News bites

International

Lung infection identified using 'breath-print'

Identifying the 'smell' of different types of lung bacteria could lead to a simple breath test to diagnose infections, a study on mice, in the *Journal of Breath Research*, suggests. Breath analysis could reduce lung infection diagnosis times from weeks to minutes, the Vermont researchers said. Scientists have already researched breath tests to diagnose asthma and cancer and one expert described breath analysis as 'an important and emerging field'. Diagnosing bacterial infections traditionally means collecting a sample that is used to grow bacteria in the lab. These bacteria are then tested to classify them and see how they respond to antibiotics, which can take time.

Doctors see breath analysis, in contrast, as a fast and non-invasive method of diagnosing diseases. Researchers from the University of Vermont analysed volatile organic compounds (VOCs) given off in exhaled breath by different bacteria as well as different strains of the same bacterium. They infected mice with two bacteria that are both common in lung infections – *Pseudomonas aeruginosa* and *Staphylococcus aureus* – and sampled their breath after 24 hours. The compounds in their breath were analysed by means of a technique called secondary electrospray ionisation mass spectrometry (SESI-MS), which is capable of detecting extremely small elements of the chemicals present in their breath.

The researchers said they found a 'statistically significant' difference between the breath profiles of the mice infected with the bacteria and the mice that were uninfected. They also said they were able to differentiate between two species of bacteria and two different strains of the same *P. aeruginosa* bacterium. Jane Hill, co-author of the study, from the University of Vermont College of Medicine, said there were still some challenges to overcome. 'We are now collaborating with colleagues to sample patients in order to demonstrate the strengths, as well as limitations, of breath analysis more comprehensively,' she said. Richard Hubbard, professor of respiratory epidemiology at Nottingham City Hospital and a spokesman for the British Lung Foundation, said breath analysis was already being used to diagnose children with asthma. 'It could be a very useful tool for children with cystic fibrosis, for example, as a guide on how to treat them,' he added.

Mussels' stickiness inspires surgical adhesive

The lowly but very tenacious mussel has helped researchers develop new medical adhesives for sealing surgical incisions and other wounds. Mussels are able to stick to underwater surfaces such as rocks and ship hulls without being swept away by powerful waves or currents. They do this by producing a very powerful adhesive protein. Scientists used the chemical structure of that protein to develop non-toxic synthetic adhesives that work well on wet tissue and have other qualities that make them better than current products such as fibrin glue and cyanoacrylate adhesives. The new bio-adhesives are called iCMBAs. The researchers tested them on rats, and their results were published recently in the journal *Biomaterials*. Experts point out, however, that results achieved in animal testing often are not duplicated in humans.

The iCMBAs had two and a half to eight times better adhesion in wet tissue conditions than fibrin glue. They also stopped bleeding instantly, promoted wound healing and closed wounds without the use of stitches, said colleague Jian Yang, associate professor of bioengineering at Pennsylvania State University. Yang also noted that the iCMBAs are non-toxic and fully synthetic, which means they are less likely to cause allergic reactions. Side-effects in the rats were limited to mild inflammation.

Africa

Zimbabwe orders medical aids to pay up – or else

Medical aid societies in Zimbabwe that have arrears with doctors and hospitals of more than 60 days have been given a two-month ultimatum to pay up or have their licences revoked, Health and Child Welfare Deputy Minister Dr Douglas Mombeshora announced. All non-compliant societies were given temporary licences to last only up to 28 February but those that had been complying had their licences renewed for one year as usual. 'We want medical aid to work so that no one holding a valid card is

turned away. We have given each society that has not been complying with existing regulations a temporary licence and they are all aware of what they are supposed to sort out,' said Dr Mombeshora. He would not be drawn into naming the non-compliant societies, saying they would only reveal the information after 28 February.

Information gathered indicated that more than half of the 26 registered societies had temporary licences. Dr Mombeshora said some societies were using the bulk of members' contributions to pay hefty in-house salaries, thereby failing to pay up service providers within the agreed time frame. The 60-day time frame is a legal requirement agreed on by both societies and service providers in 2004 and is supposed to result in all cardholders accessing treatment at a provider of their choice. The same legal requirement also stipulates that both parties should come up with an agreed tariff so that members do not make a co-payment or incur shortfalls. But medical professionals and societies have been failing to agree for the past nine years, resulting in societies directing their members to particular providers – a clear indication that they might never agree. Government has now also given them the 28 February deadline to come up with a position, failing which it would also impose a tariff.

The Association of Healthcare Funders of Zimbabwe chief executive officer, Mrs Shylet Sanyanga, said their members were in the process of putting their houses in order. 'We are aware of the deadline and all our members are making efforts to have cleared outstanding arrears by 28 February,' said Mrs Sanyanga. She said the main reason why some societies were failing to pay in 60 days is that some companies were not remitting members' contributions. The Joint Advisory Council (a council comprising all players in the health sector) is expected to meet in March to announce names of societies licensed to operate. Some medical aid societies are reportedly facing collapse due to late remittances of contributions, low subscriptions and escalating costs of medical services. Late payment for services has also resulted in specialists such as anaesthetists, orthopaedic surgeons, neurologists and physicians demanding cash up front from patients, even those carrying valid medical aid cards.

South Africa

Bulk of hospital CEO posts filled – Motsoaledi

The health minister, Dr Aaron Motsoaledi, this January announced that 102 hospital CEO posts had been filled with a drive to recruit top candidates for the remaining 16 unfilled posts. He described it as 'well thought-out, well researched and following all the laws of the country and procedures in labour processes'. He said this was the outcome of firstly, the Green Paper on the National Health Insurance and, secondly, a *Government Gazette* re-designating all the hospitals in the country into five different categories, including a new category – central hospitals. The *Gazette* stipulated the type of hospital manager, including that they had to be a health worker with at least five years' experience in middle and top management of a healthcare system. Lastly it provides for the level at which each category of hospital should be managed, e.g. all the central hospitals are to be managed by a person not lower than at the level of Deputy Director-General. These criteria meant that quite a number of posts had to be advertised because either they were vacant or there was an acting manager or, more importantly, the incumbent did not meet the required criteria.

Early last year the National Department of Health had embarked on a 'massive' recruitment drive with 92 posts for hospital CEOs advertised and 30 at provincial level for 'convenience'. The decision to start this process was influenced by international best practice studies on public health hospital management and a locally commissioned study. It was found that hospital-specific management practices were strongly related to a hospital's quality of patient care and productivity outcomes. Improved management practices in hospitals were associated with significantly lower mortality rates and better financial performance. All the studies found that managers with some health qualifications scored higher on the competency assessment than those with no health qualifications. Hospitals with clinically qualified managers were associated with much better management scores. 'We want to state that this recruitment was a very difficult process because we were looking for the best quality. So in some instances we would interview for many hours but end up not appointing because nobody was found to be appropriate. We would then start a process of head-hunting and invite the head-hunted individuals to come for interviews. Hence this process took much longer than expected. But up to today there are hospitals where we could not as yet appoint, and the head-hunting process continues. It won't be wrong for you

to advertise for us in your papers "Wanted – best hospital CEO"', Motsoaledi added.

The Eastern Cape has not yet started this process for district hospitals because they were still re-categorising their hospitals, which were 'the most complex in the whole country'. All the CEOs are appointed with effect from 1 February 2013 and will start with training at the new Academy of Health and Leadership Management.

Cuban med schools for KZN

The KwaZulu-Natal Department of Health is to set up Cuban medical schools in the province to boost its delivery of primary health services, a key feature of the country's new National Health Insurance (NHI) plan. Announcing this at the Provincial Consultative Health Forum in Pietermaritzburg late in January, KZN Health MEC, Dr Sibongiseni Dhlomo, said a departmental delegation would visit Cuba later to explore the options. 'We know that as a country we are not producing enough doctors. The demand far exceeds our current output of doctors each year,' Dhlomo told conference delegates, which included senior government officials. 'We have only eight medical schools serving 52 million of our population while Cuba has 22 medical schools with a population of 11 million. With access to our own medical schools limited, it makes sense to bring the Cuban model here.' Department head Dr Sibongile Zungu said the initiative would be a joint venture between KZN and the Cuban government, 'so that it's cost-effective for both parties'.

'The cost of setting up a Cuban medical school locally was far cheaper than the cost of subsidising a medical student,' Zungu said. The reality was that the Cuban model reduced and prevented diseases through a primary healthcare approach, which was the cornerstone of South Africa's new health plan. Zungu described the South African system as being 'largely curative – where we treat, rather than prevent, diseases'. Highly sophisticated hospitals with specialised equipment further entrenched this curative approach, which the country could not afford or sustain considering the demand for basic healthcare. 'It costs us about R1 billion to set up a hospital, yet we can save a lot more and reinvest the same money by re-channelling our resources on the prevention of diseases,' Zungu explained. She said some nursing sub-campuses were also being reviewed for possible conversion into Cuban medical schools.

A medical partnership between South Africa and Cuba has been in place since the early 1990s. About 100 students are sent to study medicine in the Caribbean island country each year. The students receive full scholarships for the duration of their studies. These are funded by the SA Department of Health at a total cost for the six-year duration, which works out to about R1.1 million. This includes a monthly stipend. Requirements for admission into the programme are strict. Students must show academic excellence, come from poor backgrounds, and be prepared to work in the public sector on graduation – especially in rural areas, where the need for their services are greatest.

Approached for comment last night, a spokesman for the SA Medical Association, Mzukisi Grootboom, said they were not aware of the department's plan to set up Cuban medical schools in the province. Plans for 2013 would continue, he said. 'Next year, South Africa will send 1 000 medical students to Cuban medical schools, and this will be funded by the provinces,' Grootboom said, adding that the bulk of these students would come from KZN.

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