

## Copper Intrauterine Device vs. Depot Medroxyprogesterone Acetate for Contraception

JANELLE GUIRGUIS-BLAKE, MD, *Tacoma Family Medicine Residency Program, Tacoma, Washington*

The Cochrane Abstract on the next page is a summary of a review from the Cochrane Library. It is accompanied by an interpretation that will help clinicians put evidence into practice. Dr. Guirguis-Blake presents a clinical scenario and question based on the Cochrane Abstract, followed by an evidence-based answer and a critique of the review. The practice recommendations in this activity are available at <http://www.cochrane.org/reviews/en/ab007043.html>.



This clinical content conforms to AAFP criteria for evidence-based continuing medical education (EB CME). See CME Quiz on page 31.

The series coordinator for *AFP* is Kenny Lin, MD, Department of Family Medicine, Georgetown University School of Medicine, Washington, DC.

A collection of Cochrane for Clinicians published in *AFP* is available at <http://www.aafp.org/afp/cochrane>.

### Clinical Scenario

A 19-year-old nulliparous woman comes to the office to discuss contraceptive options. She previously used depot medroxyprogesterone acetate (Depo-Provera) but was bothered by the weight gain and spotting she attributed to the medication. She would like to know whether the copper intrauterine device (IUD) might be a more effective contraceptive option with fewer adverse effects.

### Clinical Question

What are the comparative benefits and harms of the copper IUD versus Depo-Provera?

### Evidence-Based Answer

The copper IUD is more effective in preventing pregnancy compared with Depo-Provera.<sup>1</sup> Each contraceptive method has different adverse effects; the evidence is too limited to make comparisons of discontinuation rates. (Strength of Recommendation = B, based on inconsistent or limited-quality patient-oriented evidence)

### Practice Pointers

Depo-Provera and the copper IUD are highly effective contraceptives. Depo-Provera is a common choice for young women because it does not require daily administration. Adverse effects include irregular vaginal spotting, amenorrhea, delayed return of fertility, nausea, weight gain, decreases in bone mineral density, and mood fluctuations, and it has the inconvenience of needing an office visit every three months for continued administration. Previously, IUD use was limited in young women because it was thought to increase the risk of pelvic infection. However, research has shown that the risk of pelvic inflammatory disease is only increased in

the first month immediately after insertion.<sup>2</sup> The American College of Obstetricians and Gynecologists supports IUDs as a contraceptive option in adolescents, citing no increase in the risk of sexually transmitted disease or pelvic inflammatory disease, or harms to future fertility.<sup>3</sup> Copper IUD adverse effects include heavy menstrual bleeding and cramping, increased risk of pelvic infection for 20 days after insertion, insertion procedure risks (perforation, discomfort), and device expulsion. Nonsteroidal anti-inflammatory drugs reduce bleeding and cramping associated with IUD use.<sup>4</sup> Alternatively, the hormonally impregnated IUD has the same pregnancy rate as the copper IUD and oral combined estrogen-progesterone contraceptives.<sup>5</sup>

The Cochrane authors reviewed two randomized controlled trials (n = 967) comparing the rates of discontinuation, unintended pregnancy, infection, and human immunodeficiency virus (HIV) infection at one- to two-year follow-up in women taking Depo-Provera or an oral contraceptive compared with women using the copper IUD.<sup>1</sup> Both studies were done in developing countries. One of the studies only recruited women infected with HIV; these women had a 77 percent loss to follow-up in the IUD group, and participants were allowed to choose between hormonal methods (Depo-Provera versus oral contraceptives), making conclusions limited.

Based on the limited data from these two studies, the IUD is more effective than hormonal methods (Depo-Provera or oral contraceptive) at preventing pregnancy (risk ratio = 0.45; 95% confidence interval, 0.24 to 0.84). Conflicting results were seen for discontinuation rates: one trial showed a higher discontinuation rate in the

## Cochrane Abstract

**Background:** Highly effective contraception is essential to reduce unintended pregnancies and the effect these pregnancies have on individual persons, society, and public health resources. Intrauterine devices (IUDs) and depot medroxyprogesterone acetate (Depo-Provera) are two commonly used long-acting, reversible contraceptive methods with different risk and benefit profiles.

**Objectives:** To compare the contraceptive and noncontraceptive benefits and risks of using the copper IUD versus Depo-Provera.

**Search Strategy:** In June 2009, the authors searched the Cochrane Pregnancy and Childbirth Group Trials Register, the Cochrane Central Register of Controlled Trials, PubMed, Popline, Clinical Trials.gov, the Current Controlled Trials metaRegister, EMBASE, and LILACS, and contacted study authors.

**Selection Criteria:** Randomized trials comparing women using copper IUDs with women using Depo-Provera.

**Data Collection and Analysis:** The authors assessed eligibility and trial quality, and extracted and double-entered data.

**Main Results:** Two studies were included in the review. In the one study of women who were infected with

human immunodeficiency virus (HIV), the IUD was compared with Depo-Provera or the oral contraceptive, according to the women's choice. Because the majority of women chose Depo-Provera, the authors have included this study in the review, within a mixed hormonal contraception subgroup.

Overall, the copper IUD was more effective than Depo-Provera or hormonal contraception at preventing pregnancy (risk ratio = 0.45; 95% confidence interval, 0.24 to 0.84). HIV disease progression was reduced in the IUD group (risk ratio = 0.58; 95% confidence interval, 0.39 to 0.87). There was no significant difference in pelvic inflammatory disease rates between the two groups. Discontinuation of the allocated method was less frequent with the IUD in one study, and less frequent with hormonal contraception in the other study (in which women were allowed to switch between various hormonal methods).

**Authors' Conclusions:** In the populations studied, the IUD was more effective than hormonal contraception with respect to pregnancy prevention. High-quality research is urgently needed to compare the effects, if any, of these two commonly used contraception methods on HIV acquisition or seroconversion and HIV and AIDS disease progression.



These summaries have been derived from Cochrane reviews published in the Cochrane Database of Systematic Reviews in the Cochrane Library. Their content has, as far as possible, been checked with the authors of the original reviews, but the summaries should not be regarded as an official product of the Cochrane Collaboration; minor editing changes have been made to the text (<http://www.cochrane.org>).

Depo-Provera group, whereas the other trial (which allowed women to choose and switch between Depo-Provera and oral contraceptives) showed a higher discontinuation rate in the copper IUD group. Participants infected with HIV were less likely to experience HIV or AIDS disease progression (including death) in the IUD group than in the Depo-Provera group (risk ratio = 0.58; 95% confidence interval, 0.39 to 0.87). There was no statistically significant difference in the incidence of pelvic inflammatory disease, which was low in both groups.

In generalizing this review's results to U.S. primary care settings, the higher rates of effectiveness for the copper IUD, which requires less patient adherence, should not be surprising to physicians. However, mixed findings regarding discontinuation rates and a possible decrease in HIV progression should be interpreted with caution because of the short follow-up periods (one to two years), heterogeneous populations (women

with and without HIV infection), and high loss to follow-up in one of the trials.

*Address correspondence to Janelle Guirguis-Blake, MD, at [jguirgui@u.washington.edu](mailto:jguirgui@u.washington.edu). Reprints are not available from the author.*

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## Cochrane Briefs

### Short Course of Antibiotics for Acute Otitis Media Treatment

#### Clinical Question

Are short courses of antibiotics as effective as standard courses for children with acute otitis media?

#### Evidence-Based Answer

Antibiotic courses between two and seven days in duration are associated with a slightly higher risk of treatment failure than longer courses (number needed to treat = 33), but also a somewhat lower risk of adverse gastrointestinal effects (number needed to harm = 29). Ceftriaxone (Rocephin) and azithromycin (Zithromax) appear to be similarly effective when given for shorter or longer durations. (Strength of Recommendation = B, based on inconsistent or limited-quality patient-oriented evidence)

#### Practice Pointers

The usual duration of a course of antibiotics ranges from 10 days in the United States to six or seven days in the Netherlands, and even less elsewhere. Many clinicians advocate severely restricting antibiotics because acute otitis media is typically a self-limited condition and the benefit of antibiotic treatment is modest.<sup>1,2</sup>

This Cochrane systematic review identified randomized controlled trials that compared regimens of less than seven days in duration with regimens of seven days or longer in children with acute otitis media. In some of the studies, participants in both arms received the same antibiotic, but other studies compared two different antibiotics. The authors identified a total of 49 studies with 12,045 participants, including 22 studies that were not included in the original publication of this review in 2000. Most of the studies enrolled children younger than one year (n = 39), whereas eight studies only

included children who were two years or older. Study quality was mixed—most were not blinded, most did not clearly describe allocation concealment, and the authors considered only one-third of them to be at low risk of other sources of bias.

Results based on two small studies (n = 118) showed that regimens of two days or less were not as effective as longer regimens (odds ratio = 2.99; 95% confidence interval, 1.04 to 8.5). Short regimens that were at least 48 hours in duration were also associated with an increased risk of treatment failure at up to one month of follow-up (odds ratio = 1.34; 95% confidence interval, 1.15 to 1.55). The absolute risk of treatment failure was 21 percent with short-course treatment versus 18 percent with long-course (number needed to treat = 33). This effect was greatest within three weeks of treatment; with longer follow-up, there was less evidence of benefit from longer regimens.

Regarding specific antibiotics, short courses of ceftriaxone and azithromycin were as effective as longer courses. Gastrointestinal adverse effects were reported by 13 studies with 4,918 children, and shorter regimens were associated with fewer upset stomachs (number needed to harm = 29). This benefit of shorter regimens was particularly true in studies of treatment with amoxicillin/clavulanate (Augmentin). The authors found no evidence of publication bias, which may occur when small studies showing no difference in effect are not published.

MARK H. EBELL, MD, MS

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SOURCE: Kozyrskij A, Klassen TP, Moffatt M, Harvey K. Short-course antibiotics for acute otitis media. *Cochrane Database Syst Rev.* 2010;(9):CD001095.

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