New Developments in the Calculation and Use of Couple-Years of Protection and Their Implications for the Evaluation of Family Planning Programs
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Methodology Used to Calculate Average Duration of Use

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In the 2011 update CYP for IUD, Implants, and Standard Days Method (SDM) is based solely on the average length of time a woman continues to use each of these methods. This requires using data on continuation rates from the articles identified in the literature review to calculate a curve that is then used to estimate the average duration of use.

The data included in the estimates are from articles that represent real world usage, with a tendency toward using DHS data whenever possible. Thus, the focus was on the quality of the data not the quantity of articles included in the analysis. A total of 4 articles were included in the continuation estimates for IUD, 4 for Implants, and 1 for Standard Days Method; although many of these articles include data from multiple countries and represent more than one region.

The average duration of use was calculated by fitting an exponential decay curve to the continuation data ($R=ae^{-rt}$), where:

R = retention at time t
a = constant that allows for immediate expulsion
r = constant that measures the annual rate of discontinuation
t = time expressed in years

This involved running a regression using the log of the continuation rates as the y variable and the year as the x variable. The intercept from the regressions were exponentially transformed and then the results were used to estimate cumulative annual continuation rates. These cumulative annual continuation rates were then used to estimate life years of use, which were summed to get the average duration of use.

Issues to consider:

- The number of years that are included in the estimates impacts the average duration of use. For example, the same curve was used for estimating continuation for all implants by truncating the data at 3, 4, and 5 years. This method probably slightly overestimates continuation for the shorter implants, especially the 3 year implant.
- Effectiveness of the methods is included in the continuation estimates because discontinuations for all reasons, including due to pregnancy, are looked at together.