

## Water, water, everywhere, but not enough to drink

Most of us in New Zealand have endured a rather cold and damp spring. The first part of the ancient mariner's lament, "water, water everywhere there's water," resonates in our minds. Yet we are perhaps the fortunate minority in the world. We need look no further than our nearest neighbour Australia to see the effects of unprecedented drought.

Throughout history water has confronted humanity with some of its greatest challenges. Water is a source of life and a natural resource that sustains our environments and supports livelihoods – but it is also a source of risk and vulnerability. After the huge 20<sup>th</sup> Century gains in public health through the delivery of potable water and the efficient disposal of waste products, the early 21<sup>st</sup> Century, prospects for human development are threatened by a deepening global water crisis. Debunking the myth that the crisis is the result of scarcity, a United Nations' 2006 Human Development Report, [Beyond scarcity: Power, poverty and the global water crisis](#) argues poverty, power and inequality are at the heart of the problem.

In a world of unprecedented wealth, almost 2 million children die each year for want of a glass of clean water and adequate sanitation. Millions of women and young girls are forced to spend hours collecting and carrying water, restricting their opportunities and their choices. And water-borne infectious diseases are holding back poverty reduction and economic growth in some of the world's poorest countries.

Beyond the household, competition for water as a productive resource is intensifying. Symptoms of that competition include the collapse of water-based ecological systems, declining river flows and large-scale groundwater depletion. Conflicts over water are intensifying within countries, with the rural poor losing out. The potential for tensions between countries is also growing, though there are large potential human development gains from increased cooperation.

The Human Development Report continues to frame debates on some of the most pressing challenges facing humanity. The report is not a light bedside read. In its 445 pages the report:

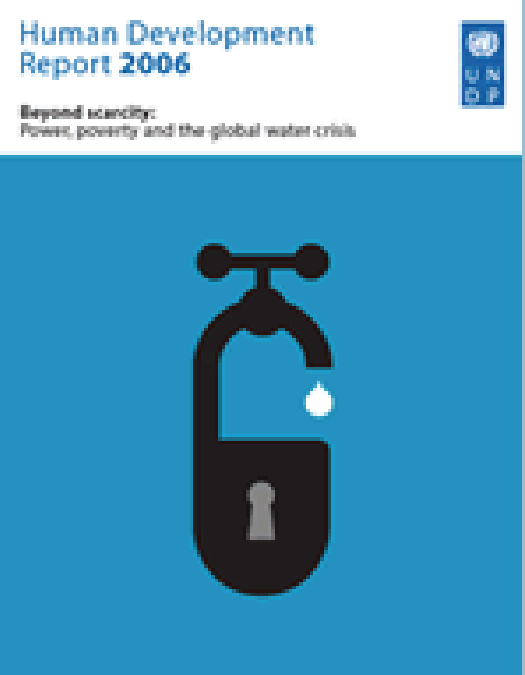
- Investigates the underlying causes and consequences of a crisis that leaves 1.2 billion people without access to safe water and 2.6 billion without access to sanitation
- Argues for a concerted drive to achieve water and sanitation for all through national strategies and a global plan of action
- Examines the social and economic forces that are driving water shortages and marginalizing the poor in agriculture
- Looks at the scope for international cooperation to resolve cross-border tensions in water management

According to the report there's a kind of "water apartheid" in many developing countries, with people in slums with no running water or toilets sometimes paying 10 times more for water than their richer neighbours just over the train tracks.

"It's a crisis of governance of that resource, of competition, financing and delivery," the report's main author, Kevin Watkins, told journalists when he was presenting the report in London. "Water is not shared equally between all members of society and this is a crisis that affects the poor."

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The Kenyan capital Nairobi, and its sprawling settlement of Kibera, is a prime example of unequal water access between rich and poor people in the same country. Kibera's population of between 500,000 and 1 million people live in slum conditions that the report describes as "a water and sanitation nightmare".

Some 80 percent of households purchase all or some of their water from kiosks run by private vendors, and in some areas up to 150 people share a single toilet. That drives many Kibera residents to defecate in plastic bags, which they throw on the roadside or dump in ditches. These unsavoury parcels are known as "flying toilets".

Due to poor upkeep, water pipes in the slums are punctured with holes and suck in human waste, which makes it easy for diseases like diarrhoea, dysentery and typhoid to get a grip. The death rate among children in Kibera is three to four times higher than for the rest of the country, according to Watkins.



This water is not for drinking by these young sailors or those in the parched hills beyond

And yet you don't have to go very far from the slums to find the Kenyan president's home or the Royal Nairobi Golf Club. People in Kibera pay \$3.50 per cubic metre for water - double that

in the dry season - meaning that their water costs are about seven times higher than for residents of high-income neighbourhoods served by the Nairobi Water and Sewage Company. "Those living in Kibera pay some of the world's highest prices

for water, even though 70 percent live on less than a dollar a day," Watkins says.

The report points out that the poorest households in El Salvador, Nicaragua and Jamaica spend on average over 10 percent of their income on water, while in Britain, spending more than three percent of family income on water

is seen as a measure of economic hardship.

The report says the current debate about whether water should come from public utility companies or privatised ones is "a false choice" that diverts attention away from finding ways to get drinking water to poor

people. "Most people don't get reliable water supplies from public or private providers," Watkins says. "The real challenge is how to make water providers - whether public or private - de-



Maasai women carry water from a communal pump on the plains at the foot of Mount Kilimajaro

liver to the poor."

At the same time the report was being released a United Nations sponsored climate change conference was being held in Nairobi. Speakers spoke of the Maasai cattle and goat herders living around Mount Kilimanjaro (Africa's highest peak at 5,895 metres) as being the "mine canaries" of global warming. Many a travel brochure has shown the pastoralist Maasai, with their spears and bright red robes, standing before the towering peak which is a life-giver to their tribe and Kenya's crucial tourism economy. With a shrinking snow cap and worsening droughts now both may be threatened.

That is not the end of the irony. 200km to the east in coastal Kenya some 60,000 people have been displaced by floods and at least 21 drowned following torrential rains in much of east Africa. So much water; causing so much destruction as it raced to the sea and hardly a drop saved for use in the dry times to come. #

The strong young man at the construction site was bragging that he could outdo anyone in a feat of strength. He made a special case of making fun of one of the older workmen. After several minutes, the older worker had had enough.

"Why don't you put your money where your mouth is," he said. "I will bet a week's wages that I can haul something in a wheelbarrow over to that building that you won't be able to wheel back."

"You're on, old man," the braggart replied. "Let's see what you got."

The older man reached out and grabbed the wheelbarrow by the handles. Then, nodding to the young man, he said, "All right. Get in." #



## Disagreement over new H5N1 strain

Hong Kong and U.S. scientists published a paper early November in the U.S. Proceedings of the National Academy of Sciences that said they had detected a new strain of the H5N1 bird flu virus in the southern Chinese province of Fujian last year. The paper's authors who identified the "Fujian strain" said it had emerged in China and may have started outbreaks in Southeast Asia.

"The implications of the study are that current control measures, as generally practised to control avian influenza, are ineffective," said Prof Yi Guan of the University of Hong Kong, leader of the large team involved in the study. Prof Guan, director of the State Key Laboratory of Emerging Infectious Diseases, who collaborated with Prof Robert Webster of St Jude's Children's Research Hospital in Memphis, a leading centre in the West, concludes that "the pandemic threat persists."

"We have no information to suggest that this is more highly pathogenic or that this virus is a more likely candidate for a pandemic virus than any other H5N1 or other subtype virus," he said. However, the team points out that a highly pathogenic H5N1 influenza virus in Eurasian and African poultry populations is considered the most likely candidate for a new pandemic influenza and the rise of avian-to-human interspecies transmission seen in the last 12 months "seems to favour such a hypothesis."

The team searched for different viral strains by monitoring the H5N1 avian influenza virus in market chickens, ducks, and geese. The researchers found that a strain emerged last year and became the dominant strain in southern China by early this year, displacing previous ones. The strain appeared to avoid China's compulsory chicken vaccination programme, and may even be aided by the vaccine, which may be ineffective against the new strain. The researchers warned that such urban human infections could lead to a serious outbreak, challenging current pandemic preparedness plans. The predominance of this virus over a large geographical region within a short

period directly challenges current disease control measures," the team concludes.

China's leading bird flu experts strongly disagreed with the report.

Chen Hualan, director of the National Bird Flu Reference Laboratory at the Chinese Academy of Agricultural Sciences, rebuked the report saying its claims "lack scientific proof". "The so-called 'Fujian-like virus' is not a new variant of the virus," she said, "Gene sequence analysis of the virus shows that it shares high conformity with the H5N1 virus that was isolated in Hunan when bird flu broke out [there] in early 2004."

Samples from every domestic bird flu outbreak are sent for isolation and gene sequence analysis at Chen's lab. Chen said that in 2005 and 2006, the lab had isolated some viruses in waterfowl in southern China which was reported to the Food and Agriculture Organization (FAO) and the World Organization for Animal Health (OIE). "These viruses all remain steady in gene type and there is no marked change in their biological characteristics," she said.

Chen said there was only one new variant of the virus, which was isolated in north China's Shanxi Province and the Ningxia Hui Autonomous Region at the beginning of this year [2006] and has been reported to the FAO & OIE. Experimental results show that the variant is weak in triggering disease in mammals, and a new vaccine, which has been put into use in these areas, has effectively brought it under control.

Chen also defended the effectiveness of China's bird flu vaccine, saying that it had a good effect, in response to the report's surmise that the current vaccine was less effective for the "Fujian-like virus". The report claimed that through the analysis of serum samples from 76 chickens for signs of antibodies against 3 H5N1 variants, including the Fujian-like strain, they found almost all of the samples displayed 2-4 times more antibodies to the other 2 variants than to the Fujian virus, suggesting that the vaccine given to the chickens was

less effective against that strain. Chen said that the evaluation of the vaccine was "not scientific", as where the chickens were from and whether they had been vaccinated was unknown.

Chen said that since the country launched a strategy of culling and vaccination to curb bird flu in the latter half of 2005, the number of bird flu cases has plummeted. Statistics from the Ministry of Agriculture showed that more than 95 percent of domestic poultry had been vaccinated from January to October [2006]. 10 cases of bird flu broke out in poultry populations from January to October in 2006; there were 50 cases in 2004 and 31 last year.

Shu Yuelong, director of the National Influenza Centre at the Chinese Centre for Disease Control and Prevention, also refuted the report's allegation that 5 people in southern China were actually infected by the new "Fujian-like virus". Shu said that altogether 16 variants of bird flu viruses have been found in the 20 confirmed cases of human infections in the Chinese mainland since October 2005, 7 in 2005 and 13 in 2006. "15 out of the 16 variants were isolated from cases in southern China and they belong to the same gene type," Shu said, "there is no proof that 5 of them were infected by a new mutated virus." Shu said that the viruses isolated in South China and northern China were very different, and also differed a lot with the virus isolated in Vietnam and Thailand.

Chen Hualan also attacked the report's allegations that the "Fujian-like virus" was causing a 3rd wave of prevalence of bird flu in Southeast Asia. "Judging from the actual situation, these allegations are all subjective and arbitrary surmises," she said. #

# Aerosol transmission and N95 masks

Understanding how influenza viruses can be transmitted is important for ensuring health care workers and others are adequately protected during their contact with patients with influenza. In theory, influenza viruses can be transmitted through aerosols, large droplets, or direct contact with secretions (or fomites); with these three modes not being mutually exclusive. In a paper published in the November issue of *Emerging Infectious Diseases*, Raymond Tellier reports on his review of published findings that support the view that aerosol transmission is the principal mode of transmission. This has obvious implications for pandemic influenza planning and in particular for recommendations about the use of N95 respirators as part of personal protective equipment. His findings support the New Zealand policy for the use of N95 masks.

Several authors have stated that large-droplet transmission is the predominant mode by which influenza virus infection is acquired. As a consequence of this opinion, protection against infectious aerosols is often ignored for influenza pandemic preparedness. For example, the Canadian Pandemic Influenza Plan and the US Department of Health and Human Services Pandemic Influenza Plan recommend surgical masks, not N95 respirators, as part of personal protective equipment (PPE) for routine patient care. This position contradicts the accumulated knowledge on influenza virus transmission. Indeed, the relevant chapters of many reference books, written by recognized authorities, refer to aerosols as an important mode of transmission for influenza.

In preparation for a possible pandemic caused by a highly lethal virus such as influenza A (H5N1), making the assumption that the role of aerosols in transmission of this virus will be similar to their role in the transmission of known human influenza viruses would seem rational. Because infection with influenza A (H5N1) virus is associated with high death rates and because healthcare workers cannot as yet be protected by vaccination, recommend-

ing an enhanced level of protection, including the use of N95 respirators as part of PPE, is important.

## Influenza Virus Aerosols

By definition, aerosols are suspensions in air (or in a gas) of solid or liquid particles, small enough that they remain airborne for prolonged periods because of their low settling velocity. For spherical particles of unit density, settling times (for a 3 metre fall) for specific diameters are 10 seconds for 100  $\mu\text{m}$ , 4 min for 20  $\mu\text{m}$ , 17 min for 10  $\mu\text{m}$ , and 62 min for 5  $\mu\text{m}$ ; particles with a diameter  $<3 \mu\text{m}$  essentially do not settle. Settling times can be further affected by air turbulence.

The median diameters at which particles exhibit aerosol behaviour also correspond to the sizes at which they are efficiently deposited in the lower respiratory tract when inhaled. Particles of  $\geq 6\text{-}\mu\text{m}$  diameter are trapped increasingly in the upper respiratory tract; and no substantial deposition in the lower respiratory tract occurs at  $\geq 20 \mu\text{m}$ . Many authors adopt a size cut off of  $\leq 5 \mu\text{m}$  for aerosols. This convenient convention is, however, somewhat arbitrary because the long settling time and the efficient deposition in the lower respiratory tract are properties that do not appear abruptly at a specific diameter value. Certainly, particles in the micron or submicron range will behave as aerosols, and particles  $>10\text{-}20 \mu\text{m}$  will settle rapidly, will not be deposited in the lower respiratory tract, and are referred to as large droplets.

Coughing or sneezing generates a substantial quantity of particles, a large number of which are  $<5\text{-}10 \mu\text{m}$  in



diameter. In addition, particles expelled by coughing or sneezing rapidly shrink in size by evaporation, thereby increasing the number of particles that behave as aerosols. Particles shrunk by evaporation are referred to as droplet nuclei. Droplet nuclei are hygroscopic. When exposed to humid air (as in the lungs), they will swell back. One would expect that inhaled hygroscopic particles would be retained in the lower respiratory tract with greater efficiency, and this hypothesis has been confirmed experimentally.

The increased survival of influenza virus in aerosols at low relative humidity has been suggested as a factor that accounts for the seasonality of influenza. The sharply increased decay of infectivity at high humidity has also been observed for other enveloped viruses (e.g., measles virus).

## Experimental Influenza Infection

Influenza infection has been documented by aerosol exposure in the mouse model, the squirrel monkey model, and human volunteers. Observations made during experimental infections with human volunteers are particularly interesting and relevant. In one study volunteers were exposed to

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carefully titrated aerosolized influenza virus suspensions by inhaling 10 L of aerosol through a face mask. The diameter of the aerosol particles was 1  $\mu\text{m}$ –3  $\mu\text{m}$ . Results indicated that the preferred site of infection initiation during aerosol inoculation is the lower respiratory tract.

Additional support for the view that the lower respiratory tract (which is most efficiently reached by the aerosol route) is the preferred site of infection is provided by studies on the use of zanamivir for prophylaxis. These experiments and observations strongly supported the view that many, possibly most, natural influenza infections occur by the aerosol route and that the lower respiratory tract may be the preferred site of initiation of the infection.

### Epidemiologic Observations

In natural infections, the postulated modes of transmission have included aerosols, large droplets, and direct contact with secretions or fomites because the virus can remain infectious on nonporous dry surfaces for  $\leq 48$  hours. Because in practice completely ruling out contributions of a given mode of transmission is often difficult, the relative contribution of each mode is usually difficult to establish by epidemiologic studies alone. However, a certain number of observations are consistent with and strongly suggestive of an important role for aerosol transmission in natural infections, for example the explosive nature and simultaneous onset [of disease] in many persons, including in nosocomial out-

breaks. Very compelling are the observations made at the Livermore Veterans Administration Hospital during the 1957–58 pandemic. The study group consisted of 209 tuberculosis patients confined during their hospitalization to a building with ceiling-mounted UV lights; 396 tuberculosis patients hospitalized in other buildings that lacked these lights constituted the control group. Although the study group participants remained confined to the building, they were attended to by the same personnel as the control group, and there were no restrictions on visits from the community. Thus, it was unavoidable at some point that attending personnel and visitors would introduce influenza virus in both groups. During the second wave of the pandemic, the control group and the personnel sustained a robust outbreak of respiratory illness whereas the group in the irradiated building remained symptom free.

Whereas UV irradiation is highly effective in inactivating viruses in small-particle aerosols, it is ineffective for surface decontamination because of poor surface penetrations. It is also ineffective for large droplets because the germicidal activity sharply decreases as the relative humidity increases. Furthermore, because the installation of UV lights was set up in such a way as to decontaminate the upper air of rooms only, large droplets would not have been exposed to UV, whereas aerosols, carried by thermal air mixing, would have been exposed. So in effect in this study only the aerosol route of infection was blocked, and this step alone achieved near complete

protection.

### Implications for Infection Control during Influenza A (H5) Pandemic

For the purpose of deciding on the use of N95 respirators in a pandemic, showing that aerosol transmission occurs at appreciable rates is sufficient. Evidence supporting aerosol transmission, reviewed above, appears compelling. Despite the evidence cited in support of aerosol transmission, many guidelines or review articles nevertheless routinely state that "large droplets transmission is thought to be the main mode of influenza transmission" (or similar statements) without providing supporting evidence from either previously published studies or empirical findings. Despite extensive searches, Tellier did not find a study that proves the notion that large-droplets transmission is predominant and that aerosol transmission is negligible (or nonexistent).

Given the strong evidence for aerosol transmission of influenza viruses in general, and the high lethality of the current strains of avian influenza A (H5N1), recommending the use of N95 respirators, not surgical masks, as part of the protective equipment seems rational. The use of N95 respirators is included in the 2004 recommendations of the Centers for Disease Control and Prevention for healthcare workers who treat patients with known or suspected avian influenza. The World Health Organization's current (April 2006) guidelines for avian influenza recommend the use of airborne precautions when possible, in-

## Indonesian human avian influenza death toll reaches 56

Indonesia recorded 2 more bird flu cases on Monday (13 November) with one fatality, bringing the total death toll to 56 out of 74 infected people in the vast Indonesian archipelago, the Health Ministry said.

A 2-and-a-half-year-old boy who died on Monday morning after 3 days in hospital, and a 35-year-old woman were confirmed by laboratory tests to have contracted avian influenza said an official of the Anti-bird flu Centre of the Ministry.

Both victims had been treated in Jakarta's designed bird flu hospital Sulianti Suroso. The boy, who was from Kerawang in West Java province, had a history of contact with fowl, but the source of infection of the woman, who was from Tangerang, in the outskirts of Jakarta, was still not clear.

Indonesia has become one of the front lines in the fight against the H5N1 virus. Concern over the country's top position in terms of the number of victims of the virus has placed the bird flu outbreak at the top of the agenda for the forthcoming meeting between President George W. Bush and his Indonesian counterpart Susilo Bambang Yudhoyono in Bogor, a town near Jakarta, on 20 Nov 2006. The huge territory of Indonesia, the extent of back yard centred farming and the relatively sparse budget have hampered the authorities of Indonesia in fighting avian influenza. #

## FDA warning on use of Tamiflu

The [Food and Drug Administration](#) in the US has issued a warning for Tamiflu, one of the few drugs believed effective in treating bird flu. FDA officials say that patients who take Tamiflu should be closely monitored for signs of abnormal behaviour. The added precaution comes after reports of more than 100 new cases of delirium, hallucinations and other unusual psychiatric behaviour in children treated with the drug. Most were Japanese children.

approved label mentioned "seizure and confusion" seen in some patients.

The surprise change came three days before an FDA panel of outside experts was to discuss whether to recommend that the agency add the precautionary language to the Tamiflu label. FDA staff have acknowledged that stopping treatment with Tamiflu could actually harm influenza patients if the virus is the cause of delirium, hallucinations and other abnormal

Tamiflu is made by the Swiss pharmaceutical company Roche Holding AG. Previously, Roche has cited studies from the United States and Canada that show the death rate of influenza patients who took Tamiflu was far below those who did not. Roche spokesman Terence Hurley said there was no evidence the drug caused the rarely occurring adverse events. Both Roche and the FDA also said that severe cases of the flu can spark the abnormal behaviour flagged in the updated label.

Most of the new cases of bizarre behaviour are from Japan, where Tamiflu usage is the highest in the world. Between 2001 and 2005, Tamiflu was prescribed 24.5 million times in Japan, compared with just 6.5 million in the United States, which has more than twice the population.

The new cases occurred between Aug. 29, 2005, and July 6, 2006. The tally marks a sharp increase when compared with the 126 similar cases logged over more than five years between the drug's approval in 1999 and August 2005, the FDA said.

Even though severe cases of the flu can spark abnormal behaviour, the number and nature of the newly reported cases — along with comments from doctors who believe the behaviour was associated with the drug — keep the FDA from ruling out Tamiflu as the cause, according to agency documents.

According to the label, Tamiflu is for the treatment of uncomplicated acute illness due to flu in patients 1 year and older who have shown symptoms for no more than two days #



The FDA said a relationship between the drug and the behaviour had not been established and that the updated label was "intended to mitigate a potential risk associated with Tamiflu." It recommends that close monitoring begin immediately after starting treatment with the drug.

The FDA said it had received 103 reports, mostly from Japan, of injury and delirium among the millions of flu patients treated with Tamiflu. The changes bring the U.S. label more in line with the Japanese one, which already warned such abnormal behaviour could occur. The previous FDA-

behaviour, such as aggression and suicidal thoughts.

Last year, the same advisory committee rejected making any such changes to the label. At that time, however, the committee did recommend that the FDA continue to monitor the drug's safety and return a year later with an update.

US health officials have been sensitive about taking any action that might dissuade people from taking Tamiflu, since the drug could play an important role in an outbreak of bird flu. The drug doesn't prevent flu but can reduce the length and severity of its symptoms.

# Preparing Nurses for Emergency Response

This past week some of us have been scrambling around trying to assemble "virtual teams" of health professionals to respond to mass casualties following a major earthquake in Wellington. One thing that Exercise Capital Quake showed us is that we do have the capacity to put together teams of doctors and nurses who have operational experience of deploying to disasters as part of Army, Red Cross and other humanitarian organisation teams. But apart from volunteering for an overseas mission, how can our nurses become equipped to respond to disasters in this country or abroad?

Elizabeth Weiner addresses the issue of competency based education for nurses in [the Online J Issues Nurs. 2006;11\(3\)](#). In her article Weiner states that competency-based education provides an international infrastructure for nurses to learn about emergency preparedness and response. The International Nursing Coalition for Mass Casualty Education (INCMCE) has developed competencies for all nurses, as well as online modules for meeting those competencies. In addition (at least in the US), other curriculum resources are available that range from face-to-face classes, web-based modules, and electronic journals, to complete pre-packaged materials. She describes competencies needed for emergency preparedness identified by Columbia University, Vanderbilt University, and the INCMCE; as well as various curriculum resources for emergency planning and response and also processes to prepare nurses for emergency responses. Weiner concludes that while curriculum resources are widely available, a better centralized clearinghouse could be made available for both faculty and students.

In the United States, disaster content is included in the National Council Licensure Examination (N-CLEX) (National Council of State Boards of Nursing, 2006), but little time is spent in teaching or learning this content during the basic nursing education

program. Education at the master's or doctoral levels fares no better. A survey by the INCMCE of United States nursing schools on their curriculum for emergency preparedness demonstrated that there is a lack of emergency preparedness content in the curriculum, with only four to five hours of disaster preparedness content taught throughout the United States during the academic years of 2000-2001 through 2002-2003. We do not even reach that level in Australasia.

Nursing students are not the only ones lacking in the mastery of emergency preparedness content. In the afore-mentioned survey, 74% of the respondents felt that faculty were not at all prepared or poorly prepared to teach disaster preparedness content. Practicing nurses are faced with similar learning deficiencies. Perhaps no better example exists than the recent response efforts in the United States in response to Hurricane Katrina. While many emergency response plans were prepared, the inability to execute those plans in conjunction with a coordinated response was clearly exposed.

## Competency-based Learning in Emergency Planning and Response

Weiner notes that competency-based education has become a popular method of ensuring that a standard set of criteria are met and educational efforts in emergency planning and response are no exception. A *Competency-to-Curriculum Toolkit*, a resource designed to assist those involved in educating the public health workforce, is available on the website of the Columbia Center for Health Policy.

One of the early activities of the INCMCE was to develop competencies for all nurses, regardless of the level of their education. The resulting list has sixty-four competencies and can be found at the INCMCE website. While philosophically noting that all nurses should master the entire list of competencies, INCMCE members



Elizabeth Weiner

have acknowledged that some of the competencies can be considered very basic, or "core" to an interdisciplinary team. The advantage to interdisciplinary education is that teams can prepare and learn together, resulting in smoother team performance when an actual crisis occurs.

None of the competencies promote nurses being educated in isolation. In fact, team education is preferred, and it was response teams that were requested (rather than individuals interested in volunteering) during the Katrina response. Nurses were urged to join local Medical Reserve Corps teams or serve as a member of a team that had trained together as a unit. It should be noted, though, that one of the limitations to team training has been the lack of adequate curriculum resources designed for use by teams.

A variety of curriculum resources are available to help nurses and other team members enhance their emergency preparedness skills. These include online modules, pre-packaged materials, and electronic journals. A unique aspect of these online modules

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is that when all are completed, the vast majority of the INCMCE competencies will be met. (The exceptions are those competencies requiring a return demonstration of skills.) As these modules are completed, they are made available free of charge on the INCMCE website.

### Centres of Excellence

The Centres for Public Health Preparedness (CPHP) was initiated in 2000 to strengthen terrorism and emergency preparedness by linking academic expertise to state and local health agency needs within the US. The program has grown to 52 CPHPs which serve as an important national resource for the development, delivery, and evaluation of preparedness education. The primary focus of the CPHP program activities centres on the delivery of education, training, and dissemination of information related to enhancing emergency preparedness and response. Examples of activities include: courses, train-the-trainer programs, conferences, workshops for emergency preparedness curriculum development, internships, and training exercises/drills.

To maximize the dissemination of educational materials, the CDC has collaborated with the Association of Schools of Public Health to develop an online CPHP Resource Centre. This site allows the user to search by material types, audience (such as nurse), topics, institution, and/or keywords.

### Electronic Journals

The two major US journals in emergency planning and response for health care workers both started out as print journals but have recently converted to electronic journals for easier access across the world. *Disaster Management and Response* is an official journal of the U.S. Emergency Nurses Association (ENA). The journal is published quar-

terly and focuses on health care management of issues associated with natural or manmade disasters, such as weapons of mass destruction, hurricanes, biological warfare, and other public health emergencies. The second journal has more of an international influence. The *Journal of Prehospital and Disaster Medicine* is the official medical journal of the World Association for Disaster and Emergency Medicine (WADEM) and the Nordic Society for Disaster Medicine. members. During the 2005 World Congress, the first subspecialty group consisting of nurses was organized.

### Educating Volunteer Nurses for Emergency Response

Educating volunteer nurses creates its own set of unique challenges. In some situations, nurses simply show up at the scene and expect to receive "on-the-job" education, or "just-in-time" learning materials. While there may be important remediation materials to be used on-site, volunteers are encouraged to register through organized teams and complete learning activities prior to the emergency event. This pre-registration process also allows for credentialing prior to the event response, therefore ensuring appropriate scope of practice and clarification of legal liabilities.

### International Best Practices

Weiner mentions two UK institutions that deserve additional recognition for their efforts in disaster education. The University of Glamorgan (in Wales) has collaborated with other schools in the United Kingdom to offer a comprehensive curriculum delivered in an online fashion using WebCT. Survival training is offered during the summer months along with simulations. Clinical placements are found around the world in disaster and emergency situations so that students are prepared in real-life

events rather than solely in simulated experiences. A Master's of science degree in disaster health care relief is offered, as well as a postgraduate certificate or postgraduate diploma. This program was modelled after the University of Ulster program, which was the first academic program available for nurses in disaster nursing.

Weiner concludes that competency-based learning provides an infrastructure on which to base educational activities for nurses in emergency planning and response. The challenge is to integrate, rather than add, additional content into an already full nursing curriculum. Faculty development is important because they, too, need to have the confidence in their knowledge base in order to provide the academic leadership as well as the much needed supervision of students in responding to local events.

She notes that through a collaboration of the George Washington University and George Mason University, the Department of Homeland Security has funded efforts to centralize online resources for nurses. These resources are organized according to the type of employment of nurses (hospital, hospice/home health, school, public health, nursing home, occupational health, and ambulatory care). But keeping these resources current will require continued funding. While these efforts do require personnel time as well as funding, they also provide a more comprehensive picture of possible global response efforts. After all, it is during times of disaster that we all best understand humanity's needs, regardless of political influences. Weiner believes that we should all do our best to be prepared to respond.

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portant message to get clear," she said. Appointed Hong Kong's director of public health in 1994 while the city was still under British rule, she faced her biggest test when the city was hit by bird flu in 1997 and by SARS -- or severe acute respiratory syndrome -- in 2003. Several hundred people died.

The 2 diseases dealt a heavy blow to Hong Kong's economy, and Chan ordered swift action to contain the M.

The city reported the world's 1st known human outbreak of the H5N1 bird flu virus in 1997, when 18 people were infected and 6 died. Chan is credited with heading off a major human health crisis by ordering the slaughter of Hong Kong's entire poultry population -- about 1.5 million birds.

Chan took over as WHO's influenza pandemic chief in 2005 and became a WHO assistant director-general, leading the organization's efforts to fight

the spread of communicable diseases and prepare to fight a pandemic if bird flu mutates into a strain easily transmitted among humans.

Chan, who earned her medical degree from the University of Western Ontario in Canada, joined the Hong Kong Department of Health in 1978 and has spent most of her career in administration. #

# 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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[www.hemnz.org.nz](http://www.hemnz.org.nz)

## Editor's soapbox



This month we have had the opportunity to test and hone our emergency plans for dealing with the early stages of a influenza pandemic and (for some of us) responding to the needs of our capital city after it had been flattened by the earthquake that will inevitably shake that town some day.

For me, the big issue was communications. How we communicate with each other and how we communicate with the public. In exercise Makgill the communication shortcomings that are evident in every emergency across the world were very apparent. Despite all the pre exercise planning, incorrect phone numbers and e-mail addresses were a common failing. Being ever resourceful we overcame those glitches through the day and stress levels had started to level off by the time the exercise concluded.

However, the big issue for me was our lack of capacity to cope with the flood of media and public inquiries we are going to receive. We do not have the communication (media) resources required. Do we try and hire it in or do we become more innovative and look for other ways to support the resource we do have?

The earthquake exercise the following week showed up those same issues affecting the response of the non health agencies taking part. We have a lot to work on before the intersectoral Exercise Cruikshank in May 07.

*Bruce Parkes*

## Up coming Events

27—28 November 2006

### **NZ Border Control and Port Security**

James Cook Hotel, Wellington

Cost: \$2475

More information from;  
[www.iir.com.au/security/](http://www.iir.com.au/security/)

23 - 25 February 2007

### **International Meeting on Emerging Diseases and Surveillance (IMED 2007)**

Vienna Hilton, Vienna, Austria

Cost: EUR € 300.00 before 22 December

More information from  
<http://imed.isid.org/>

13 - 16 May 2007

### **15th World Congress on Disaster and Emergency Medicine**

Amsterdam, Netherlands

Cost: EUR € 760.00 before 10 February

More information from  
[www.wcdem2007.org](http://www.wcdem2007.org)

## Bird Flu expert is new WHO Director General

Bird flu expert Dr. Margaret Chan has been selected as the world's top health official, making her the 1st Chinese national chosen for such a high-ranking U.N. post, delegates said. The victory for China, which had nominated Chan, indicated Beijing's interest in playing a bigger role in global affairs.

The executive board of the World Health Organization chose Chan to be WHO's next director-general from 5 candidates to fill the post vacated by the death of Lee Jong-wook in May 2006.



Chan has said she would be independent if elected to a position some regard as the 2nd most-important in the United Nations system. China has recently come under criticism for allegedly dragging its feet in reporting outbreaks of bird flu to WHO, and being slow to supply samples of new strains to the global body for analysis. "You need to leave behind your nationality because you're serving the world," Chan said as she prepared for the race over the summer.

"If elected, I'm not serving Hong Kong's interests. I'm not serving China's interests. I'm serving the world's interests. That's a very im-

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