Studies show that taking antibiotics in preparation for hip replacement, surgery for hip fracture fixation, and breast reconstruction really does help reduce the risk of infection. But if you are having elective hand surgery to remove a tumor, cyst, or ganglion; to treat carpal tunnel syndrome, or to transfer a nerve -- do you really need those preventive antibiotics? Especially now that we know the overuse of antibiotics has caused some equally serious problems.

That's the topic of this retrospective study from the Department of Plastic and Reconstructive Surgery at Johns Hopkins University in Baltimore, Maryland. A retrospective study means the researchers looked at the medical records of patients who had already been treated in the past. By asking the computer to find all cases of hand surgery, they were able to identify 8,850 patients who had hand surgery between the year 2000 and 2008.

Then they compared the outcomes of two groups of patients: those who received prophylactic (preventive) antibiotics and those who did not. Of the 8,850 patients, one-third were given prophylactic antibiotics. The remaining two-thirds had the same type of surgery but they did not receive prophylactic antibiotics.

Patients were followed closely after surgery to determine whether or not a superficial skin infection (SSI) developed. They received a telephone call 10 days after surgery and were checked by the surgeon within the first two weeks. Only infections that occurred during the first 30-days after surgery were counted. Abscesses of stitches used to close incisions were not included as part of a post-operative skin infection.

In all 8,850 patients, there was an overall superficial skin infection (SSI) rate of 0.35 per cent. That's a very low rate of SSI. And the rate wasn't different between the two groups. That suggests the use of prophylactic antibiotics for routine hand surgery isn't really needed. Late infections (those that develop a month or more after surgery) were not a part of this study. This type of infection is related more to poor wound care.

But just to be sure, the authors did a subanalysis to see if patients with certain risk factors for infection were less likely to develop an infection if they did get the "just-in-case" (prophylactic) antibiotic.

An analysis of data collected on the patients showed three risk factors linked with developing a skin infection. These three things included diabetes, procedure length (the longer time in surgery, the greater the risk of infection), and tobacco use (cigarette smokers were at increased risk). But the big news is that patients with these risk factors do NOT reduce their risk of a skin infection by taking a preventive antibiotic.

The natural conclusion is that prophylactic antibiotics are not needed by anyone when having simple, elective hand surgery. This guideline extends to include even those who have a known increase in risk of infection following surgery. The rate of postoperative skin infection is very low already. Taking an antibiotic does not lower that rate at all.

Previous studies have shown a consistent link between diabetes and smoking with delayed wound healing. Open wounds that don't heal well are at increased risk for superficial skin infection. Changing lifestyle factors such as smoking cessation, losing weight, and getting the diabetes under good control are more likely to have a positive impact on outcome of hand surgery as it relates to infections.

The authors of the study offer a couple of things to think about related to their study. First of all, the number of people in each of the subgroups who did develop an infection (men, women, people with diabetes, people who were obese) was very small. A study with larger numbers may show a greater statistical significance of taking antibiotics versus not taking antibiotics.
And secondly, there was probably surgeon bias in selecting patients to be put on prophylactic antibiotics. Older adults, especially those who have diabetes, may have been targeted by surgeons for the use of preventive antibiotic use. The authors suggest future studies are needed to sort through all of the variables before routinely suggesting discontinuation of prophylactic antibiotics with elective hand surgery.