

## DISEASE WATCH | IN THE NEWS

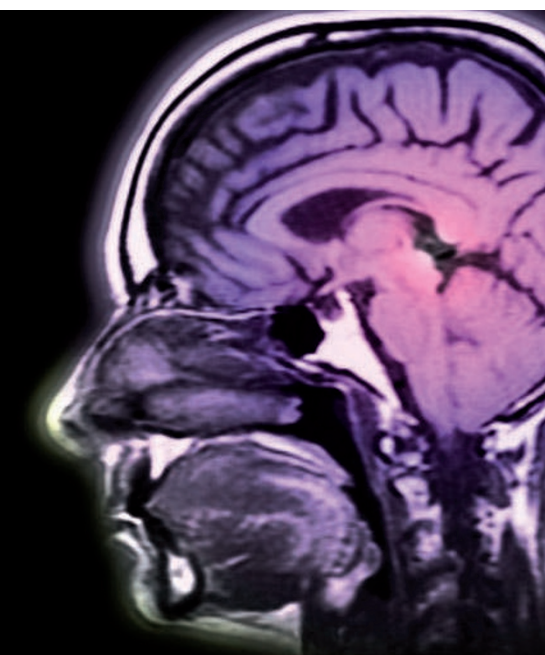
**Dog influenza vaccine**

The approval of a vaccine directed against the H3N8 strain of influenza promises relief to sufferers: dogs. The H3N8 strain was detected in dogs for the first time in 2004, in the United States, after it had crossed over from horses, in which it has been known to cause disease for over 40 years. Dog influenza is most harmful for snub-nosed dogs, which have a short, bent respiratory tract and therefore have more difficulty moving air in and out of their lungs. Estimates place the number of infected dogs at 10,000 in the United States, although the actual number is not known. H3N8 is highly contagious and can be spread by direct contact between dogs, and even by sharing a water bowl. The new vaccine, produced by Intervet/Schering-Plough Animal Health, consists of inactivated virus and reduces the severity of lung lesions and the duration of coughing and viral shedding. To protect the human population, influenza vaccine manufacturers have been asked by the WHO to complete production of the 2009 seasonal influenza vaccine before beginning work on an H1N1 vaccine.

*New York Times*

**How *Neisseria* enters the brain**

*Neisseria meningitidis* recruits the apical junction complex of endothelial cells, through signalling initiated by the type IV pilus, to weaken the blood–brain barrier and enter the brain, report Mathieu



Coureuil and colleagues. *N. meningitidis* is the cause of cerebrospinal meningitis, an inflammation of the lining of the brain that can have serious consequences, including loss of hearing and, in some cases, death. Coureuil and colleagues now show that binding of the bacterium to endothelial cells leads to the relocalization of components of both adherens junctions (including vascular endothelial cadherin, p120 catenin and  $\beta$ -catenin) and tight junctions (ZO1, ZO2 and claudin 5) from sites of cell–cell contact to the sites of bacterial adherence. Relocalization requires active CDC42, Par6 and protein kinase- $\zeta$  in the host cell and type IV pili in the bacterium, although retraction of the pili is not required. Binding of the bacteria increased the permeability of a host cell monolayer, an effect that could be blocked with pseudosubstrate inhibitors of protein kinase- $\zeta$  and that was greatly reduced in infections with mutant bacteria that do not make the type IV pilus. How the adherence of the pilus to the host induces signalling, and the subsequent reorganization of the apical junctions and tight junctions in the host, remains to be determined. *Science*

**Lower prices on HIV meds**

Third-party price negotiations can decrease the price of antiretroviral (ARV) medication, a study by Waning and colleagues finds. The price of anti-HIV medication is a major impediment to the treatment of patients in developing nations, prompting Waning and colleagues to compare three different approaches to reducing the price of ARVs: third-party price negotiations (in this case carried out by the Clinton Foundation HIV/AIDS Initiative), increased purchase volume to exploit economies of scale, and tiered pricing systems, in which lower and middle income countries received discounted prices for brand name medicines. In total 7,253 large drug procurements that had been reported to the Global Fund to Fight AIDS, TB and Malaria Price Reporting Mechanism and the WHO Global Price Reporting Mechanism, which track medicine purchases made by HIV/AIDS, malaria and tuberculosis programmes in low and middle income countries, were examined. Only third-party price negotiations were found to lead to significant price reductions; large-scale purchases had little effect on prices and tiered pricing led to price increases in some cases. *Bull. WHO*

**Obesity protects against TB?**

The ability of our body to store fat may protect us from tuberculosis (TB), speculates Jesse Roth of The Feinstein Institute for Medical Research. Increased fat stores are known to stimulate the release of lipokines and to induce chronic inflammation. Roth now proposes that this inflammation can be protective, especially against TB. As TB has affected humans worldwide for millennia, this could provide a new explanation for why humans tend to build up fat reserves. Chronic inflammation would lead to increased protection against infections and provide an advantage to the individual. However, when food is abundant, especially highly calorific food, our ability to store fat can lead to obesity and all its detrimental effects. Our ability to store fat may therefore be a function of times when protection against disease was a bigger concern than obesity. *JAMA/New York Times*

**Mosquitoes poison their own pools**

A promising new approach to vector control exploits the intrinsic behaviour of mosquitoes to deliver insecticides to the sites where mosquitoes lay their eggs. Pieces of cloth that are impregnated with insecticides that kill mosquito larvae, but not the adults, are placed in areas where the mosquitoes rest. When a mosquito lands on the cloth, it will pick up some of the insecticide, which is then released into the aquatic pool when that mosquito lays eggs. The insecticide deposited in the water is sufficient to kill the larvae. A trial of this approach in a cemetery in Peru showed that by targeting approximately 5% of resting sites, the emergence of adult mosquitoes can be decreased by up to 98%. This approach decreases the amount of insecticide required in comparison to other methods, as only the resting places of the mosquitoes need to be targeted. Also, because the mosquitoes deliver the insecticide themselves, the sites where egg laying occurs are covered automatically.

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*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.