Author's response to reviews

Title: Antibiotic Control of Antibiotic Resistance in Hospitals: A Simulation Study

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Version: 3  Date: 5 May 2010

Author's response to reviews: see over
Antibiotic Control of Antibiotic Resistance in Hospitals: A Simulation Study

Michael Haber, Bruce R. Levin and Piotr Kramarz

Response the Editor’s and Reviewers’ Comments

We would like to thank the Editor and the reviewers for their important comments and suggestions. We edited the manuscript in order to improve the language and make it more readable. We also added an authors’ contributions section. Our responses to the reviewers’ comments follow.

Reviewer's report

Title: Antibiotic Control of Antibiotic Resistance in Hospitals: A Simulation Study

Version: 2 Date: 18 March 2010

Reviewer: Jean-Louis Vincent

Reviewer's report:

The authors developed a model to study the spread of hospital-acquired infections. The effects of different measures may take place earlier than initially thought.

The analysis is sound and well described.

Specific comments:

1. Middle of Page 13: it is quite uncommon for authors to acknowledge their limited knowledge about some aspects; please delete.

We agree, humility can be misinterpreted as insecurity. We are not insecure about this research, our conclusions, or our ability or competence to do this study. We have changed this passage.
2. End of the paper: this is not really a summary of the study – also the summary should not introduce reference to other studies.

*We don't agree with this as a hard and fast rule and believe these references are useful in this summary. We will, however, remove these citations if the editors require us to do so.*

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**
'I declare that I have no competing interests'

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**Reviewer's report**

**Title:** Antibiotic Control of Antibiotic Resistance in Hospitals: A Simulation Study

**Version:** 2 **Date:** 10 February 2010

**Reviewer:** Alexandre Marra

**Reviewer's report:**

My considerations: Haber et al. performed a simulation study about antibiotic control of antibiotic resistance in hospitals.

The real world is not only to use one or after one (the second antibiotic), but in the majority of the cases there are two, three and sometimes four antimicrobials prescribed. Bacteria have genes, so called plasmids that transfer these small pieces of DNA to another bacteria. This process can promote the dissemination of resistant bacteria in the hospitals.

How do authors can explain this fact using a simulation study (near the real world)?

*We agree. Our models and analysis, however, are not restricted to the use of a single second-line drug. Any number of different antibiotics can subsumed under what we are calling “second-line drugs”.*
We are well aware of plasmid-encoded multi-drug resistance and the problems they impose. Nevertheless, fortunately for almost all pathogenic bacterial there remain at least one and usually more than one antibiotic for which resistance has yet to develop. On the other side, we agree with this reviewer, if drugs for which resistance has yet to develop are used more frequently, resistant strains will almost certainly emerge and increase in frequency. We mention this problem in the paragraph of page 15.

Reviewer’s report

Title: Antibiotic Control of Antibiotic Resistance in Hospitals: A Simulation Study

Version: 2   Date: 10 February 2010

Reviewer: Hakan Erdem

Reviewer’s report:

I read the article 'Antibiotic Control of Antibiotic Resistance in Hospitals: A Simulation Study' with great interest. I believe it is worth publication. Although I’m not an native speaker there are some grammar problems. For example, ...[6]. This theory predicts that not only will these measures individually and collectively reduce the frequency of resistant bacteria in hospitals they will also reduce the absolute rate of these infection. SHOULD BE “…ABSOLUTE RATE OF THESE INFECTIONS”.

We thank this reviewer. We corrected this and a few other typos.

But one more point is that I’m not very familiar with the mathematical model they used, perhaps the journal can have additinal interpretation on this issue.