

diuretic and a statin for people with an overall risk of a cardiovascular event above 5% over the next 10 years — was shown to be highly cost-effective in all regions by the WHO-CHOICE project, the WHO chronic diseases report said.

Neal said: “Because the risks of side-effects from the components are very low and the potential benefits are very high, the polypill will be very safe. The goal will be to use non-physician health workers to identify and treat high-risk individuals which should decrease costs and increase access in resource-poor settings.”

Polypills are also expected to increase patient adherence. This has been shown with combination drugs for diabetes, hypertension and HIV/AIDS, according to a study published in the *Bulletin* in December 2004.

A study to find out if this is also the case in patients with established cardiovascular disease is to start recruiting from January to March 2006. The GAP, or Guidelines Adherence to

Polypill study, set up by the George Institute for International Health, will randomize 1000 patients with established cardiovascular disease to a polypill-based approach or to standard care. The patients will be followed for two years.

A similar study of 600 patients is to start in New Zealand next year, led by Anthony Rodgers of the University of Auckland. Patients with a definite indication for all medicines, such as following a heart attack or stroke, will be randomized to polypill or conventional care. The main outcome measures will include compliance, blood-pressure and cholesterol levels.

Fixed-dose combinations are now a core component of care

for people with HIV/AIDS, tuberculosis and malaria. As well as improving clinical outcomes, they simplify distribution of multiple medications, which can be an important advantage in resource-limited health-care settings.

Some public health experts say another way of improving access to

medicines and treatment for chronic disease would be through public-private partnerships (PPPs). A report by a team from the London School of Economics and Political Science, led by Dr Mary Moran, found that PPPs have driven the recent considerable increase in research activity into so-called neglected diseases, such as malaria and tuberculosis.

After a time when few new therapies were introduced, there are now over 60 drug research projects under way. Three-quarters of these are conducted under the auspices of PPPs and should result in six or seven new drugs being developed by 2010.

There are no PPPs working in the area of chronic disease, a situation Rodgers, who is director of the Clinical Trials Research Unit at the University of Auckland, in New Zealand, wants to change. Rodgers is involved in early consultations to set up a PPP to make treatment for chronic diseases more accessible to people in need.

“We desperately need a not-for-profit organization that enables public-private partnerships to make new medicines more available. Not just new technologies like the polypill, but also health-care delivery solutions.” ■

Jacqui Wise, *Cape Town*

“Combination pharmacotherapy may prove especially effective in the developing world where studies may precede those done in wealthier countries.”

Research Working Group.

## Best defence against avian flu is to fight the virus in Asia

The spread of avian flu to Africa and Europe has triggered panic as misconceptions abound over the nature of the threat this poses to human health.

Farming practices, long-held lifestyle traditions and poverty-line economics all make recent outbreaks of avian flu in Asia a far bigger global public health threat than the westward spread of the disease into Europe's poultry flocks.

For many rural Asian communities, backyard chickens and very small-scale poultry farms are part of the landscape. Children play in the same yard where the household's flock scratch and where chickens that die are typically eaten in order not to waste a valuable source of protein.



A small child with ducks outside her house in Indonesia. As shown by this picture, families in many Asian countries live in close proximity to their poultry.

WHO/SEARO

Every infection of poultry has serious consequences for the farmers concerned. Flocks must be culled in a wide radius around the area of infection and every person in contact with infected live or dead poultry is at risk of contracting the disease.

Whilst most western Europeans would get no closer to poultry than peeling away the shrink-wrap cover on a pack of supermarket chicken breasts, in Asia most of the 67 confirmed deaths from the H5N1 avian flu virus have been attributed to direct contact with infected birds, such as the slaughter, defeathering, gutting and preparation of chicken and duck. All 130 known human cases of H5N1 have occurred in Asia.

In Asia, bird flu outbreaks have been reported over the last two years in Cambodia, China, Indonesia, Japan, Kazakhstan, Lao People's Democratic Republic, Malaysia, Thailand and Viet Nam, the latter having borne the brunt of human infections with 42 WHO-confirmed deaths out of 92 cases since December 2003.

Many governments in the region are posed with a dilemma over how much scarce public funds should be poured into the fight against avian flu. Governments in the region have been making efforts to educate the population about preventive and surveillance measures, but misconceptions abound about the disease, both in poultry and humans.

Education campaigns in the affected countries are still not getting through to the individuals most at risk. Common misconceptions that owners of poultry have include the mistaken belief that it won't happen to them, that chickens frequently fall sick and that this time is no more serious than any other time, according to Peter Cordingley, WHO's spokesman for the Western Pacific Region, in Manila.

"Worse than any misconceptions, though, is the continuing ignorance in Asia, the fact that after two years

people still know so little about risky practices. The latest case in Thailand confirmed by WHO was a woman who apparently cleaned out the muck from a poultry shed where her husband's chickens had died mysteriously, and this was 50 km or so from Bangkok," he said.

Dangerous misconceptions also exist at government level including "the belief early on by some governments that the outbreaks could be covered up and fixed, thus protecting the poultry industry without endangering public health and that vaccinating poultry is a quick, inexpensive and effective way of preventing or responding to outbreaks. Vaccination may stop the spread of the virus but does nothing to

eliminate it. Culling is the only option, backed up, where appropriate, by vaccinating," said Cordingley.

China, where H5N1 avian flu originated, is grappling with a resurgence of the disease among poultry and has confirmed the first two human cases of infection with the virus on 17 November.

National government policy is at odds with what happens at the grassroots level because of patchy reporting at local level of outbreaks elsewhere in the country. Local level officials also fear incurring the ire of their superiors by being open about suspected or confirmed outbreaks and are reluctant to deal with the economic consequences of any decision to announce an outbreak and cull poultry.

"There has to be even greater public awareness. Even though bird

flu is not new to China and has been widely reported over the last two years, news of every outbreak does not reach everyone and one of the biggest dangers is that this might lead to a sense of complacency," said Roy Wadia, WHO's spokesman in China. "But now that you've got confirmed human cases, people are taking more and more notice, and even getting scared."

"The central government sees the overall problem in getting the right messages out, but it's a big country with a way of life that has existed for thousands of years. People and animals live in very close quarters in rural areas, and backyard farmers move their flocks when they hear there's a chicken cull under way. The other issue is one of compensation," Wadia added.

There are also powerful and potentially harmful misconceptions about what medical options there are to prevent or treat human cases of either H5N1 avian flu or a reassorted avian flu pandemic strain.

"The public may perceive seasonal flu and avian flu to be the same and may also wrongly believe that influenza vaccine could prevent human beings from contracting avian flu," said a spokeswoman for the Department of Health's Centre of Health Protection in the Hong Kong Special Administrative Region.

Similarly, the antiviral drug oseltamivir (Tamiflu) is being erroneously touted as a magic bullet and there have been reports of individuals trying to secure supplies around the world, from London's exclusive Harley Street medical clinics to private pharmacies that willingly sell most prescription-only drugs over the counter

in Hong Kong Special Administrative Region.

"WHO does not recommend that individuals stockpile Tamiflu. WHO advises governments to stockpile this if they have the resources, but these are for a very specific public health

“ The public may perceive seasonal flu and avian flu to be the same and may also wrongly believe that influenza vaccine could prevent human beings from contracting avian flu. ”

*Spokeswoman for Hong Kong SAR Department of Health's Centre of Health Protection.*

“ If the situation is not brought under control in the backyard farms in this part of the world, the virus will continue to spread around the world year after year. Asia is ground zero and still represents the greatest threat to global public health. ”

*Peter Cordingley, a spokesman for WHO's Office for the Western Pacific Region based in Manila.*

purpose, as is WHO's stockpile," explained Maria Cheng, a spokeswoman at WHO in Geneva.

"These national and international stockpiles would be used in an attempt to stop a pandemic, or to at least mitigate its impact. There is no reason for healthy individuals to be taking Tamiflu and this might even encourage the development of a resistant strain, rendering the drug useless during a public health emergency," Cheng added.

Public health experts say the only hope for avoiding a human flu pandemic — which may or may not involve a virus originating from birds — is to strengthen international cooperation.

This was the aim of a conference organized by the Food and Agriculture Organization, the World Organisation for Animal Health, the World Bank and WHO in Geneva from 7 to 9 November.

More than 600 public health experts

and scientists from 100 countries agreed that there is an urgent need for financial and other resources for the countries which have already been affected by avian flu as well as for those which are most at risk.

Participants outlined a global action plan to control avian flu in animals and limit the threat of a human flu pandemic. To date, 36 Member States have reported to WHO that they have influenza pandemic preparedness plans in place.

Since May 2005, outbreaks of H5N1 disease have been reported among poultry in China, Kazakhstan, Romania, Russia and Turkey. Mongolia has reported outbreaks of H5N1 in wild, migratory birds and in October 2005, H5N1 was reported among migrating swans in Croatia. Experts fear the disease may spread further to south-western Europe and Africa, as

birds migrate south for the winter.

But public health experts agree that Asia, where the only known human bird flu cases have occurred, is the region that poses the greatest immediate risk to global animal and human health.

"Europe is quite rightly taking measures to control the spread of the virus in poultry and to stock up on antiviral drugs in case of human infection, but the best defence for Europe or anywhere else against avian influenza is to help fight the virus in Asia," said Cordingley.

Cordingley added: "If the situation is not brought under control in the backyard farms in this part of the world, the virus will continue to spread around the world year after year. Asia is ground zero and still represents the greatest threat to global public health." ■

Jane Parry, *Hong Kong SAR*

## Quake victims reach help too late to save crushed limbs

The Pakistani government and WHO have appealed for US\$ 27 million, but raised just under half of that for the area's immediate health-care needs.

When Mazhar Ali, 22, was finally airlifted to the District Headquarters Hospital, Mansehra, a frontline hospital for the injured of the devastating 8 October earthquake in northern Pakistan, doctors told him it was too late to regain full use of his arm.

Ali was brought by helicopter to the hospital from his home in the remote mountain village of Paras in Balakot, one of the areas worst hit by the earthquake. He is one of countless patients who were airlifted from that area to hospital since the earthquake.

He said he had no one to talk to and had no idea where his family members were, but that he was lucky to be alive. "I don't have any place to go. Our house ... completely collapsed and four members of my family have died," Ali said.

"We didn't know whether we would survive. We relied on burning wood we had gathered from our collapsed roof to warm ourselves. We had no food except for corn [on the cob]," he said, looking at his paralysed right arm with an expressionless face.

More than 73 000 people died, about 69 000 people were seriously injured and a further 59 000 suffered minor injuries in Pakistan as a result of the quake, which had a magnitude of 7.6 on the Richter scale and was the most powerful to hit south Asia in 100 years. More than three million people need emergency shelter to survive the harsh Himalayan winter, Pakistan's government said.

Half of the 564 hospitals and

dispensaries in the quake-hit area were completely destroyed, while a further 74 were partially damaged, according to WHO. But even before the earthquake, the health-care system in some particularly poor areas was inadequate.

Pakistan's Ministry of Health (MoH) estimates it needs US \$651 million to rebuild the health-care system, including construction of quake-resistant hospitals. Meanwhile, WHO and the Pakistani government



Dr Mohammad Shoaib attends to Mazhar Ali's right arm in the hospital in Mansehra.

Khabir Ahmad

Copyright of Bulletin of the World Health Organization is the property of World Health Organization and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.