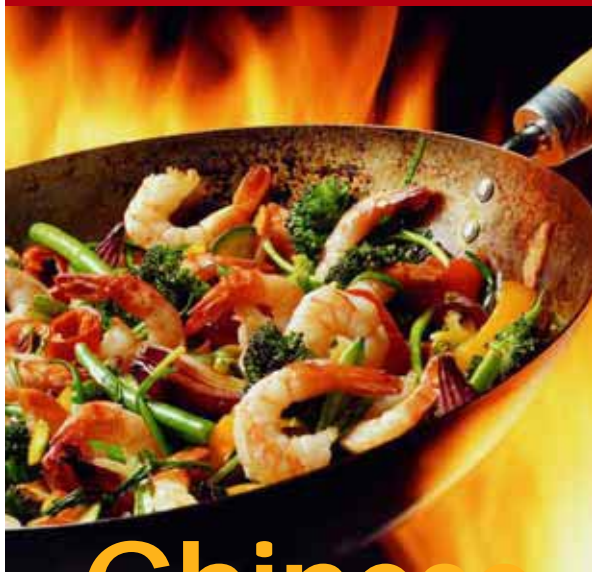


Dr David Humair, Research Programme Director for Armasuisse S&T, and Consultant Shawn Nelson look at one of the bio-side issues of the Beijing Olympics



Chinese stew

THE density of population, living habits, close proximity of humans with animals like chickens, ducks, and pigs, and rural infra-structure conditions are factors that can spawn or trigger disease epidemics; this is understood. Long hours in air-conditioned planes, with exposure to jetlag, dehydration, unfamiliar foods and their microbes, fatigue and stress, when combined, can suppress immune function. When coupled with exposure to unusual conditions of personal hygiene,

these are well-known factors in leaving the tourist vulnerable and more receptive to foreign diseases while travelling; this is understood.

The gathering of different people coming from various horizons, all at a given place and a given time, for several weeks together in the same place, is another very good factor to spawn or trigger the dissemination of a disease; this too is understood.

The 2008 Olympics in China may make history. Not in the sense of athletic

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achievements, but due to the fact that China has been, both in the past and recently, unstable or poorly prepared in regards to their bio-safety. We may see, for the first time since the Middle Ages, the emergence of a neo-plague or some other variety of biological epidemic emerge as a historical event from China's Olympics. China's bio-safety may be the singular factor that makes the news and history in 2008, as opposed to the athletic events themselves.

How could anyone dare to propose something as preposterous as this sounds? This is the Olympics, not some third world black market where any manner of precursors, home-made

assemblies or shoddy WMDs are being sought by folks with bad intentions and bags of varied currencies. Well, this is the Olympics; you are right about that. Given the host country, however, and their track record and performance in this area, perhaps someone should have done a background check on China to determine if they could even qualify for the Olympics regarding their bio-safety. The environment in which the Olympics occurs is certainly a factor here, and there are many variables of which only a few will be discussed here.

If we look back four years to 2003 and 2004, even the general public can remember the nasty Severe Acute

Respiratory Syndrome-Corona Virus (SARS-CoV) scare that occurred in China and was finally contained. As late as 2004, even after a successful "containment" of this virus, the World Health Organisation (WHO) still has a "rationale for continued vigilance for SARS" posted on their website, as of 1 May 2008. Having noted China's shaky past with this particular recent bio-safety incident, we must also consider what other major global bio-safety incidents have their origins in China. The H5N1 Avian Influenza virus, for instance, which, according to WHO information, was originally "isolated from a farmed goose in Guangdong province, China". Of note here is that this occurred



What will happen when heavyweight Western microbes meet their equally powerful Asian counterparts? ©DoD

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in 1996 – the same year as the Olympics in Atlanta, Georgia, USA. Hmmm? A bit of foreshadowing for China's future Olympics? Easy tracking of the H5N1 Avian flu virus can be found on the WHO website, which also historically reveals that, as of 30 April 2008, there have been reported in the South East Asia region the following: Avian (primarily chickens and ducks) outbreaks occurring in Vietnam, Bangladesh, Republic of Korea, Indonesia (Bali, Java, Sumatra), Laos, Thailand, Myanmar and even Japan. Note that these are "Avian" cases, and though the following is not in Southeast Asia, a case has been reported as far west as Luzern Canton, Switzerland (31 March

2008 and June 2006). If we look at human cases of the H5N1 Avian flu virus – and since we are talking about the Olympics and the poor bio-safety related to China, which would seem rather important to public health authorities globally – it looks like the top three "medallists" for H5N1 are: Gold medal – Indonesia, with 133 human cases and 108 fatalities; Silver medal – Vietnam, with 106 human cases; and the Bronze medal – Egypt, with 50 human cases. China does receive honourable mention in their lack of bio-safety with a meagre 30 human cases of H5N1. They are making a first class effort with improving their bio-safety after all!

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It appears, though, that China is still in the running for the top five spots with H5N1 cases. The prediction is that China will surge into the lead at the last moment in the "Poor Bio-safety Olympics" – not just in the H5N1 category either, but also sweeping all before it in the "Lack of Bio-Safety" events overall. "How so?" one may ask. As China finishes preparations for the Olympics, while peering through the brown smoggy pollution haze of Beijing, a last-minute emergence was this bit of bio-safety news provided, again, courtesy of the WHO. "As of 5 May, 2008, 4,496 cases including 22 deaths of hand, foot and mouth disease (HFMD) due to enterovirus 71 (EV71) have been reported among infants and young children in... Anhui Province, China" (WHO website, 17 May 2008). While any professional in the field of public health in any country will quickly point out that this particular pathogen is unique in that it primarily affects children, most of us have had HFMD at some point in childhood. What they may miss though, is the fact that Chinese people, especially children, have inherently robust immune systems, due to the challenging bio-safety environment they evolve in. Much more so than your average modern tourist, who will most likely be Western and sedentary natured, with a poor diet and a weaker immune system, exacerbated and weakened even more by travelling half way round the world. How will EV71 affect that person? What about all the other tourists at the Olympics? Perhaps all the "champions" in China's underground and unofficial "Bio-safety Olympics" have not yet emerged onto the field... This latest incident with EV71 should surely bring a bit more global awareness to the true state of bio-safety in China, right on the verge of an international Olympics. Consider this: what happens when tourists from all over the world converge in China for the Olympics? They are tired due to the travel, weakened because of jetlag, dehydrated, a bit stressed, bathed by plane air-conditioning and the other factors mentioned in the outset of this piece. Now consider the forces that will converge as the Olympics get underway, such as: massive surges in food demand;

a massive surge in population density; travel surges and the inevitable mixing of global pathogens that all the tourists will bring from their native lands, like 'flu, herpes, HIV/AIDS, hepatitis A/B/C, measles (an epidemic is running right now in Switzerland), all the list of sexually transmitted diseases, but also dengue fever and chikungunya or yellow fever. All of which will homogenise in China's lackluster bio-safety environment and produce who knows what? A neoplague? A global epidemic?

To make sure we have our Chinese Olympic Stew recipe correct, let's swirl this all up in the brown smoggy haze of Beijing, and add in several heaps of bustling food vendor kiosks, mix in long nights of ethanol inebriation and incubate at 98.6 degrees Fahrenheit in the masses of human bodies for a few weeks and then patiently wait to see what single or combination of pathogens replicate. I think we have it – a good Chinese stew!

The scenario is very easy to envision. Athletes and tourists come from different countries around the world; they gather in Beijing and have fun running or watching the Olympics. At the same time people from remote areas in China come to Beijing, for example to deliver food or to try to have their part of this multibillion-dollar cake. All of them meet on the streets, in stadiums, in public transports, in marketplaces, at food kiosks in hotel lobbies or even in beds. They talk together, hit the same elevator buttons, shake hands, eat together, turn the same door knobs, drink together, cough together, shake hands again, talk more, eat more, flush the same toilet levers, and drink again. A certain number of them will even have sex together. Once all of that is done, everybody goes back home, happy from the fabulous Olympics. They take the plane, have a new jetlag, more time in an air-conditioned environment, they are dehydrated and stressed again (perhaps even have sex again), but finally they are back home. Home sweet home. But then, who knows? H5N1 + EV71 + herpes + HIV/AIDS + hepatitis +/-? The equation can be very simple or very complicated, and the results can be uncertain at best.

One thing is certain: who would

worry about WMDs during the Olympics when compared to this pathogen-rich biological "Chinese Stew"? Maybe we underestimate the bio-safety potential of this major event. Even more concerning is the recent large earthquake that China has suffered. Surely this natural catastrophe is currently taxing every bio-safety resource in China's vast supply system to the maximum. While expressing concern and condolences to China and her people during this time of tragedy and recovery, we must remain sober to the fact that this will add yet another bio-safety factor into the Olympic environment. Will China rise to the challenge or will this be one step further down the treacherously slippery bio-safety slope? Time will tell and ultimately we should remain optimistic, but we will certainly see what happens in the weeks and months following the Olympics. Please don't bring back any pathogenic souvenirs! I'll forego any "Chinese Stew"...for now. May the Olympics in China be both a global athletic and bio-safety success. Otherwise, the latter may affect all of us.



Asian viruses will stretch the public health system ©DoD