Reviewer's report

Title: Antibiotics and antibiotic-resistant bacteria in waters associated with a hospital in Ujjain, India

Version: 1 Date: 16 April 2010

Reviewer: Betsy Foxman

Reviewer's report:

The impact of antibiotic residues on human health is uncertain. One key question is the extent that these residues select for antibiotic resistance among potential human pathogens in the environment. The authors detected an association between antibiotics prescribed in a hospital, and the levels of antibiotics in the hospital effluent. However, the E. coli growing in the effluent remained sensitive.

Samples were collected from 3 sites, incoming safe water sources, exit of wastewater from inpatient wards of the hospital, and 100 meters downstream. Two samples were collected from each site, one at 10 am and another at 4 pm. It would have been useful to have collected samples over several days to have greater insight into the variability.

Samples were tested for antibiotics, and cultured for E. coli. It is uncertain from the methods if the samples cultured were filtered or processed in some way prior to plating. They reference a document listing standard methods, but it would be useful to give some more details of what they did. Further, plating techniques are relatively insensitive compared to non-culture techniques. Screening using non-culture techniques for the presence of resistance genes would have added useful information.

This study adds to a growing literature that has detected antibiotics in wastewater effluents from hospitals. While the sample size is small, the study strengths are the sampling at two time points, and assessment of resistance among E. coli present in the effluent.

I suggest no major compulsory revisions.

For minor revisions, I suggest adding more details in the methods on how samples were processed to detect E. coli. In the discussion, the authors should discuss the need for sampling over several days, and using non-culture techniques in future studies. They might also highlight the unique aspects of their study.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

'I declare that I have no competing interests'