

## Lethal salmonella strain targets HIV-positive Africans

Fears are growing over an emerging form of intestinal disease in Africa, to which HIV-positive people are particularly vulnerable. Medical experts have expressed concerns that health infrastructures across the continent lack the capacity to detect or cope with the dangerous bacterium.

The scientists say that *invasive non-Typhoidal Salmonella* (iNTS) thrives in the blood systems of people in sub-Saharan Africa whose body immunity is weakened by HIV/AIDS. This revelation adds yet another dangerous disease to the list of opportunistic infections plaguing HIV-positive people in Africa.

According to a study by the Wellcome Trust Sanger Institute, a genomics research centre in the UK, the relatively new disease causes death in up to 45% of those infected. It has spread from two focal points in Southern and Central Africa to the rest of the continent, reports the study, published in *Nature Genetics*.

The study found that iNTS also targets people whose immunity is weakened by other conditions such as malaria and malnutrition.

The iNTS-causing bacteria, *Salmonella typhimurium*, has become resistant to the frontline antibiotics used to treat related blood-borne intestinal diseases.

"In many places in Africa, the basic microbiological facilities are not available, which makes diagnosis of iNTS difficult, as blood culture is the only de-

finite diagnostic for the disease," said the Sanger Institute's Robert Kingsley, one of the authors of the study. Francis Nyamiobo, a research physician at the Kenya Aids Control Project, said that iNTS could be a major cause of death in HIV-positive patients, but could go unrecognised due to 'diagnosis challenges'.

Scientists used whole genome sequencing to define a novel lineage of *Salmonella Typhimurium*, which is causing a previously unidentified epidemic across the region. They discovered that its genetic makeup was evolving into a more typhoid-like bacterium, able to spread efficiently around the human body.

From sequenced samples, the team created a phylogenetic or 'family tree', depicting the pathogen's evolution. This enabled them to date when each sample first emerged and overlay this with geographical information about where samples came from.

Kingsley recommended further studies to establish whether the pathogen was being transmitted exclusively through humans or whether a zoonotic (animal) reservoir existed as well.

"We need to understand the transmission routes to address the hypothesis that this pathogen is behaving in a different mode from that we normally associate with NTS," he explained.

## Africa becomes largest Chinese medicine export market

Africa has become the largest export market for medicine made by China and one of the fastest-growing markets for Chinese medical products. Statistics released by the China Chamber of Commerce for Import and Export of Medicine and Health Products showed the value of medical products exported from China to Africa from January to September this year totaled US\$1.47 billion, an increase of 13.48% year on year. The growth rate of exports to Africa was higher than that for European and North American markets in the same period. 'Africa now has a population of about 900 million, accounting for 12%

of the whole world, so it has large demand for medical products,' said Cao Gang, director of CCCMHPIE. Chinese medical producers exporting medical products to Africa have played a great role in the African market in recent years, and China is changing the historical lack of medicine there, Cao said. In fact, the volume of medicine that China imports to Africa is growing at a faster rate than the volume it is exporting to Southeast Asia, Mexico, and Russia, according to the official. Purchasers from Africa attending an import-export fair in China's Guangdong Province said that the low prices and good quality of China's medical products were the major reason they chose to import.

## Cardiovascular disease: tougher targets needed to curb global risk

Leaders in cardiovascular disease prevention and control have published a paper calling for urgent action to reduce premature mortality by 25% by 2025

The Global Cardiovascular Disease Taskforce – a group of eminent experts who represent five leading heart-health organisations – is calling on governments and the CVD community to accelerate progress by supporting 10 evidence-based targets. CVD is the leading cause of death worldwide, killing 17.3 million people a year. Around 80% of these deaths are in low- and middle-income countries where human and financial resources are most limited to address them.

The CVD Taskforce paper can be downloaded via <http://www.global-heart-journal.com>.

## Botswana to launch health hub with support of Swiss NGO

Health research in Botswana has received a boost with the forging of a new partnership between health and innovation organisations in Botswana and Switzerland.

The Botswana Innovation Hub (BIH), a government-owned innovation centre, and the Geneva-based Council on Health Research for Development (COHRED), have signed a memorandum of understanding to promote health research and development.

The MoU sets out that the two organisations will work together towards the development of an HIV/AIDS centre of expertise at the Gaborone hub.

Director of Cluster Development at the BIH, Budzani Tacheba, said that through its wide range of support services, the HIV/AIDS centre would have a positive impact on ordinary Botswanans, both directly and indirectly.

The HIV prevalence rate for 15 to 49-year-olds in Botswana is 24.8%. In sub-Saharan Africa, there were an estimated 22.5 million people living with HIV resided in 2009, representing 68% of the global HIV burden.

The new partnership will also mobilise funds for research and innovation, and work to plug health research and development gaps.

## Bananas could replace traditional crops as the world grows warmer



Climate change could lead to crops from the banana family becoming a critical food source for millions of people, a new report says.

Researchers from the CGIAR (Consultative Group on International Agricultural Research) agricultural partnership say the fruit might replace potatoes in some developing countries.

Cassava and the little-known cowpea plant could be much more important food crops as temperatures rise.

People will have to adapt to new and varied menus as traditional crops struggle, say the authors.

Responding to a request from the United Nations' committee on world food security, a group of experts in the field looked at the projected effects of climate change on 22 of the world's most important agricultural commodities. They predict that the world's three biggest crops in terms of calories provided – maize, rice and wheat – will decrease in many developing countries.

The authors argue that these changes 'could provide an opening for culti-

vating certain varieties of bananas' at higher altitudes, even in those places that currently grow potatoes.

The report describes wheat as the world's most important plant-derived protein and calorie source. But according to this research, wheat will face a difficult future in the developing world, where higher prices for cotton, maize and soybeans have pushed wheat to marginal land, making it more vulnerable to stresses induced by climate change.

One substitute could be cassava, which is known to be tolerant to a range of climate stresses and rice, almost unheard of in certain parts of Africa 20 years ago.

One of the big concerns among researchers is how to tackle the need for protein in the diet. Soybeans are one of the most common sources but are very susceptible to temperature changes.

The scientists say that the cowpea, which is known in sub-Saharan Africa as the 'poor man's meat' is drought-tolerant and prefers warmer weather and could be a reasonable alternative to soya. The vines of the cowpea can also be used as a feed for livestock.

In some countries, including Nigeria and Niger, farmers have already moved away from cotton production to growing cowpeas.

There are also likely to be developments animal protein sources says the report, including a shift to smaller livestock.

## Prostate cancer 'disproportionately overburdens' African males

'Black men of African heritage are almost twice as likely to be diagnosed with prostate cancer, more likely to have a more advanced cancer when it is diagnosed, and are almost four times more likely to die of the disease as compared with their male Caucasian counterparts.' The Minister of Health of The Bahamas, Dr the Hon. Perry Gomez was addressing a gathering of international healthcare professionals at the Second Biennial Science of

Global Prostate Cancer Disparities in Black Men conference.

Dr Gomez said as a result, prostate cancer has become a major public health problem in developing countries where the disease 'continues to be the most significant cancer proven to disproportionately overburden men of African descent.'

The conference was organised to 'study the etiology of this devastating disease, called prostate cancer, among at risk black men and to develop effective interventions to address prostate cancer disparities,' said Dr Gomez.

## 'Faecal transplant' clue to treating gut bug

The gut infection *Clostridium difficile* can be defeated by a cocktail of rival good bacteria, experiments in mice show.

When *C difficile* bacteria overwhelm the gut, it can be fatal and difficult to treat with antibiotics. A UK team have shown that a combination of six bacteria could clear the infection.

The study, published in *PLoS Pathogens*, builds on faecal transplant procedures, which are used to introduce competing bacteria.

## Global Fund investments secure treatment for an additional 10 000 people

The Global Fund to Fight AIDS, Tuberculosis and Malaria has announced a disbursement of US\$84 million to help Zimbabwe to achieve its plans for universal access to AIDS treatment by the end of 2012.

The new disbursement will cover the cost of life-saving antiretroviral drugs (ARVs) for an additional 10 000 new patients, bringing the total number of people on treatment with Global Fund support to 203 440 by the end of the year.

## New meningitis vaccine campaign for Ghana

Ghana is among the epidemic zones in sub-Saharan Africa that have been selected by the World Health Organization and its partners to benefit from a new meningitis vaccine known as conjugate vaccine.

The new vaccine is to combat meningococcal meningitis type A and will be administered in the age group 1 to 29 years in the three northern regions, which are prone to the disease.

Dr James Akpablie, Deputy Director of Public Health in charge of Upper East said the new vaccines would help curb the spate of disability that usually hit children as a result of an epidemic.

'Ten to twenty per cent of survivors have permanent impacts including hearing loss, brain damage and learning disabilities,' Dr Akpablie stressed.

The goal is to eliminate meningitis epidemics in sub-Saharan Africa through the development and large-scale utilisation of affordable conjugate vaccines.

## MSD celebrate 25 years of helping to eliminate river blindness



On World Sight Day, October 11th, the global healthcare leader MSD marked 25 years of successful collaboration to help eliminate river blindness. In October 1987, the company made the decision to donate the medication Mectizan (ivermectin) for the treatment of river blindness (onchocerciasis) to eliminate the disease as a public health problem. Efforts are focused in Africa, Latin America and Yemen, where river blindness is endemic. In 1998, MSD expanded the programme to include the elimination of lymphatic filariasis (LF), in African countries and Yemen where it co-exists with river blindness.

World Health Organization (WHO) Director General Dr Margaret Chan said, 'Twenty-five years after the dona-

tion of Mectizan through the Mectizan Donation Program, we are now close to eliminating river blindness from the Western Hemisphere. This remarkable achievement is also considered feasible in parts of Africa where we once hoped only to control the disease.'

The MDP is the longest-running disease-specific drug donation programme of its kind. Over 1 billion treatments have been donated to more than 117 000 communities in 28 countries in Africa, six countries in Latin America and in Yemen. To date, disease transmission has been interrupted – meaning no new cases have been identified – in four of the six affected countries in Latin America and nine regions in five African countries.

The MDP has been made possible through a unique private-public partnership which includes WHO, the World Bank, the Task Force for Global Health, the African Program for Onchocerciasis Control (APOC), and the Onchocerciasis Elimination Program for the Americas (OEPA), as well as ministries of health, non-governmental development organisations and local communities in endemic countries.

## New malaria-transmitting mosquito discovered in Kenya

A potentially dangerous new malaria-transmitting mosquito has been discovered in Kenya by scientists from the London School of Hygiene and Tropical Medicine. This species, which has never been implicated in the transmission of malaria before, poses a threat because it bites humans at times when they are not protected by current malaria control techniques.

The commonly caught *Anopheles* mosquitoes that transmit malaria in Africa generally prefer to rest indoors and feed on humans at night. This led to the development of programmes to stop the spread of malaria such as spraying insecticide in homes and issuing bed nets for people to sleep under. However, this mosquito was found to be active outdoors and bite people earlier in the evening soon after sunset.

Lead author Jennifer Stevenson, Research Fellow at the LSHTM said, 'We observed that many mosquitoes we caught, including those infected with malaria, did not physically resemble other known malaria mosquitoes. Analysis indicated that their DNA differed from sequences available for known malaria-transmitting mosquitoes in Africa. These unidentified mosquitoes are potentially dangerous because they are outdoor-active and early-biting, and so may evade the current indoor-based interventions to control mosquitoes. In this way, they may prevent the complete suppression of malaria transmission in the area.'

The researchers are now calling for increased entomological surveillance and a focus on integrating a wider range of malaria control tools to deal with the threat of outdoor transmission. Malaria is the leading cause of death in the country, with 25 million Kenyans at risk of the disease.

## Zambia and Global Fund sign agreement for HIV programmes

The Global Fund to Fight AIDS, Tuberculosis and Malaria has signed an agreement with the Churches Health Association of Zambia for US\$102 million to further support the national HIV response in Zambia.

Activities implemented by this grant will focus on prevention of mother to child transmission of HIV, promoting male circumcision, expanding and sustaining HIV treatment, reducing new infections, and maintaining a high coverage of impact mitigation. The grant will also strengthen counselling and testing and community-based HIV treatment adherence.

## Africa mobile phone subscriptions reaches 750 m

The number of mobile subscriptions in Africa will cross the 750 million mark during the fourth quarter of 2012 and reach one billion before the end of 2015, according to forecasts.

Africa has the highest rate of growth in mobile subscriptions among major world regions, with the number of mobile subscriptions in Africa forecasted to grow by 17.5% over the year to end-2012, a higher rate than in any other major world region and above the world average of 10.75% over the same period.

Africa has the world's second-biggest mobile market region by subscription count, behind Asia-Pacific but ahead of Latin America, Western Europe, Eastern Europe, North America, and the Middle East.

## Hormones in menstrual cycle 'affect asthma'

A woman's menstrual cycle affects the severity of respiratory symptoms, potentially worsening conditions such as asthma, a study suggests.

Norwegian researchers studied almost 4000 women, and found worse symptoms around ovulation. Writing in the *American Journal of Respiratory and Critical Care Medicine*, they said it may be possible to adapt women's medication.

All the women studied had regular menstrual cycles lasting 28 days or less, and none were taking hormonal contraceptives.

## Launch of surgical skills centre in Nairobi

A new surgical skills centre in East Central and Southern Africa opened its doors for training last month.

The Nairobi Surgical Skills Centre (NSSC) is a joint initiative between three partners: University of Nairobi (UoN), Johnson & Johnson (J&J), and Phillips Healthcare Technologies Limited. Located within the Department of Anatomy at the University of Nairobi, NSSC will be used for training of healthcare Professionals within Kenya and the rest of sub-Saharan Africa.

The centre will address the acute shortage of specialist skills among medical practitioners in sub-Saharan Africa, where countries have less than one surgeon per 100 000 people – well below WHO's 'Health for All' standard of one doctor per 5000 population.

Speaking during the signing ceremony, Prof. George Magoha, Vice Chancellor, UoN said, 'The centre will be a new and exciting opportunity for healthcare professionals to gain needed practical surgical skills that will enable them to thrive in the actual workplace.'

Johnson & Johnson sub-Saharan Africa General Manager, Mr Steve



COSECSA (College Of Surgeons, East, Central and Southern Africa) President Chris Samkange at the official opening of NSSC

Brockie, said the centre will help to advance skills of healthcare professionals across the region that will lead to better patient outcomes.

NSSC will provide a wide range of skills in open and laparoscopic surgery, general surgery, gynaecology, orthopaedics, general practice, theatre nursing, and other disciplines. The courses will be led by a faculty made up of renowned international and local experts in their respective specialities.

For further information, please visit <http://www.nssc.co.ke>.

## Cheap colour test picks up HIV

A cheap test which could detect even low levels of viruses and some cancers has been developed by UK researchers.

The colour of a liquid changes to give either a positive or negative result.

The designers from Imperial College London say the device could lead to more widespread testing for HIV and other diseases in parts of the world where other methods are unaffordable.

The prototype, which needs wider testing, is described in the journal *Nature Nanotechnology*.

The test can be configured to a unique signature of a disease or virus – such as a protein found on the surface of HIV.

If that marker is present it changes the course of a chemical reaction. The final result is blue if the marker is there, red if the marker is not. The researchers say this allows the results to be detected with 'the naked eye'.

Prof Molly Stevens said, 'This

method should be used when the presence of a target molecule at ultra-low concentration could improve the diagnosis of disease. For example, it is important to detect some molecules at ultra-low concentrations to test cancer recurrence after tumour removal. It can also help with diagnosing HIV-infected patients whose viral load is too low to be detected with current methods.'

Early testing showed the presence of markers of HIV and prostate cancer could be detected. However, trials on a much larger scale will be needed before it could be used clinically.

The researchers expect their design will cost 10 times less than current tests. They say this will be important in countries where the only options are unaffordable.

Fellow researcher Dr Roberto de la Rica said, 'This test could be significantly cheaper to administer, which could pave the way for more widespread use of HIV testing in poorer parts of the world.'

## Yellow fever in Sudan

The Federal Ministry of Health in Sudan has notified the World Health Organization of a yellow fever outbreak affecting 23 localities in Greater Darfur. As of 11 November 2012, a total of 329 suspected cases including 97 deaths were reported from this outbreak. Central and South Darfur have reported most of the suspected cases.

The government of Sudan has requested the International Coordinating Group on Yellow Fever Vaccine Provision (YF-ICG) to provide support for a reactive mass vaccination campaign.

## Global Fund-supported programmes effective in preventing and treating disease

The Global Fund to Fight AIDS, Tuberculosis and Malaria recently released a results report that shows a dramatic increase in the number of insecticide-treated nets distributed to protect families from malaria. The results also show that the number of people receiving antiretroviral therapy for HIV and those being treated effectively for tuberculosis rose sharply over the same period. Overall, the report shows that 8.7 million lives have been saved by programmes supported by the Global Fund since the organisation was formed in 2002. The report, entitled 'Strategic Investments for Impact: Global Fund Results 2012' includes data up to and including June 2012.

## Fertility 'predicted by mother's age at menopause'

Women may be able to better gauge their own fertility based on the age their mother went through the menopause, a study has concluded.

Women whose mothers had an early menopause had far fewer eggs in their ovaries than those whose mothers had a later menopause, a Danish team found. Women with fewer viable eggs have fewer chances to conceive.

The study, of 527 women aged between 20 and 40, was reported in the journal *Human Reproduction*.

Researchers looked at two accepted methods to assess how many eggs the women had – known as their 'ovarian reserve' – levels of anti-Mullerian hormone (AMH) and antral follicle count (AFC).