

DISEASE WATCH | IN THE NEWS

Bacteria close beaches

Going to the beach may be less healthy than we thought, according to a new report by the US Natural Resources Defense Council. The number of beach closures and warnings due to high bacterial contamination in the United States in 2010 was the second highest since records began 21 years ago. This increase was in part a result of the heavy rains of last year, which carried contaminants to the ocean; common sources of contamination are agricultural run-off, leakage from sewage and septic systems, and boat waste. These closures reflect the trend of rising numbers of infections related to recreational waters.



MEDIO IMAGES

The exact number of people who get sick from a visit to the beach is difficult to determine, as many people do not visit the hospital, and the origin of the illness may not be established for those seeking treatment. However, it is estimated that on beaches around Los Angeles (California) alone, 600,000 to 1.5 million people become ill each year from bacteria that they have ingested at the beach. Furthermore, the report indicates that swimmers are more likely to get ill than non-swimmers. Diseases that are linked to recreational waters include *Escherichia coli* infections, stomach flu, skin rashes, pink-eye, respiratory infections, meningitis and hepatitis. *LA Times*

Copper tops pathogens

Copper may play an important part in reducing hospital infections, scientists have reported at the WHO's first International Conference on Prevention and Infection

Control. The results of a new trial indicate that the use of antimicrobial copper surfaces in intensive care unit rooms can reduce the risk of acquiring a nosocomial infection by 40%. The studies were performed on conventional dry hospital touch surfaces, on which many pathogens can survive. The introduction of copper surfaces reduced the number of pathogens on surfaces by 97%, according to the trial leader, Michael Schmidt, Professor and Vice Chairman of Microbiology and Immunology at the Medical University of South Carolina, Charleston, USA. As copper rapidly destroys many pathogenic viruses, bacteria and fungi, it may be difficult for pathogens to develop resistance. The use of copper can possibly be extended to various health care-related instruments to prevent other hospital-associated infections. *Eurekalert*

Early success for HPV vaccine

An analysis of the first 3 years of a human papillomavirus (HPV) vaccination programme in Australia has revealed that vaccinations are starting to cause a drop in the incidence of cervical lesions among young women. A 50% reduction in precancerous cervical abnormalities was detected in girls under the age of 17 years, although the reduction was lower among older girls and women, possibly because they were more sexually active at the time the vaccinations started. It has therefore been recommended that girls as young as 11 years are vaccinated against this virus. In the United States, HPV is the most common sexually transmitted disease and may cause up to 1 million cases of precancerous cervical abnormalities annually, leading to 12,000 cases of cervical cancer, 4,000 of which are fatal. The continued success of vaccination programmes is therefore likely to reduce the mortality and morbidity of HPV infections. *Lancet/CBS News*

New drugs for influenza

Two reports describe drugs that target the host immune system to decrease mortality from influenza. The group led by Michael Oldstone at the Scripps Institute in San Diego, California, USA, used AAL-R, an agonist of sphingosine-1-phosphate receptors, to dampen the immune system of the host. This drug decreases activation of the pro-inflammatory T cell response that causes many of the symptoms of flu.

However, the drug does not interfere with the host's ability to produce antibodies that can limit and eliminate the infection. AAL-R was more successful than the antiviral drug oseltamivir in preventing mortality after a lethal challenge in mice. These two drugs provided a 96% protection rate when used in combination. Another study by researchers from the University of Hong Kong describes the use of the osteoporosis drug pamidronic acid in killing the influenza virus. This drug promotes the activity of $\gamma\delta$ T cells, which can recognize and kill cells infected with the virus. *Proc. Natl Acad. Sci. USA/J. Exp. Med./Reuters*

Outbreak news

Scarlet fever. An outbreak of scarlet fever in Hong Kong is being blamed on a mutated strain of group A *Streptococcus* (also known as *Streptococcus pyogenes*). There have already been more than 600 cases in 2011, whereas there are normally only around 100–200 cases per year. Unlike other strains of group A *Streptococcus*, which mostly affect children, this strain affects young adults; one death has been reported as a result of scarlet fever, with another death also suspected to have been caused by the disease. The genome of the strain, which was sequenced by Kwok-Yung Yuen and colleagues at the University of Hong Kong, has revealed that the bacterium has acquired genes from bacteria in the human oral and urogenital tract, and that these genes increase its virulence and make it resistant to certain antibiotics. *BBC/Wall Street Journal/Science*

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 his Twitter page (@Ojcius).

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In this Disease Watch, our statement that the strain responsible for the enterohaemorrhagic *Escherichia coli* (EHEC) outbreak "is a rare strain that has never before been found in humans" was incorrect. It was initially reported that strain responsible, O104:H4, had previously not been thought to be responsible for an outbreak; however, it is now known that the strain responsible for the outbreak is closely related to strains that have caused infections in humans. The text now reads: "The strain of *E. coli* that caused the outbreak, O104:H4, has now been sequenced; sequence analysis suggests that horizontal gene transfer may have combined virulence factors from several strains, producing a particularly virulent bacterium." We apologize for any confusion caused.