

World AIDS Day

The World AIDS Day campaign is now in its twenty-first year. The overall theme for the 2009 World AIDS Day, which was held on 1 December, was universal access and human rights, and this theme was interpreted in different ways by individual nations. In the United Kingdom, where >85,000 individuals are HIV positive, the campaign was entitled 'HIV: Reality' and focused on the reality of living with HIV today, using true accounts of how an HIV-positive diagnosis has affected the day-to-day lives of individuals. Worldwide, the latest data released by the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the WHO revealed that, although there were ~2.7 million new infections in 2008, this is a 17% reduction in new infections compared with the situation 8 years ago. Most progress has been made in sub-Saharan Africa, where there were 400,000 fewer new infections in 2008 than there were in 2001. Dr Margaret Chan, Director General of the WHO, commented, "We cannot let this momentum wane. Now is the time to redouble our efforts and save many more lives." worldaidsday.org/UNAIDS

The heat is on for JEV

The flavivirus Japanese encephalitis virus (JEV), which is closely related to West Nile virus and St Louis encephalitis virus, is the most common cause of encephalitis in Southeast Asia. Between 30,000 and 50,000 cases are reported annually, and the case fatality rate is typically 20–30% but can be as high as 60% in some outbreaks. The life cycle of JEV is enzootic, involving wading birds and domestic pigs as reservoirs. Transmission is through the bite of an infected female *Culex* mosquito and occurs primarily in rural agricultural areas. In India, the main transmission season is between July and December; in 2009, the provisional data suggest that there have been more than 600 deaths from JEV in India, mainly in the northeastern state of Uttar Pradesh. An effective vaccine is available, and large-scale immunization campaigns targeting children are carried out annually. Disturbingly, however, it has been reported that more than 1 million doses of JEV vaccine had to be disposed of in 2009 owing to a failure to maintain an adequate cold chain. This news highlights the often unappreciated problems that the requirement for a cold chain can pose for large-scale vaccination campaigns. **ProMED Mail**

Global effect



The broiler poultry industry is controlled by a small number of companies worldwide and involves just a few breeding lines. Broiler chickens are reared in vast numbers in confined spaces, and infectious diseases, in particular *Staphylococcus aureus* infections, pose a great problem. Ross Fitzgerald and colleagues investigated the population genetics of avian *S. aureus* strains and found that most of the isolates they examined from healthy and diseased chickens belonged to the clade serotype 5 (ST5), which is most commonly associated with humans. Further examination of the evolutionary origins of the poultry ST5 isolates revealed that these isolates evolved by a single jump from a human host in or near Poland approximately 38 years ago and were subsequently widely disseminated to three continents. This unusual human-to-animal jump is just one example of the impact that human activities and globalization can have on pathogen emergence. **Proc. Natl Acad. Sci. USA**

Homing in on vibrios

Unusually, the genomes of all members of the Vibrionaceae (a family of Gram-negative bacteria that includes the important human pathogen *Vibrio cholerae*) comprise two circular chromosomes. Replication initiation of the larger chromosome I proceeds through DnaA, and replication initiation of the smaller chromosome II proceeds through the activity of the initiator RctB at the origin, *oriCII*. RctB is conserved throughout the Vibrionaceae. In a recent paper in *PLoS Pathogens*, researchers

from Matthew Waldor's laboratory present the results of a high-throughput cell-based screen to identify inhibitors of RctB. Screening a library of ~138,000 small molecules, they identified vibrepin (3-(3,4-dichlorophenyl)cyclopropane-1,1,2,2-tetracarboxitrile) as being suitable for further analysis. Vibrepin inhibited the growth of six different *Vibrio* species and showed cidal activity against *V. cholerae*. Analysis of the biochemical activity of vibrepin demonstrated that it blocked RctB-mediated unwinding of *oriCII*, possibly by promoting the formation of non-functional RctB complexes. As vibrepin also inhibited the growth of *Bacillus subtilis* and *Staphylococcus aureus*, it must have a non-RctB target in these Gram-positive species, but it could nonetheless be a suitable starting point for the development of Vibrionaceae-specific antibiotics. **PLoS Pathog.**

Ex vivo model for amoebiasis

The intestinal infection amoebiasis is caused by the enteric protozoan parasite *Entamoeba histolytica* and affects an estimated 50 million individuals each year, with ~100,000 deaths. Writing in *PLoS Neglected Tropical Diseases*, Elisabeth Labruyère and colleagues present an *ex vivo* model of amoebiasis that involves infection of human colon explants and that has allowed the early steps in *E. histolytica* invasion of the intestine to be examined for the first time. Immunohistological analysis and scanning electron microscopy revealed that *E. histolytica* infection destroys the protective mucus layer overlying the colonic epithelium in 2 hours and causes enterocytes to detach, and that the parasite penetrates into the lamina propria through the crypts of Lieberkühn. Previous work had identified amoebapore A, cysteine protease A5 (CP-A5) and the galactose-N-acetylgalactose (Gal-GalNAc) lectin as key *E. histolytica* virulence factors. Analysis of the roles of these factors in the *ex vivo* infection model showed that the Gal-GalNAc lectin and amoebapore A are not required for trophozoite invasion, whereas CP-A5 might have an essential role in degradation of the extracellular matrix. **PLoS Negl. Trop. Dis.**

In the News was compiled with the assistance of David Ojcius, University of California, Merced, USA. David's links to infectious disease news stories can be accessed on Connotea (<http://www.connotea.org>), under the username NatureRevMicrobiol.