News in Brief

GREEN TEA'S HEALTH BENEFITS

Researchers from Yale University have found growing evidence that green tea's high concentration of anti-oxidants called catechins may be responsible for the 'Asian paradox', in which global health statistics indicate an inexplicably low incidence of lung cancer and heart disease despite the higher rate of smoking among Asians compared to Americans.

This trend is most marked in Japanese and Korean populations, where 186 out of every 100,000 Japanese men die of coronary heart disease each year (as opposed to 348 in the US). The death rate from lung cancer among Korean males is less than 40 per 100,000 versus 67 per 100,000 among Americans, while in women, the figures are 13 per 100,000 (Korea) compared with 45 per 100,000 (US) – despite the fact that 37% of Korean adults smoke, while only 27% of Americans do.

Besides mopping up oxygen-free radicals, scientists postulate that catchins may inhibit clot formation, block tumour formation or growth and exert effects on 'bad' LDL cholesterol. (*Published in the Journal of the American College of Surgeons*)

(Source: CNN Health)

CALCULATED RISK

Focus groups with patients found that most people are not motivated by numbers or bar charts where dangerously high cholesterol levels are concerned.

Brown University researchers propose the use of a HeartAge calculator to point out that risk factors like high cholesterol, high blood pressure, family history and current smoking 'age' the heart and increase the risk of heart attack. With enough risk factors, a 42-year-old man can have the heart of a 70-year-old, which makes him much more likely to suffer a heart attack or stroke.

That resonates. (*Published in the Annals of Family Medicine*)

(Source: CNN Health)

GOOD BLOOD AND BAD BLOOD

Donated blood has a limited lifespan, although this has been improved since the 1980s by preservative agents. In a retrospective study, Bennett-Guerrrero and colleagues at Duke checked the health records of patients who had undergone repeat cardiac surgery, with emphasis on patients who had faced a high risk of death. Less than 5% of patients who received blood stored between one and 19 days died while in hospital, but the death rate was about five times higher for those whose transfused blood had been previously stored for 31 to 32 days.

Associations between the duration of storage of transfused red blood cells and other adverse outcome measures (acute renal dysfunction, ICU stay and hospital stay duration) were also observed.

This result, if replicated in a larger randomised blinded trial, may have implications for allocation of blood to patients undergoing high-risk surgery.

(Source: ScienceNOW 22 Jun 2006; Anesth Analg (2006) 103:15-20)

THE *C. DIFFICILE* CODE

The complete genetic sequence of the bacterium *Clostridium difficile* has been decoded by a team led by

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Julian Parkhill of the Wellcome Trust Sanger Institute. *C. difficile* can cause debilitating diarrhoea, especially in patients previously treated with broad-spectrum antibiotics. In the present study, a strain was studied which was virulent and multi-drug resistant, having caused pseudomembranous colitis in a hospital patient and subsequently spreading to other patients in the same ward in Zurich, Switzerland.

C. difficile shares only 15% of its predicted genes with other *Clostridia*, such as *C. tetani* (tetanus) and *C. botulinum* (botulism). It also shows multiple adaptations for survival and growth within the gut environment. Interestingly, a large proportion of the *C. difficile* genome contains mobile genetic elements such as transposons – these can transfer themselves from bacterium to bacterium. This ability suggests great ease at acquiring antibiotic resistance genes and thus antibiotic resistance – an important reminder on judiciously using oral antibiotics.

(Source: Nature Genetics (2006) 38:779-786)

KOREAN STEM CELL SCANDAL: UPDATE

Hwang Woo-Suk, the South Korean scientist accused of faking stem cell research, is on trial for charges of fraud and embezzlement. Hwang's reputation as a scientific star was founded on claims of successfully establishing stem cell lines – however this research has since been dismissed as fake and the *Science* paper has been retracted. "I don't remember giving specific orders, but I admit I have overall responsibility," Hwang said. Hwang also claimed that any fabrications were the work of junior researchers.

Apart from the questions of falsified results, Hwang had also used eggs harvested from his own researchers, raising the ethical question of whether it is appropriate for a laboratory head to harvest tissue samples from his subordinates. Allegations have also been levelled that Hwang bought human eggs for his research work – this would be a violation of South Korean bioethics law.

Since the scandal broke in late 2005, Hwang has also been dismissed from Seoul National University. The saga continues.

(Source: BBC News)

CRISIS IN AMERICAN ERS

Reports from the Institute of Medicine have found that US emergency rooms (ERs) are understaffed, overwhelmed and unable to cope with a crisis – whether a pandemic, terrorist attack or natural disaster.

The Institute, an independent body that advises the federal government on health matters, issued three reports on the fragile status of emergency care in North America, noting in particular that despite increasing attention placed on emergency and disaster preparedness after 9/11, emergency medical services (EMS) received only 4% of $3.38 billion distributed by the Homeland Security Department for emergency preparedness in 2002 and 2003. Figures for 2004 and 2005 were not given.

"The result is that few hospital and EMS professionals have had even minimal disaster preparedness training. Even fewer have access to personal protective equipment; hospitals, many already stretched to the limit, lack the ability to absorb any significant surge in casualties; and supplies of critical hospital equipment such as decontaminating showers, ventilators and intensive care unit beds, are wholly inadequate."

"Hospitals must be reimbursed for the significant amounts of uncompensated emergency and trauma care they provide. To do otherwise threatens to destroy the critical emergency care infrastructure that all Americans depend on," said Rick Blum, President of the American College of Emergency Physicians.

The committee also recommended that hospitals stop diverting patients to the emergency room, get patients out of the ER and into hospital rooms so they do not clog up the system, and learn to communicate with one another better.

(Source: CNN Health)

SURVIVING THE NEW KILLER BUG

Community-acquired methicillin-resistant staphylococcus aureus (MRSA) is on the march across the US, spreading rapidly through parts of California, Texas, Illinois and Alaska, and now making its way into Pennsylvania and New York.

Once assumed to be restricted to hospitals and nursing homes, the MRSA strains turning up in the community at large respond to a broader range of antibiotics but spread much more easily among otherwise healthy folks. The bugs can be picked up on playgrounds, in gyms and in meeting rooms, carried on anything from a shared towel to a poorly laundered necktie.

While it is not clear if doctors' long-standing habit of prescribing strong antibiotics for simple skin infections produced this new entity, genetic analysis reveals a much more worrying trait – the exchange of short strips of DNA called cassettes between staph and other bacteria, which confer antibiotic resistance and make the host even more susceptible to infection.

"People talk about bird flu, but …; MRSA is where resistance and virulence converge." Dr Robert Daum, director of the University of Chicago's paediatric infectious disease programme.

(Source: Time Magazine)