated villages as well as male and female migrants in India are probably less accessible for HIV surveys and less likely to report AIDS cases. The current portrayal may therefore be incom-plete. The conflict victims' heightened vulnerability to HIV, combined with the likelihood of increased exposure, depicts how

Nepal's conflict is exposing the country to a worsening HIV/AIDS crisis.

Reference

1. NCASC. National Esti-mates of Adult HIV Infections 2003. Kathmandu: National Cen-tre for AIDS and STD Control. 2004.

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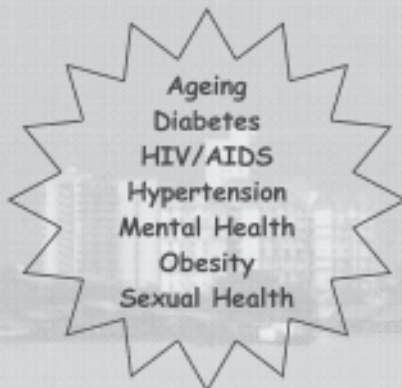
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