### THE NDM-1 SUPERBUG CONTROVERSY

An article about the prevalence and spread of a new ESBL – New Delhi mettalo-$\beta$-lactamase-1 (NDM-1) published in the September issue of *The Lancet Infectious Diseases* has provoked strong reactions from the media, administration, politicians and general public both in India and the UK. Politicians are outraged that a multidrug resistant enzyme is named after our national capital, hospital administrators are furious because it may affect inflow of foreign patients and foreign patients are panicky that they may have caught some incurable disease. What is the real story?

Bacteria which carried ESBL's (extended spectrum $\beta$ lactamases) which are coded by plasmids, so far were resistant to penicillins and third generation cephalosporins. Only carbapenems worked against these enterobacteriacea. Now bacteria which are resistant to carbapenems are also being isolated; no drug is available against them.

What is the gist of the new *Lancet* article? Bacterial isolates were studied from centers in Chennai and Haryana in India and in UK from those referred to the UK's national reference laboratory. Antibiotic susceptibilities were assessed, and the presence of the carbapenem resistance gene *bla*NDM-1 was established by PCR. Of the 3521 isolates in Chennai, 141 (4%) were resistant to carbapenems of which 44 were positive for the NDM-1. 24% of the 198 isolates from Haryana were carbapenem resistant and 13% were positive for NDM-1. What is alarming is that the Indian isolates from Chennai and Haryana were primarily from community acquired urinary tract infections, pneumonia, and blood-stream infections ( age range 4–66 y) suggesting that this gene is widespread in the environment.

The New Delhi mettalo–$\beta$–lactamase-1 (NDM-1) was first reported in a Swedish patient who underwent surgery in India in 2008. Isolates with the NDM-1 enzyme were first reported in the UK in 2008 and has shown a steep rise in 2009 with 44% of the carbapenem resistant isolates having this enzyme. Many of the UK NDM-1 positive patients had travelled to India or Pakistan within the past year, or had links with these countries. This prompted the release of a National Resistance Alert 3 notice by the Department of Health, UK.

So far the NDM-1 enzyme has been isolated from *E. Coli* and *Klebsiella* but it has a strong propensity to get copied and transferred to other strains, heralding a potentially dangerous situation. ICMR is now planning to activate a registry and issue guidelines for an integrated surveillance system. (*The Lancet Infectious Diseases 2010;10:597-602; The Times of India 12 August, 2010; The Hindu 14 August, 2010; The Economic Times 12 August, 2010*).

### H1N1 PANDEMIC OFFICIALLY ENDS

On August 10, Margaret Chan, Director, WHO, officially declared the end of the H1N1 pandemic, based on epidemiological and virological information from all over the globe, especially the Southern Hemisphere where the flu season is in full swing. This does not mean that the H1N1 has disappeared. Rather it has become like any other flu strain and will not cause the majority of the influenza infections nor trigger outbreaks in summer. It is likely that the virus will continue to cause serious disease in younger age groups, at least in the immediate post-pandemic period. Groups identified during the pandemic at higher risk of severe or fatal illness will probably remain at heightened risk. That the virus did not mutate during the pandemic to a more lethal form, widespread resistance to oseltamivir did not develop and the vaccine was fairly effective are all being considered lucky aspects of the pandemic. The CDC now recommends a seasonal flu vaccine which will contain an H3N2 virus, an influenza B virus, and the 2009 H1N1 virus (*http://www.who.int/mediacentre/news/statements/2010/h1n1_vpc_20100810/en/*)

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