

DISEASE WATCH | IN THE NEWS

Tastes so good



A sweetened, cherry-flavoured, formulation of an anti-malarial is just as effective as a conventional bitter pill, raising hopes that children will be more likely to finish their courses of anti-malarials. Salim Abdulla from Ifakara Health Institute, Tanzania, compared the efficiency of the sweet anti-malarial pill, which contains artemether-lumefantrine and is designed to disperse in water, with the conventional pill, which is bitter and is dissolved into water, in 899 children aged 12 years or younger in Benin, Kenya, Mali, Mozambique and Tanzania. The sweet pill had a cure rate of 97.8% and the conventional pill had a cure rate of 98.5%. "Children prefer the cherry-flavoured medication and this improves the effective treatment of malaria," says Abdullah. If the flavoured pill receives further regulatory approval, it will be distributed to children in countries where malaria is endemic. The flavoured pill is expected to cost the same as the conventional bitter pill. *Lancet/SciDev.Net*

Tracing TB's origins

The 9,000-year-old skeleton of a woman and infant provide the earliest verified evidence of human tuberculosis (TB). Israel Hershkovitz, from Tel Aviv University, Israel, and colleagues excavated the bones from Alit-Yam, a Neolithic village in Israel dating from 9250–8160 years ago. The bones had the characteristic legions of TB, and PCR was used to identify five *Mycobacterium tuberculosis* genetic loci from the bone samples. Not only do these findings show that human TB is 3,000 years older than previously thought, they also shed new light on the origins of TB. "The infecting organism

is definitely the human strain of the [TB], in contrast to the original theory that human TB evolved from bovine TB after animal domestication," says study co-leader Helen Donoghue from the University College London Centre for Infectious Diseases & International Health, United Kingdom. The authors argue that whereas domesticated animals were not the source of TB, they may have supported a denser human population, thereby facilitating the transmission of TB.

PLoS ONE/HealthDay

Polio vaccine success in Nigeria

A monovalent oral polio vaccine, introduced in 2006, is making inroads into eradicating polio in Nigeria. Helen Jenkins, from Imperial College London, United Kingdom, and colleagues found that the new monovalent oral vaccine against type 1 polio — the most common form of polio in Nigeria — provides 67% coverage after a single dose and is 4 times more effective than the previously used trivalent oral vaccine, which provides 16% coverage against serotype 1 polio after a single dose. Furthermore, vaccine-induced immunity levels in children under the age of 5 more than doubled, to 56%, between 2005 and 2007. Despite optimism about the effectiveness of the monovalent vaccine and increased uptake levels, "further increases in coverage in Nigerian states" are still required, the authors write. *N. Engl. J. Med./BBC*

STIs in the electronic age



E-mails and the internet have revolutionized the way we communicate with one another and are now even used to inform people that they might have a sexually transmitted infection (STI). inSPOT, an internet service that allows people to inform sexual partners that they may be at risk for an STI, has been used by 35,000 people to send out over 50,000 e-cards since the site's launch in 2004. Senders can remain anonymous, if they

choose, and receivers are provided with links to test-site and STI information. Deb Levine, Executive Director of Internet Sexuality Information Services, and colleagues report in *PLoS Medicine* that "inSPOT has the potential to be a national and international resource".

Mobile phones are also increasingly being used for public health messages. Starting on 1 December 2008, Project Masiluleke will send out one million free text messages a day in South Africa to encourage people to get tested and treated for HIV and AIDS. In India, an *a capella* ringtone that repeats the word 'condom' 50 times has already been downloaded over 300,000 times since it was launched in August. *PLoS Med./Los Angeles Times/BBC/Nature Med.*

Defeating diarrhoea

An oral vaccine against rotavirus has reduced the incidence of infection in the United States dramatically. Each year, rotavirus, which causes vomiting and diarrhoea, is responsible for thousands of hospitalizations in the United States and kills more than half a million children globally. Jay Lieberman, of Focus Diagnostics, California, and colleagues assessed rotavirus testing results over the past 3 years and found that the rate of infections had fallen by 76% since the vaccine was introduced in 2006. The Merck-manufactured RotaTeq vaccine is administered in 3 doses, at 2, 4 and 6 months. Notably, rotavirus infection rates even fell in non-immunized, and older, children. "A 2-month old who was vaccinated was less likely to infect the older brother or sister, or other children in day-care who weren't vaccinated," says Lieberman. According to CDC data, only one-third of 13 month olds have received 3 doses of the vaccine.

Efforts are underway to make RotaTeq and Rotarix, a similar vaccine that is manufactured by GlaxoSmithKline and that was approved by the Food and Drug Administration (FDA) in April, available in developing countries. *ICAAC/IDSA/Bloomberg/Reuters*

HIV on the rebound

Although combination antiretroviral therapy (cART) can be used to suppress HIV levels, HIV quickly becomes resurgent through an unknown mechanism when cART is interrupted. By performing longitudinal clonal evolutionary studies

in 20 patients chronically infected with HIV-1 who had undergone structured treatment interruptions, Beda Joos of University Hospital Zurich, Switzerland, and colleagues showed that rebounding virus was homogeneous, suggesting that the virus had a monoclonal or oligoclonal origin during reactivation. These findings indicate that, contrary to expectations, HIV rebounds from latently infected cells rather than from continuing low levels of replicating virus. Jeffrey Laurence, Director of the Laboratory for AIDS Virus Research at Weill Medical College of Cornell University, New York, says that “these studies imply that current anti-HIV drug regimens are about as potent as they can be, completely blocking viral replication, and the cell-to-cell transmission of the virus.” *Proc. Natl Acad. Sci. USA/HealthDay*

One for all, and all for one

A combination of three drugs is highly effective in preventing the replication of influenza virus, potentially providing a new strategy for controlling outbreaks of avian flu. Reporting at the 48th ICAAC–IDSA 46th Annual Meeting, Jack Nguyen, of Adamas Pharmaceuticals, California, and colleagues tested their combination therapy, called triple combination antiviral drug (TCAD), in cell culture and mouse models of influenza. Owing to the “surprising and unanticipated synergistic interactions of the three drugs,” TCAD blocked replication of several influenza subtypes, including H1N1, H3N2 and H5N1. According to the authors, whereas three-drug combinations have proven to be effective for controlling other infections, such as HIV, their importance has not yet been realized for influenza virus. The authors add that “TCAD represents a viable solution to meet the treatment challenges of yearly influenza epidemics and a potential pandemic, including the deadly H5N1 strain.” *ICAAC/IDSA*

Bad blood

Patients who receive blood that has been stored for 29 days or longer are at much higher risk of contracting hospital-acquired diseases than patients who receive blood that has been stored up to 28 days. Current FDA regulations stipulate that blood must be discarded after 42 days of storage. However, David Gerber, of Cooper University Hospital in Camden, New Jersey, and colleagues now report that patients who have received

blood that is 29 days or older are twice as likely to succumb to infections — including pneumonia, urinary-tract infections and sepsis. These results, announced at a meeting of the American College of Chest Physicians, were based on the observation of 422 patients who had received blood transfusions from July 2003 to September 2006. Despite these observations, Gerber does not endorse changing the 42-day FDA regulations, as this would reduce the available blood supply.

Reuters



The power of the media

Which disease do you think is more severe: Anthrax or Tularaemia? According to recent findings by Meredith Young and colleagues from McMaster University, Canada, your perception of disease severity depends on how much coverage the different diseases have received in the media. Researchers asked psychology and medical students to consider ten diseases that have had either high (Anthrax, West Nile virus, Avian flu, severe acute respiratory syndrome (SARS) and Lyme disease) or low (Tularaemia, Yellow fever, Hantavirus, Lassa fever and human Babesiosis) media coverage and rate the diseases for severity, disease-like status and prevalence. “Participants considered diseases that occur frequently in the media to be more serious ... than those that infrequently occur in the media, even when the low media frequency conditions were considered objectively ‘worse’ by a separate group of students,” the authors report. Moreover, they found that “estimates of severity also positively correlated with popular print media frequency.” Thankfully, students were also able to make non-media-dependent

decisions on the severity of different diseases when they were given objective information about the diseases. *PLoS ONE/HealthDay*

Curing Crohn’s?

Crohn’s disease could be caused by a lack of *Faecalibacterium prausnitzii*, report Harry Sokol, from the Institut National de la Recherche Agronomique, France, and colleagues. Previous findings show that there is a decrease in the abundance and biodiversity of Firmicutes in the intestines of patients with Crohn’s disease. Building on these findings, Sokol and colleagues used fluorescent *in situ* hybridization to analyse the mucosa-associated microbiota of patients with Crohn’s disease at the time of surgical resection, a treatment method for Crohn’s disease, and 6 months later. They found that a reduction in *F. prausnitzii* was associated with a higher risk of recurrence. Moreover, oral administration of either *F. prausnitzii* or of its supernatant reduced the severity of a mouse model of colitis. The authors propose that *F. prausnitzii* exhibits anti-inflammatory effects on cellular and mouse models of colitis in part because secreted metabolites block nuclear factor- κ B activation and interleukin-8 production. “These results suggest that ... using *F. prausnitzii* as a probiotic is a promising strategy in [Crohn’s disease] treatment,” the authors conclude. *Proc. Natl Acad. Sci. USA/BBC*

Outbreak news

Arenavirus infection. A ‘mystery disease’ that killed three people in Zambia and South Africa has been identified as a virus from the Arenaviridae family. In September, a tour guide from Lusaka, Zambia, was evacuated to Johannesburg, South Africa, showing symptoms of fever, myalgia, vomiting, diarrhoea, rash, liver dysfunction and convulsions, before dying. A paramedic and an intensive-care-unit nurse who cared for the patient later developed similar symptoms before also dying. In total, seven cases of infection have been reported. Arenaviruses are frequently carried by rodents. This is the first identification of an arenavirus causing human disease in a Southern African country.

WHO/Eurosurveillance

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.