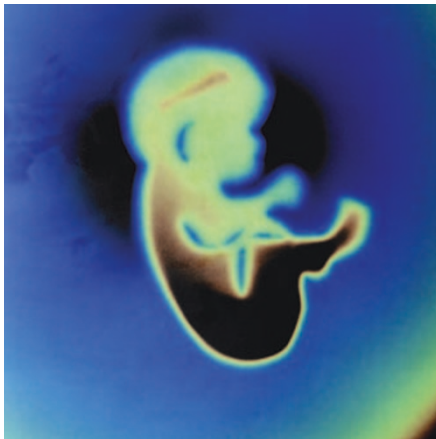


## DISEASE WATCH | IN THE NEWS

## Hope for congenital CMV infection?



Congenital cytomegalovirus (CMV) infection is the most common congenital infection in newborns, with an estimated 1% of newborns infected. Of those, 10–20% will show symptoms of the infection, which can include jaundice, hepatomegaly and splenomegaly, and there can be clinically significant sequelae in 50% of those with symptomatic infection. Pregnant women with a primary CMV infection (an infection acquired during pregnancy, rather than being a recurrence of a latent infection) have a 40% chance of passing the infection on to the baby. The infection can be diagnosed in infected mothers and newborns, but currently no treatment is available. However, encouraging results of intravenous treatment with CMV-specific hyperimmune globulin have recently been reported in the *New England Journal of Medicine*. In a prospective cohort study of 157 women with primary CMV infection, of the 31 women given the hyperimmune globulin therapy, only one gave birth to a CMV-positive baby, compared with seven out of fourteen untreated women. Although these data are promising, much further work is required, including a more rigorous, randomized, prospective placebo-controlled study. **NEJM**

## Encephalitis outbreak in India

More than 3,000 cases of Japanese encephalitis have now been reported in the Indian province of Uttar Pradesh, and it is believed that more than 800 people have died, mainly children under the age of 15. Some 30–50% of survivors will have neuropsychiatric sequelae. Japanese encephalitis is restricted to Asia, where it is the leading cause of viral encephalitis, with up to 50,000 cases reported annually. It is

transmitted by *Culex tritaeniorhynchus* and *Culex vishnui* mosquitoes; both species have been detected in affected villages in Uttar Pradesh at high density. Japanese encephalitis outbreaks appear to be cyclical in nature, with large-scale outbreaks occurring every 4–5 years; the underlying reasons for disease cycling remain unknown. The Indian government has responded to the outbreak by sending 300,000 doses of an inactivated virus vaccine; three inoculations are required over a 30-day period. A cheaper, single-dose vaccine is available in China, but cannot be used in India without clinical trials and regulatory approval. **WHO**

**E. coli O157 back in the UK**

There has been widespread publicity in the UK media for an outbreak of verotoxin-producing *Escherichia coli* (VTEC) O157 in school children in south Wales. To date, the >140 cases have been almost exclusively in children, and ~30 different schools have been affected. Given the large numbers of schools involved and the fact that the single adult case was in an adult who supervised school meals, the attention of the National Public Health Service for Wales has focused on foodstuffs used in school meals. The source of the outbreak has not been officially confirmed but is thought to be a supplier of cooked meats. Officials announced towards the end of September that they thought the outbreak had peaked, but the number of cases rose again a few days later. Members of the Welsh assembly have agreed that an inquiry should be held into the outbreak, but at the time of going to press no agreement had been reached on whether the inquiry will be held in public. **BBC**

## Avian influenza update

Another death has been confirmed in the ongoing avian influenza outbreak in Indonesia, bringing the total number of laboratory-confirmed cases at the end of September to four, with three deaths and another nine probable cases. The Indonesian authorities are understandably being careful about the screening process to obtain an accurate diagnosis of H5N1 infection, with samples being sent to WHO reference laboratories. Highly pathogenic H5N1 avian influenza is now endemic in poultry in many parts of Indonesia. Senior WHO expert Dr David Nabarro has been chosen to lead the UN response to avian influenza and the potential pandemic in humans, with his appointment as Senior UN System Coordinator for avian and human

influenza. Also this month, at the Second European Influenza Conference, the European Scientific Working Group on Influenza called for the creation of a European Influenza Task Force to coordinate the European response. Additionally, a study in the *Lancet* warns that influenza viruses are becoming increasingly resistant to the M2 inhibitors amantadine and rimantadine, cause for concern for those countries that had been considering stockpiling these drugs. **WHO/Lancet**

## Most infectious prion particle characterized

The main neuropathological feature of the transmissible spongiform encephalopathies is the accumulation of aggregates of an abnormally folded form of a host protein, the prion protein or PrP, often in the form of amyloid fibrils. However, a study from researchers at the NIAID Rocky Mountain Laboratories published in a recent issue of *Nature* has revealed that it is not the large fibrils but rather small, non-fibrillar particles containing between 14 and 28 PrP molecules that are most infectious. The authors used flow field-flow fractionation to break up large prion-protein aggregates and fractionate them according to size, then assessed the infectivity of the different size fractions by intracerebral inoculation into hamsters. The authors then calculated the number of abnormal prion-protein molecules present in the most infectious fraction. As well as noting that particles containing 14–28 PrP molecules are most infectious, the authors also found that infectivity was absent in particles containing fewer than five PrP molecules. These results are consistent with research in other neurodegenerative diseases caused by protein aggregation, such as Alzheimer's disease, which has also shown that small particles are more infectious than large fibrils. **Nature**



## Men fail to come clean

A survey of more than 6,000 people has revealed that fewer men than women wash their hands after using a public toilet. The observational survey, which was carried out by the American Society for Microbiology and the Soap and Detergent Association to highlight National Clean Hands Week, took place at six major sites within four main cities in the United States, including Grand Central station and Penn station in New York. Ninety percent of women washed their hands after using the toilet compared with only 75% of men.



Interestingly, the results for both men and women from the observational survey were at odds with results from a telephone survey, with 97% of women and 96% of men claiming on the telephone that they always washed their hands. So, although people claim to know the importance of hand washing in preventing the spread of infectious diseases, this is not always reflected in their actions. Also with good timing for National Clean Hands Week, a paper in *Antimicrobial Agents and Chemotherapy* found low rates of adverse cutaneous reactions to alcohol-based hand rubs after the introduction of a hand-hygiene regime at a large hospital in Melbourne, Australia. **ASM**

## Bats are the SARS source

According to two independent observations published recently in *Science* and *PNAS*, bats are the most likely source of the SARS coronavirus (SARS-CoV). Bats are known

reservoirs for many different viruses, perhaps most notably in recent years members of a novel paramyxovirus family, the Henipaviruses. In the *Science* paper, researchers found evidence for the presence of a SARS-CoV in three horseshoe bat species, *Rhinolophus pearsoni*, *Rhinolophus macrotis* and *Rhinolophus ferrumequinum*, and in the *PNAS* paper a SARS-CoV was detected in a fourth species, *Rhinolophus sinicus*. The viruses detected are closely related to the human SARS-CoV. **Science/PNAS**

## 7-valent success

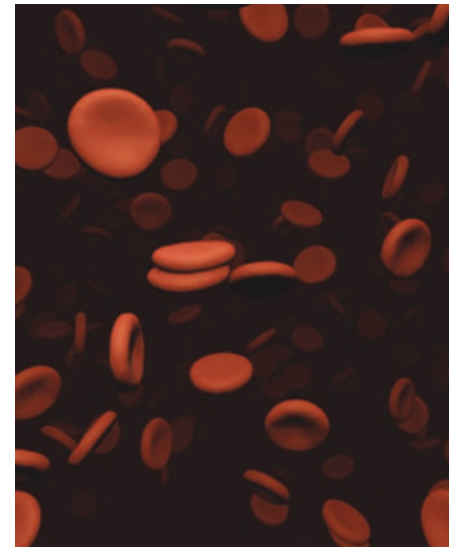
A report in the *Morbidity and Mortality Weekly Report* reveals that the decline in the incidence of invasive pulmonary disease (IPD) in both children and adults in the USA that was observed in 2001 and 2002 continued throughout 2003. The decline occurred following the introduction of a 7-valent pneumococcal conjugate vaccine (PCV7) against *Streptococcus pneumoniae* for use in children under five years of age in 2000. Although reductions were observed in the infections caused by the pneumococcal serotypes that are targeted by the vaccine, the greatest effect of PCV7 was on herd immunity — in 2003, twice as many cases of IPD were being prevented through effects on herd immunity rather than direct effects on vaccinated children. Some replacement disease was observed, and ongoing surveillance of vulnerable populations will be required to assess when or if the composition of PCV7 should change. **CDC**

## One-stop syphilis treatment?

A single azithromycin pill could be a suitable replacement for the traditional intramuscular injection of penicillin as a treatment for early syphilis, according to a recent report in the *New England Journal of Medicine*. Injection of penicillin G benzathine has long been the recommended treatment for syphilis and is very effective, but could be problematic in developing countries where access to clean needles cannot be guaranteed. In a randomized, controlled trial involving 328 subjects in the Mbeya region of Tanzania, the cure rates observed in the azithromycin treatment group were comparable to that of the penicillin treatment group (97.7% and 95%, respectively). However, the future of azithromycin as a syphilis treatment is uncertain owing to the recent emergence of azithromycin-resistant *Treponema pallidum*.

**NEJM**

## Malaria parasite caught in the act



A paper in a recent issue of *Current Biology* provides evidence that the so-called 'burst dispersal' model for the release of *Plasmodium falciparum* merozoites from red blood cells is correct. Using multi-channel laser scanning confocal microscopy, and with the red-blood-cell membrane and the erythrocyte-derived membranes labelled with different fluorophores, the authors caught infected red blood cells (or schizonts) in the act of bursting, and were able to record the process in some wonderful movie files available as online supplementary data with the paper. Their results not only support the burst dispersal model, they also allow the authors to propose a detailed sequence of events for merozoite release, which involves morphological changes in the schizont before the rupture of the red-blood-cell membrane. The released parasites are free from membranes, and therefore immediately able to invade neighbouring cells. **Curr. Biol.**

## Outbreak news

**Cholera.** There is no let-up in sight for the cholera outbreaks occurring in West Africa. Almost 50,000 cases have been reported in eight different countries, with Guinea-Bissau and Senegal the worst affected.

**Yellow fever.** An outbreak of yellow fever has been reported in three districts in Burkina Faso, in the southeast of the country near the border with Côte d'Ivoire. A mass vaccination campaign is being planned.

*In the News* was compiled with the assistance of David Ojcius, University of California, Merced, USA.