DISEASE WATCH | IN THE NEWS

Outbreak news

Health authorities in Indonesia are still monitoring the dengue fever outbreak. In 12 of the country's 32 provinces this year's outbreak has seen an unusually high number of cases; however, the case-fatality rate has been lower than in previous years.

The WHO have received preliminary reports of an outbreak of Lassa fever in the Kenema district of Sierra Leone.

An emergency vaccination campaign has been launched in Chad to combat an outbreak of meningitis A in the north-east of the country, in an area that forms part of the meningitis belt.

In Australia, this year's Ross River virus season has brought a record number of cases. More than 1,400 people have been infected, including almost 500 in metropolitan areas, reflecting the movement of mosquitoes into cities.

New SARS alert

The Chinese Ministry of Health reported several new cases of possible SARS in Beijing and in a province in east-central China in April. Four cases are suspected and five have been confirmed, including one fatality. All cases are believed to be linked to lapses in safety procedures in the National Institute of Virology in Beijing, where two of the infected individuals worked; the Institute has been temporarily closed, and all staff are in isolation. So far, there is no evidence of widespread transmission in the community — all cases are linked to chains of transmission based on close personal contact with an identified case. **WHO/CDC**

Drug-resistant gonorrhoea

Preliminary data showing that the number of cases of drug-resistant gonorrhoea in the United States increased significantly in 2003, particularly among men who have sex with men, have prompted the CDC to issue a recommendation that fluoroquinolones are no longer used as first-line therapy for this patient group. The CDC Gonococcal Surveillance Unit found that the occurrence of fluoroquinolone-resistant *Neisseria gonorrhoeae* had increased threefold between 2002 and 2003 in men who have sex with men. Alternative treatment options for some patients, depending on their case history, include ceftriaxone or spectinomycin, both of which must be administered by injection and are therefore more expensive. **CDC**

DISEASE WATCH | FOCUS

Syphilis

BACKGROUND

Causative agent. Syphilis is a chronic infectious disease caused by the spirochaete *Treponema pallidum*. Syphilis is usually transmitted by sexual contact or from mother to infant, although endemic syphilis is transmitted by non-sexual contact in communities living under poor hygiene conditions. *T. pallidum* can also be transmitted by blood transfusion. In spite of provoking a strong humoral and cell-mediated immune response, *T. pallidum* is able to survive in the human host for several decades. After an incubation period of about 21 days, an ulcer (the primary chancre) appears at the site of inoculation. This resolves spontaneously and 6–8 weeks later is followed by the secondary stage, at which time the organism has disseminated via the blood stream and any organ can be affected. Tertiary syphilis, which can affect the skin, bones or central nervous and cardiovascular systems, can occur many years later[1]. In pregnant women, syphilis can lead to stillbirth or congenital infection of the neonate, resulting in neonatal death or late sequelae[2]. Parenteral penicillin remains the treatment of choice, and resistance to it has not been described. As *T. pallidum* divides slowly, a long-acting preparation is recommended.

Distribution. *T. pallidum* only infects humans; there is no animal reservoir. Venereal syphilis has a worldwide distribution[3] (FIG. 1). In common with other bacterial sexually transmitted infections (STIs), it is more common in poor populations who lack access to treatment, and in those with many sexual partners. Endemic syphilis and other non-venereal treponemal diseases, such as yaws, were controlled by penicillin mass treatment programmes in most endemic foci in the 1950s and 1960s, and represented one of the most successful health programmes ever implemented by the World Health Organization (WHO). However, these diseases are now reappearing in some rural populations in Africa and South-east Asia, sometimes in a clinically attenuated form[4].

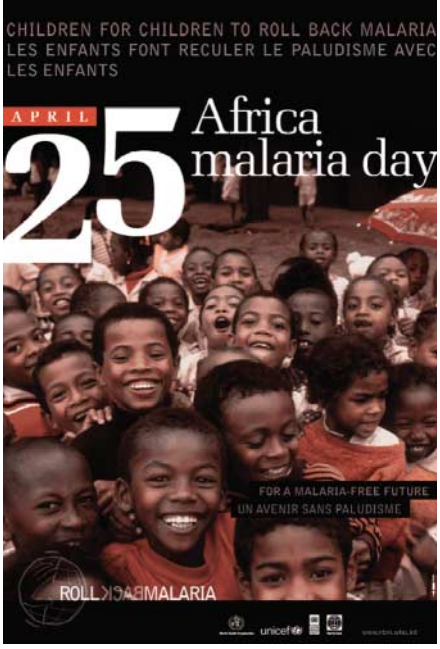
Current global status. The WHO estimated that 12 million new cases of venereal syphilis occurred in 1999, more than 90% of them in developing countries[3], with a rapidly increasing number of cases in eastern Europe[5] (FIG. 1). Recent outbreaks have been reported in several cities in Europe and North America among men who have sex with men[6]. In the United States, a programme for the elimination of syphilis was proposed in the late 1990s, but the number of reported cases has increased in the past 5 years[7].

RECENT DEVELOPMENTS

New basic knowledge. The genome of *T. pallidum* was sequenced in 1998 (REF. 8). The wealth of new information regarding its predicted physiological and biochemical functions and processes might facilitate research that generates novel diagnostic and vaccine targets, and yield some insights into the pathogenesis of syphilis and other treponematoses.

New tools and interventions. *T. pallidum* cannot be cultured *in vitro*. Diagnosis depends on the visualization of organisms using fluorescent or darkfield microscopy of smears from ulcer material, or on serology. The traditional approach to serodiagnosis is to screen with a non-treponemal test such as the rapid plasma reagin (RPR) test and confirm with a treponemal test such as the *T. pallidum* particle agglutination assay (TPPA). The RPR

Figure1 | Estimated new cases of syphilis among adults, 1999. The global total is 12 million.



Africa Malaria Day

This year's Africa Malaria Day on April 25th focused on children, with the slogan 'Children for Children to Roll Back Malaria', and the campaign hoped to raise awareness in children and allow children and young adults to become advocates for malaria control in malaria-endemic countries. The day marked the fourth anniversary of the Abuja Declaration, a commitment by African leaders and governments to halve mortality from malaria by 2010, and Dr Ebrahim Malik Samba, the WHO's Regional Director for Africa, issued a statement calling on WHO Member States to intensify their efforts to reach the Abuja goal. The WHO Director also spoke to highlight the WHO's position that malaria-endemic countries should adopt artemisinin-based combination therapies.

WHO

Focus on measles

The number of deaths from measles in the period 1999–2002 decreased by 30% worldwide, according to a recent announcement from UNICEF and the WHO. The goal of halving global measles mortality by 2005 could therefore be achievable. It is believed that a new WHO/UNICEF strategy — 80% routine immunization coverage combined with supplemental immunization activities in high-burden countries — has contributed to the reduction. The good news coincided with Vaccination Week in the Americas, when millions of people were expected to be immunized. However, measles is still a cause for concern in Japan, where the rates of measles mortality are higher than in other developed countries. Additionally, a small outbreak in America received press attention when it was traced to children who had been adopted from an orphanage in China.

WHO/UNICEF/CDC

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test is sensitive, inexpensive and simple to perform, but is often not available in primary healthcare settings because it requires cold storage for reagents and electricity to operate a rotator. New RPR reagents that are stable at room temperature are now commercially available, as are solar-powered rotators. Confirmatory assays are usually not available outside of reference laboratories in developing countries. Simple, rapid treponemal tests that do not require electricity or equipment are now available, and seem to have sensitivities and specificities comparable to the TPPA. The sexually transmitted diseases diagnostics initiative (SDI) is evaluating the performance and utility of these tests in six countries. New enzyme immunoassays that are both sensitive and specific have the potential to replace the traditional testing combination of non-treponemal and treponemal tests[9].

Successful treatment of syphilis should result in elimination of the organism from the body but, in practice, treatment success is usually defined in terms of serological response — a decreasing or negative RPR titre. Given the uncertainty surrounding the interpretation of syphilis serology, it is not surprising that there is still little consensus on recommended treatment regimens[7,10], although there is general agreement that parenteral penicillin should be the first treatment method. There is an urgent public health need for a single-dose oral treatment, and preliminary studies have indicated that a 2 gram dose of azithromycin might be effective[11]; however, several treatment failures have been recently reported from the United States[12]. Targeted mass treatment using azithromycin to control an outbreak of syphilis in injection drug users was not effective[13].

New strategies, policies and partnerships. In developing countries, the main priority is to screen pregnant women to prevent congenital syphilis. Successful programmes depend on the decentralization of screening services, so that women in primary health centres can be tested and treated at the same clinic visit. The introduction of decentralized testing in Haiti has been shown to reduce the incidence of congenital syphilis by 75% in 2 years[14]. New rapid treponemal tests will facilitate decentralized screening in other resource-limited settings. Many developing countries are now scaling-up programmes for the prevention of mother-to-child transmission of HIV. This offers an unprecedented opportunity to implement screening programmes for syphilis, which are universally recommended but rarely implemented.

CONCLUSION AND FUTURE OUTLOOK

The Millennium Development Goals call for a two-thirds reduction in mortality among children under five by the year 2015. In Mwanza, Tanzania, the prevalence of syphilis in patients attending antenatal clinics was only 4%, yet syphilis was responsible for 50% of stillbirths[2]. Congenital syphilis is also an important cause of mortality in live-born infants; 52% of live-born infants with congenital syphilis died in the first year of life in Haiti[15]. Now that decentralized syphilis screening is possible, and large sums of money are being made available to screen pregnant women for HIV, policy makers must not be allowed to overlook this opportunity to reduce perinatal and infant mortality.

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Online links

FURTHER INFORMATION
Millennium Development Goals: http://www.undp.org/mdg/abcs.html
SDI: http://www.who.int/std_diagnostics
WHO: http://www.who.int/en/
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