



ISTM Committee News

The Professional Educational Committee (PEC) ran a very successful review course in Travelers Health in preparation for the ISTM Certificate of Knowledge exam in Fort Worth Dallas in March. This course was organized by Lin Chen and assisted by Michele Barry and Wendy Thanassi along with a host of great speakers from the ISTM membership.

In addition, PEC is currently working on the following initiatives. All will be posted on the ISTM education website.

1. Travel Clinic ISTM Monograph, "How to Set Up a Travelers' Clinic." The project is spearheaded by Marc Shaw.
2. Annotated bibliography of best travel articles. Articles will be posted quarterly. Delilah Destrepo is in charge.
3. Patient Information Handouts. The program is being developed by John Wilson and committee members.
4. A very informative Expert Opinion Case of a woman bitten by a dog in China three months prior to seeking advice. The case is expertly discussed by Philippe Gautret. Expert Opinion Cases are formulated by Nancy Piper-Jenks, Mary Lou Scully and Lin Chen. We welcome difficult and controversial cases. Please send cases to Nancy at Npjens@aol.com

Michele Barry, Chair of the PEC.

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APICTM 08 Conference Highlights

Jonathan Cohen, MD

The very successful Asia Pacific International Conference on Travel Medicine (APICTM 08) took place 24-27 February in Melbourne, Australia. The event was a combined initiative of the International Society of Travel Medicine, the Asia Pacific Travel Health Society, the Australasian College of Tropical Medicine, and the Australasian Society for Infectious Diseases. Well over six hundred delegates attended from Australia and there was a strong representation from the international community including the Asia Pacific region, Europe and the USA.



A broad range of topics was covered by the stellar cast of high profile speakers who delivered excellent sessions of interest for beginners and also for more experienced clinicians and scientists. Plenary sessions, symposia, workshops, interactive keypad workshops, country in focus, original papers, and poster presentations were held in concurrent sessions, along with an exhibition of travel health-related products and organisations.

The event was preceded by the ISTM Certificate of Knowledge Examination, which is establishing an international standard for travel medicine practitioners. This is the fourth time the examination has been offered, and we wish the best to the over 60 candidates who sat for the it on this occasion. Successful candidates receive a Certificate in Travel Health (CTH) from the ISTM.

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Your Responses to Our Latest Query

Thank you very much for your enthusiastic and often surprisingly emotional responses to our latest query concerning an interesting and controversial travel medicine-related topic. Just over a hundred members responded, a record number. This time we sent our questions to the entire membership, not just to those belonging to the ISTM Listserv as we have in the past.

Here were the questions:

Should we express our personal political convictions to tourists seeking only our health expertise regarding travel to countries that have poor records regarding human rights?

Should we be apolitical in our travel medicine offices?

Is it acceptable to go to such a country for humanitarian work but not as a tourist?

Is boycotting important international events a reasonable response to human rights violations by the country holding the event?

Because of the large number of replies and the perceptive insights provided, this issue of NewsShare will carry the responses to the first question only. The responses to the other three questions will appear in the next issue.

More than 90% of responders felt that politics have no place in travel medicine consultations, but gave different reasons for their opinions. But a small vociferous minority disagreed. Here is a sampling of all the views, in no particular order.

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> Our political convictions are NOT part of travel health. However, there is nothing wrong with having Amnesty International posters, Tourism Concern leaflets or other such items in the waiting room. Patients/clients are not coming for a socio-critical lecture but for health advice. Having said so, I personally would still bring up the issue of looking after the host's health - but that is another matter altogether.

> We were always told not to discuss politics or religion in mixed company, social events, for example. Following this dictum, it would be DISASTROUS and overly intrusive to insert our opinions in this forum. This is a terrible idea and in my opinion should not have been brought up. Our personal opinions must be kept separate from our professional ones.

> Is not remaining silent a tacit approval of another person's actions? A Protestant theologian once said, "I said nothing when the Nazis persecuted one group after another. Then they came after me."

> As doctors we are asked for advice and recommendations on the basis of our professional expertise, not on the basis of our social or political beliefs. If we feel so strongly about a situation that it affects our professional judgement then we can no longer pretend to be giving objective advice. That is not to say that we should not be aware of what is going on in the world and specifically in destination countries. I am aware that the crime situation in Johannesburg is horrendous, that the southern Thai-Cambodian border area is as much a security risk as it is a malaria one, that you stay in your hotel at night in Port Moresby more for safety reasons than for avoiding being bitten by the night-feeding anopheles, that it is safer to fly to Cuzco from Lima than to take the overland route, that Basque separatists are active in Bilbao. And I might wish to share this awareness with my patients but all this is in the context of discussing itineraries and possible hazards without trying to influence the choice of destination.

> What are the countries that have a poor record? Myanmar, Zimbabwe, China, Haiti, Iran... Where do you stop? Syria? Israel? Serbia? Japan because of the suppression of the Ainu? Canada and the Inuits? Australia and the Aborigines? Turkey and the Kurds? Does Guantanamo Bay represent a "poor record in human rights" for the USA?

> I have made the decision not to prepare travelers for the Olympics in my private prac-

tice. I will refer them to the CDC and ISTM websites to locate alternative providers. I do not plan to "burden" them with my politics. I just won't have appointments available. As a health provider, I don't believe in sharing personal/political opinions with patients, but pre-travel care isn't the ER and I don't have to see these patients and contribute to the "success" of these Games. One exception: I will provide yellow fever vaccine if their trip requires it (e.g., for additional travel), as I am a designated yellow fever vaccine site.

> As travel health professionals we should without doubt be concerned for the health/human rights issues affecting the host countries, particularly in developing areas. It would perhaps be inappropriate to foist our opinions directly onto the traveller, but more discussions about these problems should be included within the remit of ISTM conferences.

> As a group we should show support for programmes aimed at tackling "political health issues" such as malaria and water aid... This could be expanded to question the ethics of staying at a 5-star hotel where no consideration is given to the treatment of workers. This could become an immense political and economic debate but I feel strongly that we should not be ignoring the problems.

> It is absolutely unacceptable to allow our personal political, ethical positions to enter into the travel health care we provide. The analogy would be, if citizens from that area/country came to our office for health care, would we refuse to see them?

> We have the responsibility to help make people aware of threats that travel poses for them... malaria, cholera, road accidents, sunburn, etc. This could ethically (at least by my personal system) be extended to information we have about political unrest, demonstrations that may lead to riot, and similar threats.

> One should certainly warn a prospective traveler about a country's poor human rights record, as a matter of safety, while counseling on traffic accidents, pickpockets, etc.

> Some people have advised against traveling to Myanmar, because traveling there and spending money would help prop up an oppressive regime. On the other hand, that oppressive regime seems to have no difficulty staying in business anyway, through drug smuggling and other unsavory transactions. Perhaps if more Westerners visited the country, they would make others at home more

aware of how bad things are there, and promote more of an international outcry and/or sanctions.

> If you have reason to believe that a traveler plans to engage in illegal/despicable activity, e.g., child prostitution while abroad, do you inform the police? Ours or theirs? Ours have no jurisdiction; theirs may be too corrupt and/or too lazy to care.

> ISTM is not Amnesty International. Patients are only seeking our medical advice not the political advice. They usually have researched all that information before coming to see us.

> Live and let live. Our clients contact us not for a political statement, but for travel advice. Who am I to bother them with my opinion? Be fair, did we advise persons not to travel to the USA in the sixties, when Afro-Americans were considered as second-class citizens and human rights were a big issue? Or do we ask people not to visit Canada, because seals are butchered for fur?

> This question is too vague. Do you mean should we try to persuade tourists not to go? Should such physicians try to persuade them to do something specific while they are there? (That could be risky.) Physicians should certainly warn tourists about the risks of going to countries with poor human rights records.

> Back in medical school I was first exposed to the issue of working with patients with whom I might have ideological, ethical, moral or political differences of opinion. I was trained to provide the most optimal medical care available and attempt to leave my personal beliefs out of the picture. When there were treatments or procedures I had personal objections to I deferred to other providers with as little subjective commentary as possible (e.g. elective abortions, cosmetic plastic procedures, some of the alternative medicine practices).

> Our clients' political views are none of our business, and likewise with our political opinions. Our responsibility is to assist the traveler in health and safety issues, including but not limited to avoiding communicable disease and recognition of political and legal issues that may affect the traveler. Consider too that the people in the offending country that are most affected by tourists avoiding travel are probably not the leaders of the country but the workers in the tourism industry.

“APICTM 98 Conference Highlights,” cont. from p. 1

On the same day, a very successful 5th National Travel Clinics Australia Conference was held as a precursor to the APICTM and was likewise extremely well attended. A number of other local organizations also took the opportunity to meet. These included the 20th Convocation of the Australasian College of Tropical Medicine (President, Peter Leggett) and the General Meeting of the Asia Pacific Travel Health Society (President, Eli Schwartz). Both Peter and Eli are former ISTM board members.

The hefty volume of information delivered at the conference precludes a detailed description of all areas. Here are some notes of the scientific and clinical sessions that I personally attended. In the next article are notes from sessions attended by Tony Gherardin. Lack of mention in no way implies any deficit - the feedback from attendees at all sessions was excellent across the board.

Plenary session. Robert Steffen (a founder of the ISTM and a former president) emphasized that the role of travel health is to keep travellers alive and healthy. He pointed out that travel medicine was about more than just tropical and infectious disease. However, most of this conference was in fact restricted to infectious diseases.

Vaccinations and vaccine-preventable diseases. Robert Steffen emphasized the lowered risk of hepatitis A at 1/3000 per month overall, including travelers staying at four and five star accommodations. Yet the vaccine remains recommended by World Health Organization for all travellers.

An estimated 10-15% of travellers are potentially exposed to hepatitis B, emphasizing the need for prior vaccination in this group. (Some studies suggest that the percentage of travellers exposed may be higher.)

Astrid Kaltenbock from Intercell (an Austrian company that researches and develops vaccines) presented phase three data on their IC51 vero cell inactivated Japanese encephalitis (JE) vaccine. Following two doses given on days 0 and 28, seroconversion is 98%, falling to 83% at 12 months. The safety profile of these new vaccines is favourable, side effects being less likely than with current vaccines, and it has similar efficacy when given concomitantly with hepatitis A vaccine.

The Biken JE vaccine (known in Australia as JE-vax) is no longer available in Australia or in the Asia Pacific region. At the moment there is no JE vaccine available in Australia. We are



hoping to see IC51 (manufactured by Innovex, Australian distribution by CSL) later this year, followed by Chimerix (distributed by Sanofi Pasteur).

Joe Torresi presented phase three data on Chimerix, a new single dose, live attenuated JE vaccine. Seroconversion 14 days after a single dose was 93.6% with similar safety and lower side effect profile than the existing JE vaccine as the comparator.

Estimates are that 50-90% of vaccinations in developing countries may be unsafe, hence the recommendation to ensure that appropriate vaccinations are given prior to travel.

Malaria. Tim Davis reviewed malaria from a global perspective, pointing out the annual incidence per population x 1000 allows an index to be calculated where greater than 10 is high, and less than 1 is low. For example, India and Indonesia have a high malaria index. The high population in some Southeast Asian countries accounts for the significant percentage they contribute to the total world burden of malaria, although the risk for travellers is much lower. Whilst there has been a total decline of the last three decades in total cases of malaria, the percentage of falciparum malaria has increased.

Due to increasing resistance, artemisinin is increasingly used for treatment of malaria. The Western Pacific areas including Papua New Guinea, the Solomons, Vanuatu and Borneo are equivalent to sub-Saharan Africa in risk.

Arboviruses. There were quite a few sessions devoted to arbovirus infections in the Asia Pacific region. Jeffrey Hanna gave a very detailed report on the five clinical cases of Japanese encephalitis (JE) that occurred in the Torres Strait Island of Badu in 1995 and 1998. (The Torres Strait Islands are a group of at least 274 small islands which lie in Torres Strait, the waterway separating far northern continental Australia's Cape York Peninsula and the island of New Guinea. The Islands are part of Queensland, a constituent State of the Commonwealth of Australia.)

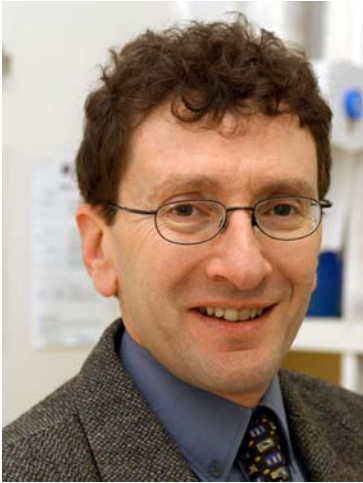
John Mackenzie presented an excellent overview, concentrating on JE. He pointed out that whilst most cases are asymptomatic, 25% of clinical cases are fatal. Approximately 45,000 cases are reported annually, but this may be half to a third of the total cases that occur. Most cases reported are from India, Nepal, Sri Lanka and China. The disease is now also reported in Papua New Guinea.

Annelies Wilder-Smith presented an excellent review on dengue fever reminding us of the seriousness of this disease with 250,000 cases and 20 deaths per year.

Travellers' diarrhea. Herbert DuPont (one of the founders of the ISTM and a former President) gave us a fascinating insight into how host risk factors influence the development of travelers' diarrhea. He described some of the known genetic markers that allow some

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“APICTM 98 Conference Highlights,” cont. from p. 3



Jonathan Cohen, MD

prediction of infection. Examples are the T/T genotype in the lactoferrin gene, which correlates with developing travelers' diarrhea. The homozygous AA genotype in the interleukin (IL8) gene is associated with enteroaggregative E. Coli (EAEC) while the FVT2 non-secretor genotype predicts norovirus. These genes control release of gut inflammatory markers, hence the differing response in different people.

Virasadaki Congsuwivatwong presented data from a valuable epidemiological study on tour-

ists contracting travelers' diarrhea while visiting Thailand. Virasadaki demonstrated that the majority was in fact caused by E. coli (46/53), followed at much lower levels by aeromonas sp, v. parahaemolyticus, v. cholera, salmonella sp and campylobacter.

Respiratory tract infections. Karin Leder emphasized that respiratory tract infections occur in up to 30% of travellers and hence are the second most common cause of infectious disease in travellers after gastrointestinal infections. It is of note that Geosentinel data suggested approximately 8% of travellers reported respiratory tract infections, upper more common than lower. Influenza was more likely with longer trips, the visiting-friends- and-relative group, Northern hemisphere in winter, and on a cruise. Lower respiratory tract infections were more common with age and in males.

Mike Catton reviewed avian influenza and the potential for a human pandemic and gave an interesting reminder of the role of antigenic shift, point mutations and the role of haemagglutinin and neuraminidase.

There were sessions on safety and security by Marc Shaw and others, health of expatriates, corporate and volunteer health issues, diabetes, diving, sexual health, and a range of other topics. Peter Fenner, Ken Winkel and

Julian White presented on bites, stings and envenomations. John Simon led a fascinating and entertaining presentation on parasitic case studies from a position of considerable experience.

I was proud to be a member of the organizing committee, even if they did leave my name off the list in the conference handbook. Despite this omission, the co-chairs and my committee colleagues are to be congratulated for providing such a high standard event to our area and to the international travel health community. The next biennial Conference of the International Society of Travel Medicine, CISTM11, is to be held in Budapest, Hungary, May 24-28 2009. Attendance is highly recommended.

Jonathan is Regional Editor of NewsShare in Australia, and a member of the Education Committee of the ISTM. He is the Medical Director for Travel Clinics Australia, the national association of general practice based travel health clinics and based in Melbourne. He is also a Senior Lecturer with the Department of General Practice, Monash University, and is the author of the popular “The Traveller’s Pocket Medical Guide and International Certificate of Vaccination”.

Additional Highlights from APICTM 08 Conference

Tony Gherardin, MD

Graham Brown spoke about the need for sound science to underlie the practice of travel medicine, and the need for us to think globally about the epidemiology of travellers' health issues and the impact of emergent disease.

Alan McGill highlighted the potential benefit that increased global networking can offer, and was encouraging about the prospects for travel medicine networks to be important sentinel markers of global health problems.

Hume Field gave a most interesting discussion about the role that bats appear to have as reservoirs of many of the emergent disease problems within the Asia Pacific region. Seventy-five percent of emergent illnesses are

zoonotic. He used SARS and Nipah as examples of new diseases with big impacts for public health and travellers.

Tim Davis gave an overview of malaria transmission and risk in the Asia Pacific region and discussed recent reports describing the malaria situation. There are stark contrasts in the nature of malaria in various countries throughout the region and this has great implication for level of risk to travellers.

Dennis Shanks discussed the possible future role of using pre-travel malaria prophylaxis by administering a single treatment course of malarone prior to travel. Such a dose appears to have ability to protect against malaria for 4 weeks, and perhaps longer. The enormous



advantage for compliance was highlighted and some aspects of potential problems were discussed. Similarly the new development drug, tafenoquine, was discussed as a possible pre-travel prophylactic, with the caveat around G6PD deficiency highlighted.

Tony is National Medical Adviser of Travel Doctor-TMVC Group in Australia, and a co-chair of the organising committee of APICTM, alongside Joe Torresi, Director of Travel Medicine at Royal Melbourne Hospital.

Global Warming and Tourism

Karl Neumann, MD, FAAP



Tourism is closely behind agriculture as the industries most adversely affected by weather and climate, says the Second International Conference on Climate Change and Tourism held in Davos, Switzerland. Furthermore, tourism is also a significant contributor to global warming, says the International Herald Tribune (IHT) in its report on the Conference.

The World Health Organization (WHO), a participant in the Conference, has identified five major health consequences of climate change, with most of these changes directly or indirectly affecting tourism.

First, the agricultural sector is extremely sensitive to climate variability. Rising temperatures and more frequent droughts and floods can compromise food security. Increases in malnutrition are expected to be especially severe in countries where large populations depend on rain-fed subsistence farming. Malnutrition, much of it caused by periodic droughts, is already responsible for an estimated 3.5 million deaths annually. While tourists do visit areas plagued by poverty, few visit countries where there is significant hunger and malnutrition.

Second, more frequent extreme weather events mean more potential deaths and injuries caused by storms and floods. These are already among the most frequent and deadly forms of natural

disasters. Such events can play havoc with the tourist infrastructure. While most tourists seem to give areas a second chance, recurrent occurrences of disasters make tourists go elsewhere.

Third, both scarcities of water, which is essential for hygiene, and excess water due to more frequent and torrential rainfall will increase the burden of diarrhoeal disease such as cholera. This is especially the case when water and sanitation services are damaged or destroyed. Such diseases are already the second leading infectious cause of childhood mortality and accounts for a total of approximately 1.8 million deaths each year. Water rationing and intestinal diseases are further turnoffs for tourists.

Fourth, heat waves, especially in urban "heat islands", can directly increase morbidity and mortality, mainly in elderly people with cardiovascular or respiratory disease. Apart from heat waves, higher temperatures can increase ground-level ozone and hasten the onset of the pollen season, contributing to asthma attacks. An increasing number of tourists are elderly and individuals of all ages have become more health conscious, and are likely to consider the health consequences of their destinations when making travel plans.

Fifth, changing temperatures and patterns of rainfall are expected to alter the geographical

distribution of insect vectors that spread infectious diseases. Increased climate change has also altered the functional balance among predators and prey, which is important for controlling the proliferation of pests and pathogens. Warmer and sometimes wetter weather may already be extending the range of infectious diseases beyond regions where they are endemic. The combination of climate change and environmental degradation has created ideal conditions for the emergence, resurgence and spread of infectious diseases - diseases which kill more than 17 million people annually. Of these diseases, malaria and dengue are of greatest public health concern. Surveys show that outbreaks of such diseases discourage many tourists to visit.

In addition, climate changes can harm ecotourism, which represents one of the fastest growing segments of travel. Rainforests and coral reefs, for example, are extremely vulnerable to rising temperatures and less rainfall. A major risk to coral reefs is bleaching, which occurs when coral is stressed by rises in temperature, high or low levels of salinity, lower water quality, and an increase in suspended sediments. These conditions cause the single-celled algae which forms the colors within the coral to leave the coral. Without the algae, the coral appears white, or "bleached" - and rapidly dies.

Also, rising sea levels, the result of melting glaciers and polar ice will cause water levels to rise, threatening coastal and marine areas with widespread floods in low-lying countries and island states, increasing the loss of coastal land. Beaches and islands that are major tourism attractions may be the first areas to be affected.

Tourism adversely affects the environment. Ozone depleting substances (ODSs) such as chlorofluorocarbon and halons contribute to the depletion of the ozone layer. ODSs are contained in refrigerators, air conditioners and propellants in aerosol spray cans, all widely used in the tourism industry.

Emissions from jet aircraft are another source of ODSs. The tourist industry relies heavily on automobiles and buses. Many destinations, especially in Southeast Asia, Africa and the islands of the Indian Ocean are almost totally reliant on air travel to bring in tourists.

And then there is water usage. It requires large amounts of water to landscape hotel grounds,

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— “Global Warming and Tourism,” cont. from p. 5 —

“In the tropics, tourism is a matter of national survival. And most tropical countries lack the funding and technology to preserve the industry.”

for dishwashing equipment, and to fill swimming pools, for example

Some experts say that tourism may account for about 5 percent of the world’s carbon dioxide emissions. And this percentage is expected to grow rapidly unless major changes are undertaken.

But major changes are difficult to bring about. Some destinations that have tourism now will not have it in the future, says the IHT. In the developed world, the tourism industry will likely not face a crisis, though profits will depend on successful adjustment.

At the Whistler Blackcomb Ski Resort in Canada, for example, glaciers are receding and good snow is found higher up the mountain than 10 years ago. Lifts are being built to higher elevations to more snow-reliant zones. Since ski lifts last about 25 years, modern resorts use computer models and other data to try to predict where to place new lifts by calculating temperature rises over the next 30 years. In addition, the resort has a broader green plan.

It is making energy to run the lifts from snow runoff on the mountain. Its ski village is car free. And the resort has diversified from snow and it now has a booming summer business as well.

In the tropics, tourism is a matter of national survival. And most tropical countries lack the funding and technology to preserve the industry. Computer simulations take money and expertise that are in short supply in most of the developing world.

In much of Africa, for example, tourism is a major source of income and often the only source of foreign currency. Developing countries and small island nations will be the first and hardest hit. Recognizing that tourism and climate change are intimately intertwined, the island of Fiji combined its Ministries of the Environment and Tourism. “Tourism is *the* vehicle for poverty alleviation in Fiji - that’s how important it has become,” said a Fiji delegate who attended the Davos conference. “Without it, our economy would collapse. So we have to plan to mitigate and adapt to climate change.”

For some destinations, both warm and cold, climate change is already having an impact on tourism and planning. In Fiji more frequent storms that scientists say are caused by warming are eroding mountains and driving dirt and fresh water into the sea. That threatens to erode pristine beaches, and endangers coral reefs which need considerable salt in the water. Fijian planners are trying to gauge the course of such change and set new standards, like guidelines for how far above the water bungalows should be built to be safe if the sea level rises.

But in the short term, global warming provides opportunities too, especially in temperate zones. Warming trends have lengthened the golfing season in Antalya, Turkey, by over a month.

At the end of the Davos conference, the UN World Tourism Organization advised travelers to take the climate into account and “where possible to reduce their carbon footprint.” On the other hand, if Europeans stop flying to places like Fiji and the Maldives, poverty will worsen.

Karl is the editor of this newsletter, a pediatrician, and founder of the website KidsTravelDoc.com.

— “ISTM News,” cont. from p. 1 —

Examination Committee Update

The ISTM Certificate of Knowledge examination was administered in Melbourne just prior to the opening of the Asia Pacific Travel Medicine meeting in February 2008. Almost 100 individuals representing 16 countries sat for the exam. Thus far, a total of 1,242 individuals have taken the exam.

The desire to take the exam and receive the certificate is growing as more people see a need for setting standards in travel medicine. The ISTM examination consultants, Knapp and Associates, tell us that this exam performed extremely well both in terms of reliability and validity. The results of the most recent exam have just been sent to the examinees.

Over the next several months, the Examination Committee will be refreshed with new members who will participate in a question-writing drive. The next exam will be administered in May 2009 in Budapest, Hungary, just prior to CISTM11.

We welcome Ken Dardick who is the new Chair of the Examination Committee. Ken has been a member of the committee for a number of years and brings with him enthusiasm and experience in exam administration as well as tremendous experience in travel and tropical medicine.

On behalf of the Examination Committee,

Phyllis Kozarsky



Counterfeit Medicines: An Update on Estimates

News Release WHO/7. 13 March 2007

Counterfeit drugs are on the rise in most countries but are particularly widespread in developing regions, says the World Health Organization (WHO). While such drugs have far-reaching and very serious consequences for local populations in affected regions, it is also a situation that travellers must be made aware of.

The most recent figures estimate counterfeits at around 1% of sales in developed countries to more than 10% in developing countries. However, in parts of Africa, Asia and Latin America, more than 30% of the medicines on sale can be counterfeit, while in some former Soviet republics, counterfeits make up more than 20% of the market.

According to WHO, a counterfeit medicine is “a medicine, which is deliberately and fraudulently mislabeled with respect to identity and/or source. Counterfeiting can apply to both branded and generic products and counterfeit products may include products with the correct ingredients or with the wrong ingredients, without active ingredients, with insufficient active ingredients or with fake packaging.”

Apart from the huge differences between regions, variations can also be dramatic within countries - city versus rural areas, city versus city - and can even be time sensitive. Sometimes counterfeits are openly sold and sometimes not.

The sources of information, of course, also underlie the complexity of any estimation. Detailed data on counterfeit medicines is often difficult to obtain or to publish. How to measure a market that, by nature, is informal and illegal, and where evidence is usually consumed?

Counterfeiters and their allies know they are committing a crime and aggressively seek to avoid detection. They engage in elaborate conspiracies to disguise their activities as the masters remain in the shadows. They establish fictitious businesses and front companies. They exploit weaknesses in border control whenever governments try to promote world commerce by reducing border inspections. They use false documents to obtain essential active pharmaceutical ingredients, as well as manufacturing equipment to replicate genuine products. In sum, their actions disguise the extent of crime and makes detection and reporting extremely difficult.

Currently, the sources of information available include reports from national authorities,



such as drug regulatory and enforcement agencies, ad hoc studies conducted on a specific geographical area or therapeutic category, reports from the pharmaceutical sector, reports from NGOs and surveys.

Even one single case of counterfeit medicine is not acceptable because, in addition to putting patients at risk and undermining the public confidence in their medicines, it also betrays the vulnerability of the pharmaceutical supply system and jeopardizes the credibility of national authorities (health and enforcement alike).

New technology can help to contain counterfeiting. Different approaches, ranging from the simple to the more complex, are available or in development. Overt verification tools, including holograms or colour-shift inks, are cheap but relatively easily copied. Covert tools, such as invisible printing and digital watermarks, are more expensive and require special devices to check.

Forensic technology, essentially chemical or biological tags built into medicines' packaging, are even more secure against copying but significantly more costly and provide no visible reassurance to customers. Serialization or track/trace systems, using technologies such as bar codes and radio frequency identification (RFID), help provide authentication by allowing a medicine to be tracked through the supply chain. These require an expensive technical infrastructure and are not completely immune to “hacking”.

However, these technologies cannot by themselves stop counterfeiting. Computer and technological illiteracy, lack of infrastructure and cost may limit the ability of technology to deliver solutions, especially in the poorer parts of the world where the threat posed by counterfeiting is greatest.

Technology needs to be combined with other measures including tough legislation and regulations against counterfeiting, rigorous enforcement, stiffer penalties, and diligent surveillance on the part of the authorities and healthcare providers.

Here are reports on counterfeit drugs from various countries as compiled by the WHO:

Angola: According to the head of the National Department of Intellectual Copyright Crime of the Economic Police, approximately 70% of medicines used by the Angolan population are forgeries.

Cambodia: A Cambodian Health Ministry survey conducted in 2002 revealed that 13% of drugs on the domestic market were counterfeit or substandard, especially anti-malaria drugs and antibiotics.

China: China's Research and Development-based Pharmaceutical Association estimated that about 8% of over-the-counter drugs sold in China are counterfeit.

Colombia: The Association of Colombian Pharmaceutical Industries, says that of a total annual \$1,300 million sold in medicines, nearly 5 percent (some \$60 million) of the products marketed stem from contraband, counterfeiting or adulteration.

Dominican Republic: The Public Health Department reported that 50% of the pharmacies operate illegally and that, according to the statistics, 10% of the medicines that arrive in the country are fake. Some of the medicines expired more than 10 years ago.

El Salvador: INQUIFAR, the association of pharmaceutical companies in El Salvador, has denounced the widespread availability of counterfeit drugs on the domestic market. According to the local drug-maker Gamma Laboratorios, the commercialization of counterfeit medicines currently generates economic losses of around \$40 million per year to the country's pharmaceutical industry.

India: Indian pharmaceutical companies have suggested that in India's major cities, one in five medications sold is fake. They claim a loss in revenue of between 4% and 5% annually. The industry also estimates that spurious drugs have grown from 10% to 20% of the total market.

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"Counterfeit Medicines," cont. from p. 7

Indonesia: The International Pharmaceutical Manufacturers Group in Indonesia has estimated that pirated drugs constitute 25% of Indonesia's \$2 billion pharmaceutical market.

Kenya: A random survey by the National Quality Control Laboratories and the Pharmacy and Poisons Board found the almost 30% of drugs in Kenya are counterfeit. "Some of the drugs are no more than just chalk or water being marketed as competent pharmaceutical products." According to figures from the Kenyan Association of Pharmaceutical Industry, counterfeit pharmaceutical products account for approximately \$130 million annually in sales in the country.

Lebanon: The chief of Lebanon's National Health Commission stated in July 2004 that 35% of pharmaceuticals available in the Lebanese market are counterfeit products.

Mexico: During 2004, federal agents seized in Sahuayo, Michoacán, and in Guadalajara, Jalisco, approximately 60 tons of stolen, expired and counterfeit pharmaceuticals. Reportedly, the penetration of these illegal products is about 10% of the pharmaceutical market.

Nigeria: The National Agency for Food, Drug Administration and Control announced that the prevalence of counterfeit drugs has dropped to 16% at the beginning of 2006. But other health officials estimate that 48 to 70% of drugs in circulation in the country are either fake or adulterated.

Peru: Around 200 pharmacies operate in downtown Lima with neither registration nor authorization issued by the Ministry of Health. In addition, fake drugs are sold at 1,800 stores. The Department of Health seized around 460,000 adulterated and expired medicines in 2005. The figure includes medicines that enter the country as contraband, is adulterated, have altered or missing labels or was stolen from the warehouses of the Ministry of Health, the armed forces, and police.

Philippines: The former director of the Bureau of Food and Drug said that in 2003, 30% of drug store outlets visited by food and drug enforcement officers carry and sell counterfeit drugs."

Russia: The Federal Service for Health Sphere Supervision reported that 10% of all drugs on the Russian market were counterfeit. However, other sources estimate that the real figure could be much higher.

Medicines purchased over the Internet. Items from sites that conceal their actual physical address are counterfeit in over 50% of cases.

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the Newsletter of the International Society of Travel Medicine

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