

California Releases Healthcare Surge Guidelines

Those of us involved in Exercise Ruaumoko gave considerable time and thought into the problems associated with creating surge capacity during the process of evacuating our largest city. That process might have been made so much easier if we had known of and had accessed surge guidelines recently developed in California. A State kept on its toes these past few years by natural hazards.

California has released a comprehensive guidance for how hospitals, other health care facilities and local health departments should respond to a sudden increased demand for services following a catastrophic event. This guidance, **Standards and Guidelines for Healthcare Surge during Emergencies**, is part of the State's ongoing commitment to improving its ability to care for its residents in a catastrophe. The guidelines, comprising four volumes, along with training materials and a reference manual, are available online at www.bepreparedcalifornia.ca.gov. The manuals offer practical solutions and useful tools for a number of these issues and are an effort to cover the multitude of difficult issues related to emergencies that overwhelm the healthcare system.

"During a major disaster, the health care system will look very different from what we are accustomed to," said Dr. Mark Horton, director of the California Department of Public Health. "These guidelines will help communities as they plan how to sustain a functioning health care system following a catastrophic event such as a severe earthquake, bioterrorism attack or outbreak of pandemic influenza."

The development of the Standards and Guidelines involved an unprecedented collaboration between representatives from a diverse group of doctors, nurses, allied health professionals, medical ethicists, lawyers, state government agencies and other interested parties from across California. The Standards and Guidelines address a variety of challenging issues such as:

- Ethical allocation of limited medical resources - During a major disaster, the health care community will have to switch from individual care to population-based care. Doctors, nurses, medical ethicists and other members of the health care community helped develop the guidelines on acceptable criteria for resource allocation among patients as well as inappropriate criteria.
- Standards for the delivery of medical care outside of normal settings, including hallways, parking lots, gymnasiums or other alternate care sites.
- Ensuring effective use of medical professionals and volunteers to maximize life-saving efforts during a catastrophic event.

According to the Standards and Guidelines, after the declaration of a state of emergency certain regulations may be waived depending on the nature of the emergency to ensure consistent patient care.

Left unresolved, these types of issues could be addressed haphazardly during an emergency, potentially weakening the emergency response effort and affecting patient care. By developing standards and guidelines that are well understood by the health care community and emergency responders, California is better prepared to handle an emergency that requires rapid response to surges on the health care system.

In the coming months, additional guidelines will be released for community clinics, long-term care facilities and licensed health care professionals. Further information about the Standards and Guidelines for Healthcare Surge during Emergencies is available at www.cdph.ca.gov

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Computer Analysis of 9-1-1 Calls From California Wildfires Offers Potential Early Warning System

When confronted with emergencies or natural disasters, such as the wildfires that raged through San Diego and Los Angeles counties last October or the tornadoes that hit the southern U.S. in February, residents often dial 9-1-1 as their first course of action.

Now, researchers from the San Diego Supercomputer Center and Scripps Institution of Oceanography, using 9-1-1 data from these wildfires and other emergency situations, have devised a method to analyze and visually display these calls to detect specific patterns. Their ultimate goal: to assist in developing an early warning system and coordinate responses on a wider scale that could one day save lives and limit property damage.

"Because of the time-critical element within the first responder community, this research could assist emergency service providers and organisations in allocating appropriate levels of both human and material resources as part of their overall planning," said Chaitan Baru, SDSC Distinguished Scientist and one of the project's principal investigators.

Baru, along with researchers from Scripps Oceanography, developed the pattern-detecting method - a computer algorithm - after analyzing nearly three years of 9-1-1 call data from the San Francisco Bay area, and more than 20 months of similar data from throughout

San Diego County.

The data included time/date/length of the emergency calls, how quickly each call was answered, and phone type (i.e. business, residence or wireless). To protect privacy, the 9-1-1 call locations were converted into latitude and longitude coordinates and then dithered, or randomly blurred, so that the precise location could not be recovered.

By combining the call data with topographic images from Google Earth, researchers conducted a spatiotemporal analysis - relating both space and time together - of typical call activity in order to set parameters that would automatically alert viewers of abnormally high call rates. These 'hotspots', or clusters of activity within certain areas and within predetermined lengths of time, were then directly correlated to specific events in those areas such as an earthquake, explosion or fire.

While SDSC researchers have been doing only retrospective analyses based on collected data, it is a vital first step to creating visual analyses in real time and on a much larger geographic scale, which would require supercomputing resources for data storage and graphics.

"We think this kind of research could enable a command centre at the state or county level to complement their current 9-1-1 system with advanced visualization techniques and advanced clustering techniques," said Hector Jasso, a data

mining specialist and SDSC co-researcher on the project, called "Spatiotemporal Analysis of 9-1-1 Call Stream Data."

Despite a good level of coordination and emergency services response during the recent southern California wildfires, most Public Safety Answering Points (PSAP) do not have the capability to coordinate visually via computer-generated images with other PSAPs in their area, and there is no system currently in place to automatically reroute an emergency call to another PSAP if the initial point is overloaded. In addition, calls are often transferred multiple times depending on the type of emergency, which affects overall response times.

Baru believes the SDSC/Scripps Oceanography project could also be beneficial to local governments, many of which are wrestling with budget constraints while striving to provide high levels of emergency service. "It could also allow more efficient coordination of similar services across a greater area in the event of a larger scale disaster," he said.

Moreover, the research may be useful in detecting the weaker links in any emergency response system such as dropped calls, or identifying areas that may be vulnerable to communication blackouts. "Creating some kind of load sharing strategy among the PSAPs certainly makes a lot of sense," said William Hodgkiss, a Scripps Oceanography professor and co-PI on the project. #

Course on Health Aspects of Disasters

This year the School of Population Health at the University of Queensland, Brisbane is offering a 5 day intensive short course on Health Aspects of Disasters.

Set between the 17th and 21st of November, the course aims to give students additional skill and understanding in the following areas:

1 Common types and phases of disasters, contributory and ultimate causes, including political and environmental.

2 The public health and medical responses concerning casualties, deceased, risks of disease, health care, nutrition, mental health, disease surveillance, social disruption and other effects in different phases.

3 The design and management of displaced people including shelter, environmental health, security and vulnerability.

4 Co-ordination of various government, aid agencies, non-government, military, and donors.

5 Disaster avoidance, preparedness and minimization, including in the Australian context.

For further information on the course, please contact Bronwen Blake at b.blake@uq.edu.au.

Three computer simulations produce same pandemic strategy

By using computer simulations and modelling, an international group of researchers including scientists from the Virginia Bioinformatics Institute (VBI) at Virginia Tech's Network Dynamics and Simulation Science Laboratory (NDSSL) have determined how a pandemic influenza outbreak might travel through a city similar in size to Chicago, USA. This information helped them to determine the preferred intervention strategy to contain a potential flu pandemic, including what people should do to decrease the likelihood of disease transmission.

The new results, based on three different computer simulation models, are described in a paper published in the *Proceedings of the National Academy of Sciences* by scientists involved in the Models of Infectious Disease Agent Study (MIDAS). *MIDAS is a collaboration of research and informatics groups supported by the National Institutes of Health (NIH) to develop computational models to examine interactions between infectious agents and their hosts, disease spread, prediction systems, and response strategies.

In the paper, "Modelling Targeted Layered Containment of an Influenza Pandemic in the USA," members of the MIDAS Working Group on Modelling Pandemic Influenza concluded that a timely implementation of targeted household antiviral prevention measures and a reduction in contact between individuals could substantially lower the spread of the disease until a vaccine was available.

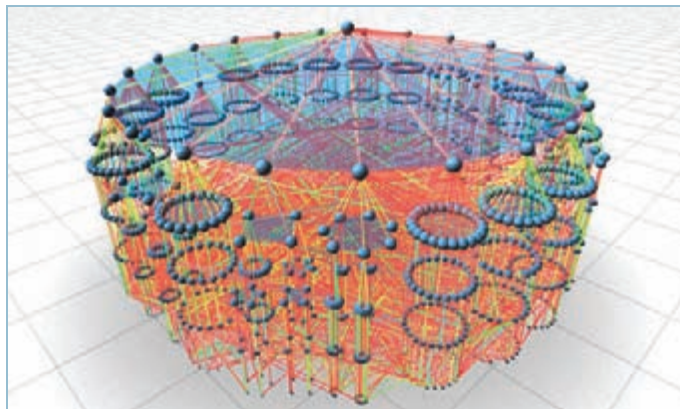
The groups coordinated efforts to each create individual-based, computer simulation models to examine the impact of the same set of intervention strategies used during a pandemic outbreak in a population similar in size to Chicago, which has about 8.6 million residents. Intervention methods used were antiviral treatment and household isolation of identified cases, disease prevention strategies and quarantine of household contacts, school closings, and reducing

workplace and community contacts. Although using the same population, each model had its own representation of the combinations of intervention. All of the simulations suggest that the combination of providing pre-emptive household antiviral treatments and minimizing contact could play a major role in reducing the spread of illness, with timely initiation and school closure serving as important factors.

"VBI's computer simulation models are built on our detailed estimates for social contacts in an urban environment," said VBI Professor and NDSSL Deputy Director Stephen Eubank, who leads the VBI team in the working group. "They provide a realistic picture of how social mixing patterns change under non-pharmaceutical interventions such as closing schools or workplaces. For example, when schools close, young students require their caregiver's attention and that can disrupt social mixing patterns at work if a working parent stays home; or make closing schools pointless if the children are placed in large day-care settings. We can use our model to suggest the best mix of intervention strategies in a variety of scenarios, taking factors like these into account."

Bruno Sobral, Executive and Scientific Director of VBI, remarked: "Trans disciplinary science, which is the foundation of the way we do research at VBI, requires a special type of collaborative framework at the very outset of a project. The highly detailed social-network models that underpin this international research project arise from trans disciplinary science that removes disciplinary boundaries and promotes innovation. The impact of this approach to science is highlighted by the success of this re-

search undertaking which benefits from a very clear interface between diverse experts in high-performance computing, disease modelling and public health practice."



Simulated social contacts for an individual in Chicago:
Credit - San Diego Supercomputer Centre

While the three different models used in the study show that timely intervention significantly impedes the spread of influenza through a population, the authors caution against over-interpretation of the modelling results. The researchers emphasize that the models are tools that provide guidance rather than being fully predictive. In the case of a future outbreak of pandemic influenza, capabilities such as real-time surveillance and other analyses will hopefully be available for the public health community and policy makers.

"These models, which are built from the best available data and with the best tools, contribute greatly to our understanding of how a pandemic could spread and what measures might protect the public's health," said Jeremy M. Berg, Ph.D., director of NIH's National Institute of General Medical Sciences, which supports the MIDAS program. "But they are not our only resource-field work and experimental studies remain critical and will enhance the quality and reliability of these and other models." #

H5N1 now endemic in rural Egypt

An eight-year-old boy from Fayyum province in Egypt was diagnosed with avian influenza on 8 March, bringing to four the number of human cases in two weeks and raising fresh fears of a pandemic. Since the first human infection was confirmed in February 2006, there have been 47 others, said John Jabbor, a medical officer for emerging diseases with the World Health Organization (WHO).

A 25-year-old woman from Fayyum, the 45th case, died on 4 March, bringing the total number of avian flu deaths to 20. For a country the size of Egypt (population 80 million), this number of deaths is relatively small in general zoonotic diseases (affecting humans and animals) and in human health terms.



Live poultry on sale on the streets of Cairo

After the first outbreak of H5N1, the government adopted several measures to limit its spread and control the disease, as well as the risk of human infections: An estimated 30 million birds were culled and, more recently, there has been widespread free vaccination of private sector commercial flocks and backyard poultry.

Supply chains to blame?

The rapid spread of the disease in Egypt has been related to the development of poultry product supply chains that move millions of birds per day with low levels of biosecurity, according to the UN Food and Agriculture Organization ([FAO report](#)) [Socio-economic Impacts of Trans-boundary Animal Diseases in the Near East with Particular Emphasis on Avian](#)

Influenza - which was discussed at a FAO regional conference in Cairo 1-5 March.

"More recent outbreaks would appear to be related to the mixture of ducks and chickens in rooftop and backyard systems and their close proximity to industrial poultry units," said the FAO report, which said ducks played a critical role in the maintenance of H5N1.

The report also said that although the medical profession is particularly worried that human infections from the H5N1 virus have a 60 percent mortality rate, "the greater concern is that from the current H5N1 in Egypt a virus might emerge that can easily infect humans, spread rapidly from human to human and create a human flu pandemic."

Mainly rural areas affected so far

So far bird flu has hit mostly rural areas in Egypt. A human case from Choubra in 2007 was the only case that was found in Cairo or in any urban area. But that may be because Egyptian law forbids raising birds in urban areas, not that everyone abides by the law. Birds are sometimes raised in large cities, and this could be dangerous should infections begin to appear in city

poultry, and especially should the virus begin to transfer to humans.

Experts say no human case has occurred in urban areas because in those areas poultry and people do not inhabit the same space - the birds are mostly isolated on rooftops. Generally only one person tends the poultry and children do not play near them. "In the villages people and chickens live together and changing the culture of people is not easy... [some] people don't believe [the dangers of avian influenza], and they of course will not believe it until something happens to them."

Highest fatality rates outside Asia

Egypt has the highest infection and fatality rates outside of Asia. In addition to

Egypt's backyard farm tradition, the density of rural settlements encourages the spread of infected poultry, and could lead to a rapid pandemic.

Yet for many rural dwellers, the threat of bird flu is not enough to convince them to give up this source of income, WHO's Jabbor said. Most human cases of bird flu are among women and children, as women generally tend to the chickens while children play with and around them.

The government, with the help of the WHO, FAO and other UN agencies, is drafting contingency plans in the event of a pandemic. Response teams have been put in place all over the country and each ministry has taken steps to provide services to the people in the event of a pandemic. Shortages of food, electricity, water and access to communications have all been taken into account.

Raising awareness

As many as 14,000 community health workers have been drafted to educate the population about how to deal with sick and dead poultry and how to protect their families from infection. The health workers are all women living in the areas they work in and are known in the community - a tactic used by the government to raise awareness without intimidating villagers by using outsiders.

Poultry vaccinations are provided free of charge to backyard poultry, but not all villagers with a few chickens on their roofs are aware of this, Jabbor said. Farm-raised poultry are raised in controlled environments and are vaccinated. Out of the 47 human cases to date, only two had been working on commercial farms, he said, and neither patient died. Some villagers, preferring to protect their birds and livelihoods hide the fact that they raise poultry in their homes - even when taken to hospital with symptoms of avian influenza. #

Emergency Management: Implications from a Strategic Management Perspective

A study by Sang Ok Choi in the [Journal of Homeland Security and Emergency Management, Volume 5, Issue 1 2008](#), argues the necessity for and the benefits of a strategic management approach in current emergency management systems. Choi characterises strategic management as a long-term process for developing a continuing commitment to the mission and vision of an organization, nurturing a culture that identifies with and supports the mission and vision, and maintaining a clear focus on the organization's strategic agenda throughout all its decision processes and activities.

He characterises traditional emergency management plans as being heavily dominated by a centralised, less collaborative response orientation; with an assumption that strong, centralised command and control can overcome the resulting chaos. He argues that the focus on the development of a plan rather than on community resilience is the major reason many emergency management programs fail to build an adequate capacity to respond. His study suggests that the goal of emergency management programs should not be the management of response but the management of risk—a much broader context. Emergency management programmes provide a mechanism for implementing strategies aimed at reducing or eliminating risk and for building the capacity to protect the community from the unexpected.

Does Choi's approach resonate with you? It should. Resilience is at the centre of the vision for emergency management in New Zealand. Choi believes emergency managers should be viewed not as technocrats, but as program managers with the responsibility for crafting strategies for community resilience. When viewed from this stra-

tegic management perspective, the emergency manager's role shifts from one that is viewed as a necessary evil and expense to one that is a key player in building community resilience and assisting in the management of risk through engaging all the resources of the community under a shared vision of resilience.

The capacity to respond to a crisis incorporates more than the traditional operational response functions found in emergency management texts. This capacity is dependent on a collaborate process that can be expanded to include emergency organizations and that has the ability to deal with new disaster tasks.

Choi proposes that ultimately, the emergency management program must be perceived as adding value to the community. This means that it must be consistent with community values and visions of the future. Therefore, emergency management plans should be community plans that include all mechanisms by which the community responds to crisis. This concept of "value-added" implies a change in the role of emergency managers. Instead of being experts in tactical and operational response, emergency managers must assume the role of program coordinators. Which means that they are expected to assemble appropriate groups of stakeholders and facilitate the development of strategies for response, recovery, and mitigation? It means accepting responsibility for overseeing the strategic plans that implement this vision. It means providing leadership, not just technical expertise.

Although his study discusses the benefits of the integration of strategic management and emergency management, Choi cautions that future studies need to conduct empirical investigations

about the proposed benefits. For instance, researchers may illustrate and articulate the impacts of the strategic management approach on each level (local, state, and federal) of emergency management systems.

Moreover, they may also examine which factors (i.e., organisational structures, organisational cultures, leadership, resources, or trust) are more critical than others in successfully implementing emergency management systems. Finally, researchers can investigate the different effects of the strategic management approach on different types and/or patterns of disasters (i.e., routine vs. non-routine, catastrophic vs. non-catastrophic, hurricane vs. flood, etc). #

I'M ON A COMMITTEE

Oh give me some pity;
I'm off to a meeting, which means that
from morning to night
we attend and amend and contend and
defend,
without a conclusion in sight

We confer and concur
we defer and demur and reiterate all of
our thoughts,
we revise the agenda with frequent ad-
denda and consider a load of reports

We compose and propose,
we suppose and oppose and the points
of procedure are fun!
Although various notions are brought up
as motions,
that's how they appear to some

We resolve and absolve, but never dis-
solve,
since it is out of the question for us
what a shattering pity to end our commit-
tee
where else could we make such a fuss

Sanitation, but not as we know it

Currently, a small rural New Zealand community is fighting a plan by their Local Council to improve their sewerage system. They follow successful efforts by other rural communities to stop efficient sewerage reticulation. In all cases the opposition seems to be more about not wanting to pay for the system rather than an aversion to better sanitation.

We in the western world tend to take basic sanitation for granted but that is a luxury not enjoyed by many in less developed countries. Until recently, Mohammad Nafees was like most children in his village when it came to relieving himself. "I used to poop outside. Just over there," the nine-year-old giggled, pointing to the green field near his family's home in the mountain village of Kamra, about 70km east of Islamabad. "We didn't have a latrine in our house. I thought everyone did that," he quipped. His assumption about basic toilet protocol amongst Kamra's 1,871 residents is largely correct.

"You can't imagine how difficult it is for women," said Zarqa Saeed, recently arrived from the urban sprawl of Rawalpindi to live with her in-laws, it took some time for her to get used to residents' ways. "I had never gone outside in the open air," the 25-year-old teacher laughed.

No laughing matter

But in rural Pakistan open defecation is hardly a laughing matter. Although modern toilets are plentiful across urban parts of Pakistan, basic latrines are less common in rural areas where about 65 percent of the country's 165 million inhabitants live. This in turn will impede the country's UN Millennium Development Goal of reducing by half the proportion of people without access to basic sanitation by 2015.

Close to 80 percent of households in Battian Union Council - where Kamra is located - have no access to functioning latrines, which means adults and children alike have no option but to defecate in the open. Of Battian's nearly 10,000 inhabitants, only one in four has access to a toilet that works: Ending

defecation in the open will need more than just building toilets - building awareness will also be key.

One local non-governmental organisation spearheading that campaign is Pakistan's Rural Support Programmes Network (RSPN), based in Islamabad. "Since June 2007, the UK-funded RSPN programme has been working in three rural union councils in Pakistan, including Battian in Punjab Province, Samaro in Sindh, as well as Danyore in Pakistan's Federally Administered Northern Areas. "The object of this programme is to declare a village open defecation-free by bringing about behavioural change through mobilisation," said Enayat Ur Rehman, RSPN's programme officer.

Old habits die hard

But changing habits does not come easy. Earlier efforts by groups to build latrines in the area failed largely because they did not include local residents in the building process, but also because they failed to

point out to people the many health and financial benefits latrines can bring. As a result, residents did not maintain the latrines or simply did not really understand their value.

Shame, shock and disgust

Part of RSPN's campaign to raise awareness is to develop a sense of shame, shock and disgust among local residents regarding their current toilet practices - in an effort to get communities themselves to understand the latrines' true importance and the solution. Facilitated by social mobilisers from the community, residents visit those areas commonly used for defecation purposes in their village. Once there, they are then asked to calculate approximately how much human excrement they might produce on a daily basis - an embar-

assing, but revealing moment for all.

Assuming World Health Organization estimates that the average person can produce as much as 1.5 kilos of faeces and urine per day, Kamra's residents produce close to 3,000 kilos of waste daily or upwards of 20,000 kilos a week - all out in the open. "Many of them had no idea how big a problem it really was - or the health implications," Ur Rehman said. But with piles of excrement in Kamra's surrounding fields, the risk that germs could be brought back into their homes and find their way into their food, either on their shoes, or through other



A recently installed permanent latrine in Kamra, northern Punjab province

sources, including livestock or local springs from which residents drink, was soon understood.

Health benefits

The residents were then asked for possible links with common diseases including diarrhoea, typhoid and malaria - and the resulting increased health costs. "We simply weren't aware that these unhygienic practices led to diseases or that we could prevent them," said 58-year-old resident Mohammad Arbi, noting the importance of the moment and why he himself had decided to finally build a latrine.

But with permanent latrines costing nearly US\$100 to build, many residents

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still complain they do not have the means to do so. RSPN provides technical advice as to how they can use cheaper local materials. A simple pit with a privacy wall and seat can cost as little as \$5.

Impact

The campaign to stamp out open defecation - one community at a time - appears to be having an impact, despite some initial hesitancy. It is also being replicated by the government in two other parts of the country. The community-led total sanitation approach, including open defecation-free and solid waste-free communities, is already part of Pakistan's national sanitation policy approved in 2006.

Since June most Kamra residents have dug temporary latrines, while others have made theirs more permanent. "It's really accelerating now. It's as though we have an election campaign under way," said an enthusiastic Wajid Ali, one of the social mobilisers. "I was able to dig the latrine myself," said daily wage earner Asad Mehmood. "Now I'm glad I did," the 26-year-old said, recalling how just a few months back he used to defecate in the open. "It sure is easier now," he smiled.

Gaza forced to pump more raw sewage into sea

Meanwhile, in the eastern Mediterranean, as temperatures rise after the winter, more people in Israel and the Gaza Strip will head for the seaside but they should beware. Gaza is being forced to dump much more raw sewage into the Mediterranean than ever before.



A point near the Beach refugee camp where sewage, either partially treated or not at all, runs into the sea

According to Monther Shoblak, head of the Gaza Coastal Municipalities Water Utility, before the Israeli-imposed restrictions on fuel imports, the utility was dumping about 20,000 cubic metres of raw sewage into the sea daily. This was due to the outdated treatment plants in the enclave being too small to handle the amount of waste produced by the growing population. Since Israeli-imposed fuel restrictions began last year, limiting the Gaza power plant's ability to produce electricity, on average another 40,000 cubic metres of untreated or partially treated waste water has been pumped into the sea daily.

"If I have fuel and or electricity, I can treat. If not, I am obliged to send it to the sea without treatment, but I try to at least partially treat some waste water," Shoblak said. "I am optimising the limited fuel I have. I need to use it to pump drinking water and to pump waste water away from the homes," he said. Environmentalists warned that this was having an adverse affect on Gaza's coastline, and in Israel they were quick to point out that the sea does not recognise political borders.

"A disaster"

"This is a disaster. This is a lot of sewage. It is a health issue, as people swim in the sea and it also affects drinking water as the pollutants could harm the ground water," Gidon Bromberg from Friends of the Earth Middle East in Tel Aviv said. He said the UN's Barcelona Convention clearly prohibits the release of raw sewage into the Mediterranean, but added that the Palestinian Authority (PA), as it is not a state, is not a signatory to the convention.

Internal Palestinian politics also have a role here. While in the past the Environmental Quality Authority, a PA agency, would work to inform the public about possible dangers from pollution; currently, with the schism between the Fatah and Hamas factions, the agency's activities in Gaza have been more or less

suspended.

Fishermen affected

Yousef Abu Safiyeh, who was the head of the agency in Gaza but was dismissed recently by the Hamas government, said the pollution had affected Gaza's fishermen: "The fish just run away from the area," he said. Gaza fishermen, who in any case catch only 10 percent of what they used to in previous decades, also face Israeli restrictions on access to fishing areas.

And there is no water

To add to the problem, with the rainy season in Israel and the occupied Palestinian territory nearly over, water experts are concerned that after the dry summer months there may be a serious water shortage. Population growth, rising levels of consumption and below average rainfall in some areas in recent years threaten to cause increasing problems.

According to Eli Ronen of Israel's national water company Mekorot, this winter was the fifth relatively dry year in a row, with only about 60 percent of the expected amount of rain in certain parts of the country. The company sells to the Palestinians about 55 percent of the water consumed in the West Bank and also exports water to Jordan. It is unclear if these services will be affected.

Ayman Rabi from the NGO, Palestinian Hydrology Group, said "Already the Palestinians receive less water than is needed. In the best case scenarios, in urban areas, we receive 50 litres per capita per day." According to the Israeli NGO, Btselem, there is a huge gulf in water consumption levels between Israelis and Palestinians. Israel has capped the amount of water sold to Palestinians and the Civil Administration requires Palestinians in Area C, under full Israeli control after the Oslo Accords, to obtain permits to dig wells. Sometimes "illegal" wells are destroyed, forcing Palestinians to use expensive water tankers.

Desalination plants the answer?

A solution proposed by some is the building of more desalination plants, though there are environmental impacts. One study, which said 60 per-

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In disaster scenarios people behave like sheep

All we, like sheep, have gone astray; we have turned every one to his own way; and the Lord hath laid on him the iniquity of us all.

Most of us have heard these lines – even if it was while surfing in our local shopping mall

While George Handel probably did not have emergency management on his mind when he wrote the Messiah back in 1741, his words resonate with scientists at the University of Leeds in England who believe they may have found the answer to why humans flock like sheep and birds, subconsciously following a minority of individuals.

Results from their study show that it takes just a five percent minority to influence a crowd's direction and that the other 95 percent will follow without realizing it. These findings could have major implications for directing the flow of large crowds, in particular in disaster scenarios, where verbal communication may be difficult.

"There are many situations where this information could be used to good effect," says Professor Jens Krause of the university's Faculty of Biological Sciences. "At one extreme, it could be

used to inform emergency planning strategies and at the other, it could be useful in organizing pedestrian flow in busy areas."



Professor Krause, with Ph.D. student John Dyer, conducted a series of experiments where groups of people were asked to walk randomly around a large hall. Within the group, a select few received more detailed information about where to walk. Participants were not allowed to communicate with one another but had to stay within arms length of another person.

The findings show that in all cases, the 'informed individuals' were followed by others in the crowd, forming a self-organizing, snake-like structure.

"We've all been in situations where we get swept along by the crowd," Krause

said. "But what's interesting about this research is that our participants ended up making a consensus decision despite the fact that they weren't allowed to talk or gesture to one another. In most cases the participants didn't realize they were being led by others."

Other experiments in the study used groups of different sizes, with different ratios of 'informed individuals'. The research findings show that as the number of people in a crowd increases, the number of informed individuals decreases. In large crowds of 200 or more, five percent of the group is enough to influence the direction in which it travels. The research also looked at different scenarios for the location of the 'informed individuals' to determine whether where they were located had a bearing on the time it took for the crowd to follow.

"We initially started looking at consensus decision making in humans because we were interested in animal migration, particularly birds, where it can be difficult to identify the leaders of a flock," Krause said. "But it just goes to show that there are strong parallels between animal grouping behaviour and human crowds." #

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cent of the world's 7,500 desalination plants are in the Middle East, indicated that the impacts included: discharge of chemical waste, such as chlorine; discharge of an unnaturally concentrated brine solution potentially affecting marine life; raised seawater temperatures near the plant's outlet; the conversion of recreational coastal areas into noisy industrial zones. Desalination plants also require large amounts of electricity.

Conservation

"The water problem is our own doing," said Peretz Dar, a water expert who has advised the Israeli government in the past. While rainfall is somewhat low, the shortage was the result of overuse.

"By end of summer, the Sea of Galilee will be very close to the point where we cannot pump water any more," said Ronen, referring to a prime source for the company, along with the coastal and mountain aquifers. Falling water levels in the aquifers are expected to diminish water quality, especially if the coastal aquifers drop low enough to allow in sea water.

In the Gaza Strip this has already happened. The amount extracted from the aquifers annually exceeds the amount replenished by about 40 percent, causing harmful sea intrusion.

According to international standards, drinking water is allowed to contain up to 250mg of chloride. In Gaza, 75 per-

cent of the water has 600mg per litre or higher and it can also contain six or seven times the accepted level of nitrates. The chloride comes from sea-water intrusion into aquifers, while the nitrates come mainly from agricultural fertilizers. The dumping of sewage poses additional risks to groundwater.

In the impoverished enclave, which has lost out on development projects because of the Israeli import and movement restrictions, many people cannot afford to buy bottled or treated water. Instead, they drink well water - piped to homes by the municipality in some cases - though some 75 percent of it is polluted, according to the Palestinian Water Authority. #

Boosting capacity in “psychological first aid”

Last year our Ministry of Health produced psychosocial recovery guidelines as a subset of the National Health Emergency Plan. While the guidelines provide advice on **how** to deliver psychosocial help they are more hazy on **who** is to deliver that support. Given the range of agencies that might be involved in welfare recovery activity, that is understandable. However, it still leaves civil defence welfare groups scratching to identify groups they might utilise for this important role.



A mural of the five steps of "psychological first aid" reminds students of what they must do when disaster strikes

A project set up in Sri Lanka post the 2004 Indian Ocean tsunami offers a way forward and a “win win” for emergency planners and their volunteers. The psychosocial first aid training given in the programme is a valuable skill for participants in their everyday working lives.

When school teacher M. Shihama was put in charge of a class of unruly slow learners earlier this year, her heart sank. “At first, I was reluctant to take them on,” said the social science teacher at Al-Falah high school in Negombo in the western Gampaha District of Sri Lanka, fearing they were just troublemakers. “But then I found that the children were actually miserable because they had been told they weren’t as good as the others.”

Using skills she learnt at a workshop on post-disaster mental health, Shihama coaxed her students, some of whom are still shaken after the 2004 tsunami, to make the most of their talents. She was pleased when colleagues soon began to see changes in the behaviour of her charges.

Shihama is one of almost 7,000 Sri Lankans, among them about 1,000 teachers, who have been trained in “psychological first aid, community and personal mental health and stress management” under a US\$5 million post-tsunami psychosocial programme funded by the American Red Cross (ARC). “They have been trained to be the first responders who can help survivors by contributing to their long-term resilience and their ability to cope with what’s going on,” said Kelly Bauer, the ARC’s information and reporting delegate for Sri Lanka and the Maldives.

Training for 8,000

Working with its national counterpart, the Sri Lanka Red Cross Society (SLRCS), the ARC has about nine months to go before the three-year project winds up in five tsunami-affected districts, Matara, Galle, Kalutara, Colombo and Gampaha. Some 8,000 people will have been trained by them and an estimated 250,000 people have benefited, according to Bauer.

“After the tsunami, we had just a handful of psychiatrists and psychologists who had to handle the large number of people that needed help in coming to terms with their ordeal,” observed Avindra Jayawardene of the Faculty of Medicine at the Ruhunu University in Galle. “So, any attempt to sensitise individuals in communities to pick up the psychologi-

cal effects of a disaster can be a good thing.”

Practical benefits

But he pointed out: “They must be linked to a process of actually using what they know - or when the next disaster strikes, they won’t have had the practical experience of dealing with different scenarios and in adapting what they have learnt.”

In the severely tsunami-battered southern districts of Galle and Matara, Nadeeja Abeydheera, the SLRCS’ psychosocial support officer for the south, has seen the training in post-disaster psychological support for community responders pay off during recurrent tsunami alerts in the past two years. “There is a great sense of participation and involvement in the communities,” she said. “The people we have trained take the lead to evacuate others, take them to safe places, pass on information and keep the community together.”

Neutralizing the victim mentality

“The ARC’s psychosocial programme does not deliver traditional psychiatric treatment for mental health problems,” said Justin Curry, the programme’s regional technical adviser. “It focuses on knitting together communities that have become unravelled after a disaster has struck and equipping them to face future calamities. The basic principle underlying the programme is that a disaster not only impacts on individuals, but also pulls communities and support systems apart,” he said.

“We are not so much concerned with the different types of activities that are held, but that people are brought back together by promoting a sense of collective problem solving for a common goal,” said Curry, adding that the ARC first implemented its psychosocial programme after earthquakes hit El Salvador and Gujarat State in western India in 2001.

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HEMNZ Bulletin

The HEMNZ Bulletin is published monthly by the St John Emergency Management Unit 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

27 - 28 March 2008

6th Annual Bird Flu Summit

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Cost US\$1995

More information from

www.new-fields.com/birdflu6

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Disaster Risk Management

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Editor's soapbox



Engaging the public in our emergency planning activity has always been, and will continue to be, a challenge. One of the particular joys of Exercise Ruaumoko was the opportunity to gauge the public's reaction to events as they occurred.

Our focus groups represented a real cross section of the Auckland population (and by inference, were representative of those who work in our healthcare facilities). Three 3+ hour sessions led by expert facilitators allowed time to explore in depth how they would react to a volcano popping up in their back yards. Gratifyingly, the results from an on line questionnaire produced similar findings.

First, the bad news. Our public education messages are not working - but then we knew that didn't we? The general public are not going to pay attention until they perceive an immediate threat. And when they do, they expect to be given clear instructions on what to do.

Now, the good news. Despite what the pundits are fond of saying, there is a strong sense of community in Auckland. People are prepared to help others who are less fortunate and they will altruistically volunteer their services to help where-ever there is a need - just as soon as they know their families are safe.

The lesson for healthcare facilities is that they will lose staff very quickly and in greater numbers than expected as they take off to ensure the safety of their families. And once that safety is assured, not only will they come back to work, there will be lots of volunteers turning up offering to help. So make sure you have a plan to utilise (or at least control) them.

The next edition of this bulletin will have a new editor. I am leaving St John at the end of March which provides an opportunity to review the style and content of the publication. As always, we at St John welcome feedback and now is an ideal time to let us know what would make this journal more useful to you.

I thank all those who have contributed to and commented on the content and all of you who have supported us over the last eleven years as we have progressed from the stone age to the electronic age.

bruce parkes

(Continued from page 9)

Promoting feelings of security, unity

Support officers and community facilitators organise a variety of events, cultural shows and festivals to promote feelings of security and unity. Murals are painted on school walls depicting the five steps of psychological first aid - meet basic needs, listen, accept survivors' feelings, assist them to move on, and refer for treatment.

At a nursery for pre-schoolers in Negombo, youngsters recently had the unusual opportunity of exchanging their toy guns and swords for more innocuous playthings such as flutes and balls. "We funded this project at the request of the teachers who noticed that the children were unusually aggressive towards each other," explained Thanaluxmy Robinson, the SLRCS' psychosocial project coordinator in Gampaha.

"One of our initial challenges was working with a diversity of ethnic and religious groups in all the affected areas," said Curry. "What affected one group did not necessarily affect another, so the projects had to be tailored for each community." #