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## Outcomes after surgical and antibiotic treatment of appendicitis

We read with interest the updated meta-analysis by Rollins et al [1]. We are puzzled, however, that the authors cited our previous meta-analysis on the same subject to support their contention that 'primary antibiotic therapy is becoming increasingly attractive'. The title of our meta-analysis was "Appendicectomy for suspected uncomplicated appendicitis is associated with fewer complications than conservative antibiotic management". Our conclusion was that the available data support the use of appendicectomy, not antibiotics, as primary therapy for appendicitis [2].

Our main concern with the Rollins et al. meta-analysis, as we indicated in our own meta-analysis, is that the authors have used perforated appendix as a primary outcome measure. We believe that this is an erroneous outcome measure because it is neither clinically relevant nor a post-intervention complication. What, we ask, is the risk to a patient of a perforated appendix that is identified as such in a pathology laboratory? Is it any more harmful than an unperforated appendix? The researchers could equally have decided that having an appendix removed, perforated or not, is a complication, and so reported a 100% complication rate in patients undergoing appendicectomy. What is the rationale for choosing perforated appendix as a clinically relevant outcome in the appendicectomy group?

We are also disappointed to note that the authors do not appear to have made any assessment of the complications of antibiotic use, which include adverse reactions, *Clostridium difficile* infection and the generation of antibiotic resistance. Antibiotics are a precious and limited resource. We are instructed by the World Health Organisation not to prescribe antibiotics unless they are "truly necessary" (<http://www.who.int/mediacentre/commentaries/stop-antibiotic-resistance/en/>). Are they "truly necessary" in acute appendicitis, a condition for which an effective and well established surgical option already exists?

Finally, the antibiotic option appears to be very unfavourable if examined from a patient's point of view. The surgical option involves a single definitive procedure (100% success rate with regard to preventing further episodes of appendicitis), a single dose of peri-operative antibiotics and an overall morbidity rate of approximately 5.5% (including surgical site infections and other complications e.g. pneumonia) (noting that post hoc histopathological detection of a perforation is of no relevance to the patient)[3]. Conversely, the antibiotic option requires 20% of the patients to have more than one admission (with almost all readmitted patients requiring appendicectomy), a longer (but undefined) exposure to antibiotics, a complication rate of 12.7% and an overall success rate of less than two thirds [1]. Even if this is considered to be an acceptable standard of care, the process of informed consent requires patients to be informed of risks and treatment options [4] and only a minority of patients would accept this risk [5].

## References

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