

## **Incidence and determinants of discontinuation of Implanon among users: Findings from a Prospective Cohort Study in three Health Zones of Kinshasa**

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### **ABSTRACT**

#### Background:

The modern contraceptive prevalence rate in the Democratic Republic of the Congo (DRC) is one of the lowest in the world, at 8%. and the use of the long acting method, such as implants remains insignificant. PMA2020 has shown also, the steady increase in the uptake of implant in Kinshasa among users in union. Although Implanon is gaining in popularity among contraceptive users in Kinshasa , yet virtually nothing is known about continuation rates, reasons for withdrawal, and the quality of services available for withdrawal. This study provides insight into patterns of implant use in a high-fertility setting in evaluating the 24-month continuation rate for Implanon and identifying the characteristics associated with continuation of this method at 24 months.

#### Methodology:

We conducted a cohort study on women who opted Implanon from November 2016 to January 2019.

We followed the 531 acceptors at 6 months 12 months and 24 months. All participating women provided written and informed consent to take part in this study, were aged from 18-49 years. The following information was collected: socio-demographic characteristics (age, gender, marital status, education, socio economic status (SES) and residence), the Method Information Index (MII); the number of living children, the contraceptive history. We recorded the date of inserting Implanon. Participants were closely monitored throughout the 24-month of follow-up period with a complete assessment of the outcome. The main outcome variable for this study was discontinuation. The incidence rate of discontinuation is presented as events per 1000 person/months (p-m), from the date of enrolment. The Kaplan-Meier curve was used to determine the probability of discontinuation as a function of time as inclusion to the cohort. The log-rank test was used to compare survival curves based on determinants. The Cox proportional hazards modeling was used to measure predictors of discontinuation since the insertion of the device (Implanon) to the end point, which was set at January 7, 2019.

## Results:

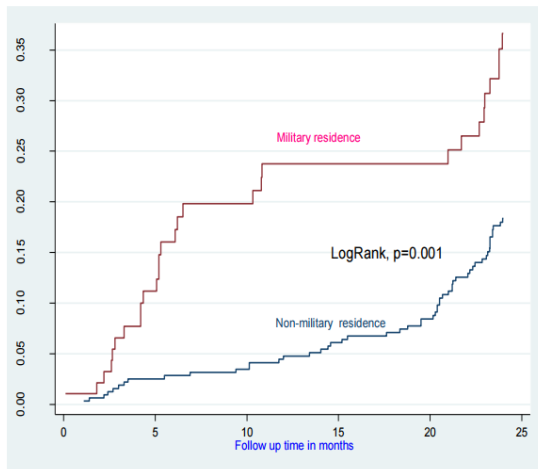
A total of 9158.13 p-m were involved in follow-up, with an overall incidence rate of 9.06 (95%CI: 9.04-9.08) removals per 1000 p-m. Women living military barrack had a higher hazard of early Implanon discontinuation compared to those who lived civil area (adjusted HR 2.28 (1.36 – 3.81)). Women who have less than 3 children had a higher hazard of early Implanon discontinuation compared to those of higher parity (adjusted HR 3.64 (2.19 – 6.08)). Women who never used injectable or implant in the past had had a higher hazard of early Implanon discontinuation compared to those ever used injectable or implant (adjusted HR 4.49 (1.09 - 18.55)). Women who had experienced heavy/prolonged bleeding had a higher hazard of early Implanon discontinuation compared to those who did not experience it (adjusted HR 1.96 (1.26 – 3.04)). Women with MII score less than 3 had a higher hazard of early Implanon discontinuation compared to those who had a MII score of 3 (adjusted HR 2.08 (1.32 - 3.28)) ( Figure 1 and 2, Table 1)

## Conclusion:

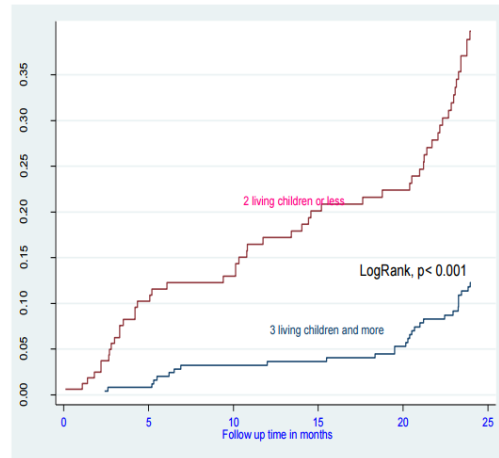
This study reports a strong effect of low-quality family planning counseling on discontinuation rate over 24 months. Community providers in similar context should pay more attention to clients having less than three children, new adopter, and to clients living barrack as underserved population, where client have less access to health facility. More targeted counseling and follow-up is needed especially on bleeding patterns. During the follow up visit, community providers should record vaginal bleeding intensity, duration to assess the gravity of bleeding among Implanon users.

**Keywords: Predictors; Early discontinuation rate; underserved populations, Implanon, community level**

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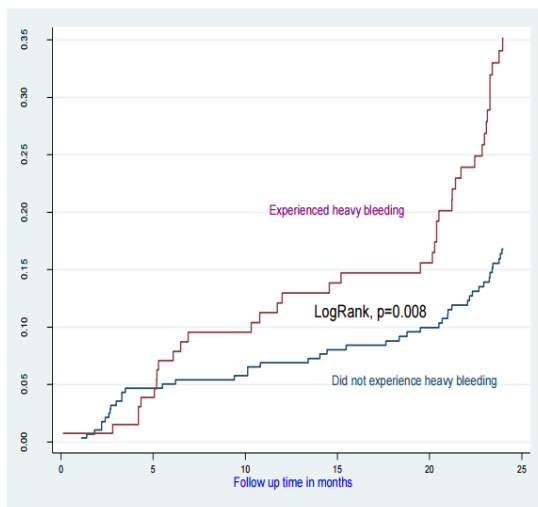


Incidence of discontinuation based on residence

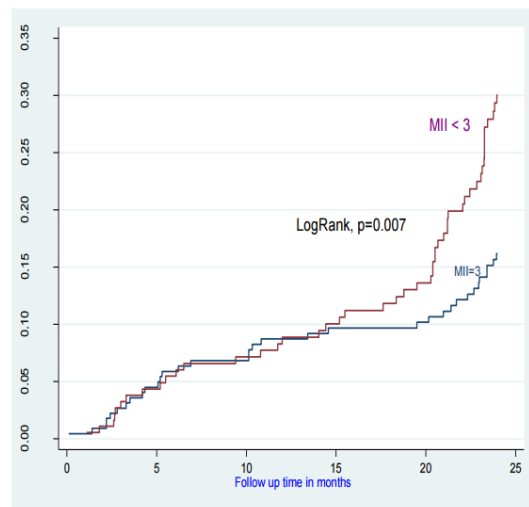


Incidence of discontinuation based on the number of living children

Figure 1: Incidence of discontinuation based on residence and parity



Incidence of discontinuation based on experiencing heavy bleeding



Incidence of discontinuation based on quality of counseling

Figure 2: Incidence of discontinuation based on bleeding pattern and quality of counseling

Table 1. Cox proportional hazard regression analysis of discontinuation rates

| Characteristics                              | total | Duration | Event | Incidence<br>(1000 P-m) | Hazard ratio*       |         |                     |         |  |
|--|-------|----------|-------|-------------------------|---------------------|---------|---------------------|---------|--|
|  |       |          |       |                         | Crude( 95%CI)       | p       | Adjusted( 95%CI)    | p       |  |
| <b>Age</b>                                   |       |          |       |                         |                     |         |                     |         |  |
| - 18-24                                      | 146   | 3187.75  | 35    | 10.98                   | 1.38 (0.89 - 2.14)  | 0.146   | 0.75 (0.45 – 1.24)  | 0.257   |  |
| - 25-49                                      | 269   | 5970.38  | 48    | 8.04                    | 1                   |         |                     |         |  |
| <b>Instruction level</b>                     |       |          |       |                         |                     |         |                     |         |  |
| - Low  | 81    | 1819.08  | 17    | 9.35                    | 1.04 (0.61 - 1.77)  | 0.897   | 0.98(0.55 - 1.76)   | 0.955   |  |
| - High                                       | 334   | 7339.05  | 66    | 8.99                    | 1                   |         | 1                   |         |  |
| <b>Matrimonial Status</b>                    |       |          |       |                         |                     |         |                     |         |  |
| - Living alone                               | 339   | 7503.08  | 64    | 8.53                    | 0.74(0.44 - 1.24)   | 0.254   | 0.70 (0.41 -1.22)   | 0.214   |  |
| - Living with partner                        | 76    | 1655.05  | 19    | 11.48                   | 1                   |         | 1                   |         |  |
| <b>Residence</b>                             |       |          |       |                         |                     |         |                     |         |  |
| - Military area                              | 94    | 1865.72  | 29    | 15.54                   | 2.08 (1.33 - 3.27)  | 0.001   | 2.28 (1.36 – 3.81)  | 0.002   |  |
| - Non military area                          | 321   | 7292.41  | 54    | 7.40                    | 1                   |         | 1                   |         |  |
| <b>SES</b>                                   |       |          |       |                         |                     |         |                     |         |  |
| - Lowest tiers                               | 126   | 2786.62  | 28    | 10.05                   | 1.09 (0.65 - 1.83)  | 0.732   | 1.48 (0.83 - 2.66)  | 0.186   |  |
| - Middle tiers                               | 141   | 3122.62  | 25    | 8.01                    | 0.86 (0.51 - 1.47)  | 0.586   | 0.83 (0.48 - 1.44)  | 0.509   |  |
| - Highest tiers                              | 148   | 3248.88  | 30    | 9.23                    | 1                   |         | 1                   |         |  |
| <b>Number of living children</b>             |       |          |       |                         |                     |         |                     |         |  |
| - ≤ 2  | 164   | 3350.76  | 54    | 16.12                   | 3.31 (2.11 - 5.20)  | < 0.001 | 3.64(2.19 – 6.08)   | < 0.001 |  |
| - 3 or more                                  | 251   | 5807.38  | 29    | 4.99                    | 1                   |         | 1                   |         |  |
| <b>Contraceptive history</b>                 |       |          |       |                         |                     |         |                     |         |  |
| - Ever used injectable or implant            | 45    | 1076.15  | 2     | 1.86                    | 1                   |         | 1                   |         |  |
| - Never used injectable or implant           | 370   | 8081.98  | 81    | 10.02                   | 5.49 (1.35 - 22.32) | 0.017   | 4.49 (1.09 - 18.55) | 0.038   |  |
| <b>Experienced heavy/ prolonged bleeding</b> |       |          |       |                         |                     |         |                     |         |  |
| - Yes  | 131   | 2800.73  | 39    | 13.92                   | 2.05 (1.33 - 3.16)  | 0.001   | 1.96 (1.26 – 3.04)  | 0.003   |  |
| - No   | 284   | 6357.41  | 44    | 6.92                    | 1                   |         | 1                   |         |  |
| <b>Method Information Index</b>              |       |          |       |                         |                     |         |                     |         |  |
| - < 3  | 188   | 4112.46  | 49    | 11.92                   | 1.81 (1.17 - 2.81)  | 0.008   | 2.08 (1.32 - 3.28)  | 0.002   |  |
| - =3   | 227   | 5045.67  | 34    | 6.74                    | 1                   |         | 1                   |         |  |
| Overall                                      | 415   | 9158.13  | 83    | 9.06                    |                     |         |                     |         |  |

\*p-m: person-months