



**Figure 1** Graph showing the number of implants remaining versus the time in months since insertion.

that if one plots the numbers remaining against the time from insertion, the points begin to resemble exponential decay for up to 34 months when there is an expected steep decline (Figure 1). Since I was the sole operator for most of the period in a stable rural population and have no waiting list for removals, this reflects the natural history of discontinuations. I hypothesise that for a sufficiently large sample and a finer time scale a gentle exponential decay curve would emerge. Choosing a convenient point on a smoother part of the graph when two-thirds of the cumulative total of 132 implants remain at 16 months, it is possible to derive a constant for discontinuation from  $N_t = N_0 e^{-\lambda t}$ . For  $t_{2/3}$ ,  $N_t/N_0 = e^{-\lambda t} = 2/3$ . Then  $\ln 3/2 = \lambda t$ , which makes lambda equal  $0.4055/16$  or  $0.0253$  per month. This would then yield a half-life of 27.3 months, suggesting a margin of error here of up to about 25%. Thus there is approximately a 2.5% chance per month of a woman seeking removal of her implant. On a limited review of the literature, the nearest I have come to this analysis is a mention of Norplant® data from a USAID report.<sup>1</sup> The maths may be a curiosity but it would be possible to test the hypothesis on a larger sample. If it were verified it might be useful in counselling pre-insertion and in planning.

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**Competing interests** None.

*Journal of Family Planning and Reproductive Health Care* 2013;**39**:153.

doi:10.1136/jfprhc-2012-100554

## REFERENCE

- 1 USAID. The Respond Project. 2011 CYP Update: Newly Calculated Factors. Process, Calculation, Justification, Implications. [http://www.respond-project.org/pages/files/4\\_result\\_areas/Result\\_1\\_Global\\_Learning/LA\\_PM\\_CoP/Sonneveldt-CYP-2011-Update-Factors.ppt](http://www.respond-project.org/pages/files/4_result_areas/Result_1_Global_Learning/LA_PM_CoP/Sonneveldt-CYP-2011-Update-Factors.ppt) [accessed 13 November 2012].

## A novel perspective on premature removal of contraceptive implants

Having kept a personal log of all insertions and removals of the etonogestrel contraceptive implants, Implanon® and Nexplanon®, for over 6 years, I noticed