Health Emergency Management in New Zealand

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Indonesia dealt a disaster full hand

Pity the emergency manager or relief worker in Indonesia and especially those deployed in Java. The region has been in the headlines throughout May for all the wrong reasons. It all began with the ongoing rumblings and eruptions from Mount Merapi, perhaps the most active and dangerous of all Indonesian volcanos. Javans, being rather superstitious, see Merapi's rumblings as an ill omen. In light of the events that followed, even the non suspicious must feel disquiet every time Merapi belches. Yet with the outbreak of armed insurrection in East Timor, Merapi dropped from our news. Because the Australian and New Zealand governments have committed peace keeping troops to Timor, our media has given and continues to give it wide coverage. The next alarm was the WHO advising of a cluster of avian flu cases across a family in North Sumatra. This hogged the headlines and attention of conspiracy theorists for only a few days until May 27th when an earthquake in Yogkarta province killed and injured thousands.

Trying to find out about the Yogyakarta quake was an interesting experience. The international media seems to go to sleep at weekends. Lots of copy about football (of all codes) and lifestyle choices, but not much else. The lesson is if you want attention and a rapid response to your disaster; arrange it for a week day when all the news editors are at their desks.

It will be some time before we know the full extent of the 6.2 magnitude "Yogyakarta quake" which struck at the crack of dawn when many were still in bed burying many under the rubble of their homes in a scene survivors said was like the end of the world. Pictures and video footage suggests that buildings were poorly constructed. Early reports suggest many houses were built of brick with mud used as mortar. Even where the walls stood up, tile roofing on top of light wooden framing disintegrated and crushed those sleeping below.

The battered urban landscape

Yogyakarta is near Mount Merapi but while volcanic activity increased after the quake they are considered to be quite separate events. The epicentre of the quake was offshore. It was the third major tremor to hit Indonesia in 18 months and many near the coast fearing that it would be followed by a tsunami fled for higher ground.

Yogyakarta is about 25 km from the coast and 440 km east of Jakarta. Yogyakarta province, which includes the city, has a population of 3.2 million and there was damage across the province. Bantul town, about 25 km south of Yogyakarta city, was hit hardest. One official said the Bantul region accounted for more than 2,000 of the death toll, now officially recorded at over 6000 and still rising. At least 10,000 others are thought to have been injured and more than 200,000 fled the remains of their homes.

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Indonesian medical officers carry an injured man as they

Earthquake victims wait to receive medical attention outside Panti Rapih hospital

Indonesian paramedics at Sarjito hospital check on the bodies of earthquake victims

People were ferried to hospital in lorries and buses, or made the journey on foot, because of a shortage of ambulances. Hospitals struggled to cope with the influx, while survivors prepared mass graves to bury their dead relatives.

With hospital wards and corridors crammed with injured survivors as a series of after shocks continued to alarm survivors, many more lay on the hard ground outside. Just to add to their misery, this is the start of the monsoon season and heavy rain swept the area. Electricity failed, telephone services were erratic and damaged airport runways slowed the arrival of help from outside.

Aftershocks forced medical staff to move injured patients outside, while local radio reported there were not enough doctors to cope with the demand.

The BBC's Rachel Harvey visited one hospital in the town of Klaten, east of Yogyakarta and reported; "Hospitals are struggling to cope. There are thousands and thousands of injured, most with broken limbs and some internal bleeding. This hospital has a capacity for 300 beds, but is currently treating more than 700 people. Patients are being treated outside in the car park. Clearly there just isn't enough room to treat everyone inside. An awning has been set up outside, and people are being treated just lying on mats on the ground. Chairs have been placed strategically and a piece of string hitched up between the chairs, and there are drips suspended off that string.

There is no proper lighting - the only light is coming from the main building inside. They are just doing what they can with what they have got, in a car park on the main road. Stepping inside to the lobby, there are more people being treated on the cold floor tiles of the waiting room. Again, a sheet has been torn up and strung up, and there are drips hanging off it. It's a makeshift ward. There are people lying on every available bit of space - every bench, every chair, and on mats on the floor."

Looking at the scenes from Yogyakarta I wondered if we would fare better should a similar quake hit Wellington. Perhaps our buildings will be more resilient but there is little doubt the region's hospitals would not cope with the numbers seeking attention and assistance from outside would find it difficult to access the town.

The Indonesian President moved his office to Yogyakarta to deal with the response first hand

In contrast to what happened in Katrina, the Indonesian President Susilo Bambang Yudhoyono moved his office temporarily to Yogyakarta soon after the calamity. Sleeping in a tent camp with survivors, he remained in the area for four days to direct relief efforts. He vowed that all relief funds would be spent on quake victims and said he had warned government officials against pocketing aid themselves. "I have asked (officials), and this has been implemented, that we must maintain transparency and accountability. Don't misappropriate one dollar ... not even a single rupiah that is for the quake," he told a news conference in Yogyakarta.

The ancient royal capital in Yogyakarta province lies in south-central Java and is one of Indonesia's largest cities. Yogyakarta province is one of Indonesia's most densely-populated. The city itself is home to about 1.5 million people, while the province has a population of about three million. The Buddhist temple of Borobudur, a Unesco world heritage site, is arguably the jewel in the province's crown.

Built in the 9th century, the impressive stone structure measuring 34.5 metres (113 feet) is South East Asia's largest Buddhist monument, but was hidden for centuries under layers of volcanic ash from the nearby Mount Merapi volcano.

The nearby Prambanan Hindu temple is of a similar vintage. Both buildings were damaged but survived the shake. **#**

Indonesian Avian Influenza update

A family cluster of human infection with avian influenza virus in North Sumatra where 6 people died took the attention of the western world for a short time in May until our attention was diverted by the Yogyakarta earthquake.

One might assume there have been no cases since then. Not so. Sporadic cases of human infection are still being reported along the Indonesian archipelago.

As of Mon 29 May, the Ministry of Health in Indonesia has confirmed an additional 6 cases of human infection with the H5N1 avian influenza virus. Three of these cases were fatal. None of the newly confirmed cases is associated with the family cluster in Karo, North Sumatra. The cases are widely dispersed geographically. Maps showing the location of Indonesia's H5N1 cases can be found on the WHO Indonesia avian influenza web site at http://www.who.or.id/eng/php/index.php

Those planning a winter break in Bali might care to note that avian influenza has been identified there. - Not a threat to tourists as long as they take the normal precautions one should follow on holidays.

One newly confirmed case is an 18-year-old man from East Java Province. He developed symptoms on 6 May and was hospitalized on 17 May. He is now recovering. The investigation found a history of exposure to dead chickens in his home within the week prior to symptom onset. No further cases of influenza-like illness have been identified during the investigation and monitoring of his close contacts.

Two additional cases occurred in a 10-year-old girl and her 18-year-old brother from Bandung, West Java. Both children developed symptoms on 16 May, were hospitalized on 22 May, and died on 23 May. Both children had a history of close contact with sick and dying chickens at their home in the week before symptom onset. The identical onset dates strongly suggest that they acquired their infection following a shared exposure to poultry, and not from each other. Follow-up of contacts has not identified further cases of influenza-like illness.

An additional case occurred in a 39-year-old man from West Jakarta. He developed symptoms on 9 May, was hospitalized on 16 May, and died on 19 May. The investigation determined that the man cleaned pigeon faeces from blocked roof gutters at his home shortly before symptom onset. No further potential source of exposure was identified.

The remaining 2 patients are a 43-year-old man from South Jakarta, who developed symptoms on 6 May, and a 15-year-old girl from West Sumatra, who developed symptoms on 17 May. The 43-year-old man has recovered and been discharged from hospital. The 15-year-old girl remains hospitalized. The sources of exposure for these 2 cases are under investigation.

The newly confirmed cases bring the cumulative total in Indonesia to 48. Of these cases, 36 were fatal.

Of these 6 additional confirmed human cases of H5N1 influenza virus infection described above, 4 are not linked with previous cases. The remaining 2 are siblings from Bandung with identical dates of onset and likely to have been infected from a common source rather than indicative of person-to-person transmission of infection. These observations are not consistent with evolution of the virus towards a form capable of person-to-person transmission. On the other hand the WHO maps referenced above indicate that although outbreaks of animal disease have occurred widely throughout the archipelago, so far human cases has occurred predominantly in the central region and in northern Sumatra. The northern Sumatra cluster is geographically detached from the main body of human cases and conceivably might be associated with an atypical virus.

The World Health Organisation (WHO) has asked Swiss drug manufacturer Roche to prepare to ship Tamiflu to Indonesia, but had not requested that any be sent.

WHO spokeswoman Maria Cheng said it was standard procedure to ensure drugs were ready for shipment when a cluster of infections occurred, such as in Indonesia. "Whenever there is a cluster, we contact Roche just to let them know that if we need to send the stockpile that they should be ready to do so," Cheng said.

"We have not asked that anything be sent, and nothing from Roche has been sent," she added. **#**

New model for vaccination planning

As part of our pandemic planning we have people beavering away developing plans to vaccinate every man, woman and child once a vaccine becomes available. Where do you put the clinics, how many healthcare workers will you need and how do you get the whole population to a finite number of vaccination clinics?

The logistics of handling all those people, healthcare workers, vaccinations, clinics and forms are dizzying. And even with plans in place, it's very difficult to know how well those plans will perform when time is critical.

Now researchers at Georgia Tech in Atlanta have developed a computer program, based on a clinical model created by the Centers for Disease Control and Prevention (CDC), to help U.S. state, city and county healthcare departments create and test more efficient plans for treating infectious illness, whether it's a natural or man-made outbreak.

The program, called RealOpt, was created by Dr. Eva Lee, an associate professor of industrial and systems engineering at the Georgia Institute of Technology. It will be installed during the next few months at health departments across the state of Georgia. Health departments in 35 other states have plans to test the program. While it is still in the testing phase, the program will soon be available to any government health department that requests it from Georgia Tech free of charge.

RealOpt has been tested by the DeKalb County Health Department in Georgia. Lee used RealOpt to help DeKalb test and improve its existing bioterrorism preparedness plan.

RealOpt takes the numerous variables associated with a healthcare department's treatment of a very large group of people and through large-scale simulation and optimization (even considering variables, such as panic and language barriers) pinpoints the most efficient way to move patients to and through a facility. Using the program, a healthcare department can determine the best location for emergency clinics based on population density and road accessibility, the most efficient facility layout, the number of healthcare professionals needed in certain areas, the number of vaccinations needed and the time it will take to treat patients.

Dr Eva Lee illustrating her program

RealOpt can be used to prepare for a possible outbreak, as well as for emergency re-assignment of healthcare workers within the clinic and between clinics during an actual outbreak. By being able to assess preparedness, health departments will have a more precise estimate of the resources and funds needed to treat communities before an actual outbreak.

In addition to its role in planning, one of RealOpt's significant advantages is its ability to process data in real time as the emergency treatment occurs. As patient flows fluctuate, the program can determine how to reallocate the facility's resources in a fraction of a second, sending more physicians or nurses to one station or more attendants to the paperwork processing area.

"Rapid analysis of scenarios not only allows for large-scale planning and preparedness, but also allows on-the-spot optimization to maintain the best resource allocation over time," Lee says. "As patients enter and progress through the clinic we can observe the flow and dynamically adjust the configuration as needed. This is also critical for response to catastrophic events, for example, if one treatment site collapses."

RealOpt also includes an automated facility-layout drawing tool that allows healthcare workers to design and analyze their own clinic layout in response to various emergency situations, such as anthrax, smallpox, flu pandemic or natural disaster.

Lee continues to add to RealOpt's capabilities, and is currently adding a disease propagation component to the system. The addition would help to analyze the disease's spread within treatment sites and possible ways to halt or minimize the spread. It will also determine how to redirect patients should one centre need to be quarantined or closed to prevent further spread of a disease. **#**

Public opinion formed by media stories

Most of us would prefer that the public be informed and concerned about avian flu and other emerging health issues, but not alarmed. Just how engaged and concerned is the public about avian flu? In a survey conducted for the Ministry of Health earlier this year nearly one third (32%) of respondents reported they were doing something to specifically prepare for an influenza pandemic. The most popular spontaneously mentioned measure of preparing was to get an emergency supplies kit (58%), followed by making a plan (26%).

Matthew Nisbet, Assistant Professor in the School of Communication at The Ohio State University maintains the blog FRAMING SCIENCE, which tracks news coverage of technical controversies. Believing that Public concern and perceptions will be shaped chiefly by news coverage he set out to establish how much coverage of Avian flu has there been in the American media, especially in comparison to the SARS outbreak of 2002 and 2003, or in relation to other contemporary issues competing for the public's focus. While the Ministry survey indicates a higher level of knowledge here than that Nisbett reports, in our global village there are probably sufficient similarities between our media and responsible American media for his findings to be useful in our situations.

How Much News Coverage of Avian Flu?

News attention has been, and is likely to remain, fragmented and event-driven, peaking in relation to newly reported human infections or in reaction to the spread of infected birds, and then quickly disappearing into periods of non-attention. This "up and down" pattern of media attention will also depend heavily on the number of other competing issues that might be defined as the "news" of the moment. Figure 1 plots the pattern of news attention to Avian flu across recent months at *The New York Times* and at the ABC and NBC evening newscasts.

The Times, more than any other news organization, sets the agenda of issues for other media outlets, and the network newscasts remain the primary source of news for most Americans. Since January 2003, *The Times* has run 267 stories, though more than half of these articles occur across just a few months, with 63 articles running in October and November 2005, and 81 articles appearing in January, February, and March 2006. The two network newscasts have run a combined 100 reports (61 at NBC and 39 at ABC), with roughly 60% of these reports appearing in either October/November 2005 (43) or between January and March 2006 (16).

Matthew Nibett

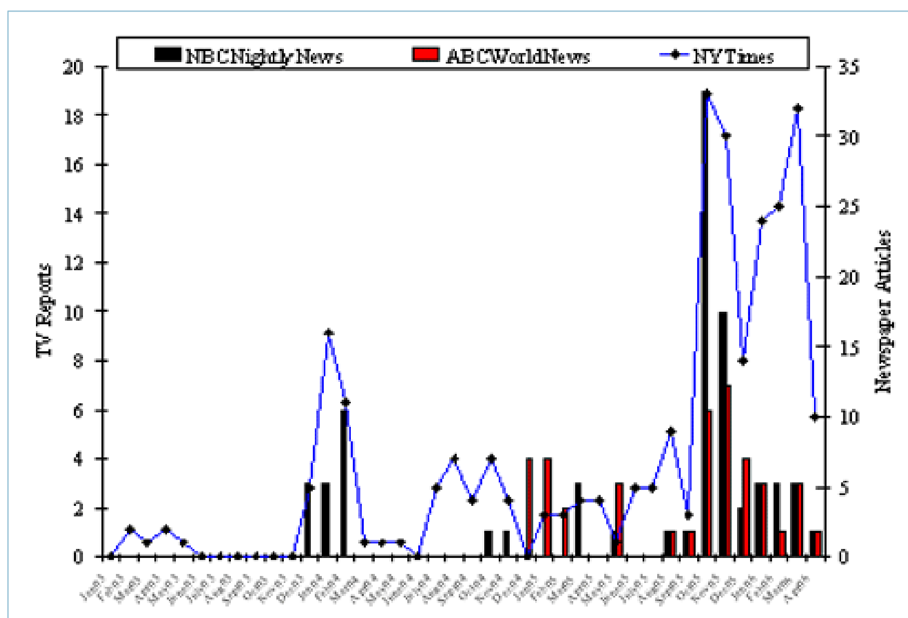

Figure 1. Media Attention to Avian Flu

Note: Trends reflect the number of combined news reports appearing monthly on ABC *World News Tonight* and NBC *Nightly News*, and the monthly number of articles appearing at *The New York Times*, containing in the headline or lead paragraph "avian flu" or "bird flu."

News about Avian flu has competed with many other issues for the media's attention. Though across January, February, and March 2006, 81 articles appeared about Avian flu at *The Times*, during this same period more than 1,000 articles ran about Iraq, and 220 articles about Hurricane Katrina. This, of course, is without accounting for the steady diet of crime, celebrity, and soft news topics featured across outlets such as Fox News, local television, and various magazines.

Moreover, despite warnings about a potential global pandemic, Avian flu has yet to earn the type of media celebrity status that SARS achieved in 2003. The scope of the SARS outbreak triggered attention across American newsbeats, generating coverage from health, political, science, and business correspondents, as well as columnists and pundits. Between April 1 and July 1, 2003, *The Times* devoted 550 articles to the topic, making SARS one of the top news stories of the year. With similar intensity, the two TV news broadcasts made SARS a regular feature of weekly news, with a combined 149 reports across the three months.

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How Closely Has the Public Been Following Avian Flu?

In light of the relatively modest levels of media attention to Avian flu, and considering the many competing events in the news, it is not surprising that relatively few Americans report following the issue very closely, and that public concern remains relatively low. Figure 2 plots the percentage of the public, who when asked, answer that they have been following the topic of Avian flu "very closely."

Notice in the graph that public attention tracks closely with the amount of media coverage the issue may be receiving in any given month. The peak measure of attention, 32%, occurs in early December 2005, following the two months of heaviest news coverage to date. Public focus, however, has yet to reach the level for SARS, with 39% of adults in an April 2003 Pew poll and 42% in a June 2003 Kaiser survey indicating that they were paying very close attention to the SARS outbreak. The higher levels of public attention to SARS are not surprising, given the heavy media coverage to the topic during that period. Public attention to news about avian flu also falls short of the recorded high for West Nile Virus (43% following the issue very closely; Kaiser Poll, Oct. 2002).

In comparison to major political issues, according to the [Pew News Interest Index], in October 2005, 69% of respondents said they were following news about the impact of Katrina very closely, and 67% said they were following high gas prices very closely. Indeed, the public's heavy focus on these competing topics probably displaced what would have otherwise been closer attention to the threat of Avian flu.

With relatively low levels of public attention, only a quarter of Americans across polls indicate that they are "worried" that they or someone in their family might contract Avian flu, and only a quarter of Americans say that they are "very concerned" about the issue. Despite speculation that a panicked public might start hoarding Tamiflu to use in the event of a bird flu outbreak, a recent [Harvard School of Public Health survey] finds that only 2% of Americans have talked to their doctor about the matter. Other than a function of media coverage, low levels of public concern are also probably a product of human nature, with Americans discounting an uncertain future risk, regardless of its potential impact. Americans are also probably desensitized to the Avian flu threat based on past warnings related to Mad Cow Disease, West Nile Virus, and more recently, SARS.

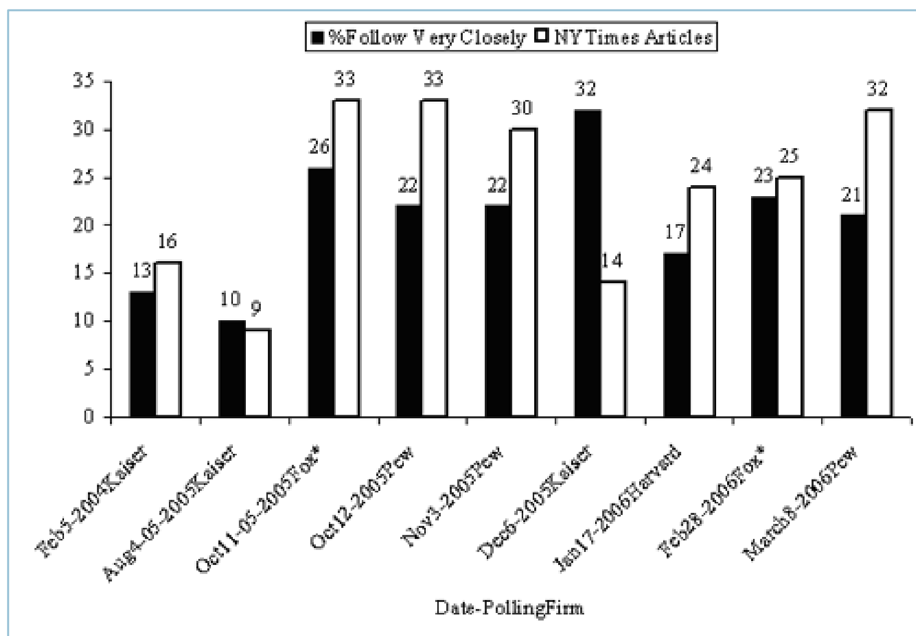

Figure 2. Percentage following avian flu "very closely?

Note: With slight variations in question wording across polls, respondents were asked: Now I will read a list of some stories covered by news organizations this past month. As I read each item, tell me if you happened to follow this news story very closely, fairly closely, not too closely, or not at all closely. The outbreak of bird flu in Asia and Europe? *Indicates sample based on registered voters rather than all national adults.

Where Do Americans Get Their News and Who Do They Trust?

On the important matter of information sources and trust, in the recent Harvard survey, when asked where they had gotten information about Avian flu, 80% of respondents said television, 50% said newspapers, 34% said radio, 4% said their doctor, 5% said a government Web site, and 11% indicated a non-government Web site. When asked hypothetically about an outbreak of Avian flu in the U.S., 73% of the public said they would trust the CDC as a source of information either a great deal or good amount, followed by the Secretary of Human and Health Services at 55%, the Food and Drug Administration at 53%, the Secretary of the Agriculture at 43%, and the Secretary of Homeland Security at 32%.

Outlook

Though experts are often quick to criticize the media, so far, there is little evidence that news coverage of Avian flu has promoted undue alarm among the American public. Public attention to the topic remains relatively low, while few Americans express worry that they or their family might contract the virus. Yet, looking ahead, public concern is likely to track closely with levels of media coverage, and in relation to the nature of competing events or issues. Similar to West Nile Virus, if infected birds are found in North America, or the first human cases occur, media attention and public concern are likely to sharply increase.

In this sense, the news media serve an important surveillance function. The great majority of the public will continue to pay limited attention to either the details or the nature of the issue until a major spike in news stories alerts them to an imminent and urgent problem. At that time, it is likely that a small segment of the public will turn to the Internet and to newspaper coverage for more detailed information, while the rest of the public will rely heavily on the directions and reassurances of government agencies and public figures that they trust, messages that will be encountered by way of television news. #

Providing safe care in emergencies

Drawing on the experience of Hurricanes Katrina and Rita the Joint Commission on the Accrediting of Healthcare Organisations set out to provide guidelines on how to expand a functional facility to treat a large number of patients after a mass casualty event, or how to set up in another temporary location when the hospital is not functioning.

The JCAHO offers a number of alternatives. Each requires an ingredient not readily available in our less populated regions – staff. For Katrina and Rita more than 31,000 workers, including medical personnel, search and rescue staff, law enforcement officers, waste management experts and fire fighters were dispatched from dozens of states to Louisiana and Mississippi.

For New Zealand, we can note the lessons from Katrina while looking to our immediate neighbours for a solution more suitable to our environment. Hazel Harley, Manager of Disaster Preparedness and Management Unit at the Western Australian Department of Health offered another approach in a paper to the Innovations in the care of patients involved in disaster conference in Brisbane this May. Like New Zealand, Western Australia is more or less on its own and Harley concentrated on making the best use of the resources available.

But first the lessons we can take from the American situation. Despite their resources, few if any hospitals in America today could handle 100 patients suddenly demanding care. There is no metropolitan area, no geographically contiguous area that could handle 1000 suddenly needing advanced medical care. Therefore there is an acceptance of a concept of "sufficiency of care". That is, medical care that may not be of the same quality as that delivered under non emergency conditions but is sufficient for the need.

In a sufficiency of care environment the medical care will be challenged by limited privacy for patient assessments, crowded conditions, limited access to medical records and inadequate access to testing facilities. The goal of any sufficiency of care facility is to treat each patient and then transfer him or her to a facility with the capability to treat patients at an ideal level of care.

While the care provided in surge hospitals will be expedient, sub standard care can never be allowed. All surge hospitals must ensure that the care they provide is safe with quality assurance processes in place for patient identification and an assurance that drug errors will not occur. The longer a surge facility remains open the more demands must be made on both its environment of care and process of care delivery to make sure that they are in line with expected high standards of care.

The possibility of surge hospitals operating on a long term basis – such as after an earthquake – adds another dimension to the concept of the emergency itself. Health care organisations are used to thinking about emergencies as short term major incidents. Examples might include a school bus incident or industrial accident with many casualties. The local hospital needs to respond by activating its emergency management plan in order to have enough staff available to manage the situation but the community and its hospital remains intact.

However where the health care infrastructure and the infrastructure of the community is damaged this can present a problem that can extend for many weeks or months. The surge facility may have to remain operationally for that time. This presents quite different staffing challenges and even more pressure to return to a "normal standard of care." Preparing to manage for months in a damaged or make shift facility is an area not considered in our hospital emergency plans.

Unlike New Zealand, Western Australia (WA) has to deal with an environment of a scattered population spread over huge distances. The advantage they have is that most of their population is domiciled in and around Perth so most are in an easy distance from the available acute care health facilities. W A is therefore has been able to build a system based on the operational management plan for hospitals within the metropolitan region being co-ordinated by the Areawide Medical Co-ordinator located at Royal Perth Hospital.

The W A plan was originally developed in 1999 as part of their Y2K planning to respond to a critical resource failure due to any cause or to an external disaster that was beyond the capabilities of local hospital management. It was based on the critical functions and resources that affected clinical care; such as hospital infrastructure, utility services and the admission of mass casualties or the need to mount an external response.

Terrorism is a fact of life that Australians have had to factor into their plans so in their surge planning W A formed a working party to review the requirements for a graduated response for 100 / 500 / and 1000 casualties. The working party considered risk factors; the decanting of patients; discharge guidelines; the management of ICU resources; and the subsequent development of surge capacity requirements. The working party consulted and negotiated with GP services to provide support in mass casualty situations.

As a casualty predictor for a terrorist mass casualty event W A used a CDC model that extrapolates the total expected casualties as (the number of casualties arriving in a one hour window from the arrival of the first casualty) x 2. Factors that might affect this model include: transportation difficulties and delays; security issues that may hinder access to victims; and multiple explosions or the secondary effects of explosion such as building collapse. For surge planning W A uses a model that estimates that 10% of the total casualties will be critically injured requiring ICU; 20% of the casualties will be paediatric and there will be no lead time.

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HEMNZ Bulletin

The HEMNZ Bulletin is published monthly by the Risk Management Unit of St John Northern Region for all those interested in emergency management in health care settings

Articles and comment on emergency management issues are welcomed

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Check out our Web site at www.hemnz.org.nz

Up coming Events

30 June - 1 July 2006
Teaching old dogs new tricks
New Zealand Institute of Health Management Conference
Wellington Convention Centre,
Cost: $680 + GST
More information from; www.nzihm.org.nz

23—24 August 2006
Natural Hazards Management Conference - From science to practice
Cost $400
More information from; www.gns.cri.nz/news/conferences

Editor's soapbox

The DHB—CDEM workshop hosted by the Ministry of Health at Westpac Stadium, Wellington on May 31st was, from feedback I received, a useful event. Some attendees told me that it was the best workshop we have held.

I came away with mixed feelings. Pleased that there is an acceptance by the vast majority in the structures and processes we have set up to manage an influenza pandemic; yet disturbed by the deep dissension voiced by some from a few pockets in the country.

It would be easy to dismiss those who did not agree with the arrangements set out in the Influenza Pandemic Action Plan version 15. Most of us seem to think that they are wrong. But even if they are does it matter if all organisations in their area agree with their view and the structure they propose does not diminish the national response?

The dissension, as I heard it, centred around the concepts of control, command and co-ordination. Some of us obviously define them differently and along the way have lost sight of the most important of the C's—co-operation. The military has always operated under the rule of total obedience to the commands of those in charge. Those who would not obey were shot or otherwise dealt with. Despite such sanctions people have always worked better when they have felt part of a team and co-operated with those giving the orders.

As we move forward we must continue to look for points of agreement so we can mount a unified front to an influenza pandemic or whatever disaster befalls us. Expecting the unexpected, I have still got my money on an earthquake on the southern divide disturbing Canterbury in a way no northern rugby team can currently do.

The good news is that our glass is more than half full. We are better prepared for any event than we have been at any time since the end of the 39—45 war.

As a final thought for the month, once again the Resident Medical Officers, by posting notice of strike action have given us an opportunity to check the relevance of our emergency planning. As we enjoy or last long weekend before the spring just keep your mind on that silver lining.

Bruce Parkes

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Like New Zealand, occupancy of W A public hospital beds runs at 98% and the major limiting factor in any response is the availability of critical care beds. The current metropolitan tertiary ICU surge capacity is 97 beds so they are working with ICU's to create surge bed capacity and equipment requirements.

Capacity will be created in ED through ED decanting plans that include agreed guidelines for ED staff for the treatment and triage of patients to appropriate alternate facilities. Increased hospital capacity is planned through staged decanting of patients. This decanting is linked to ongoing community support and the provision of a 24hour supply of pharmaceuticals and disposable dressings.

With a likely shortage of ambulances a separate transport plan has been prepared under a transport expert advisor. The transport plan lists all available hospital transport vehicles and links to all public transport organisations.

A separate staffing plan has been prepared which includes allowing for a greater ratio of patients to staff members (for sufficiency of care); 12 hour rosters; allowing unskilled staff to assist and work under the supervision of qualified staff; the recalling of staff from annual leave; and the requesting of staff from interstate.

The staffing plan has also addressed volunteer databases and the interstate registration of medical, nursing and dental staff.

On the surface we do not have the same registration issues as Australia. But if we call for help from Australia we will have.

So to summarise the two approaches, the American experience tells us that we will be overwhelmed in a disaster. They created more capacity. We like W A will have to work smarter and make better us of what we have got. #