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**Long-Acting Reversible Contraception Free of
Charge: Initiations, User Characteristics, and
Induced Abortions**

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ABSTRACT

Long-acting reversible contraception (LARC) methods are the most effective methods in preventing unintended pregnancy. LARC methods include intrauterine devices, contraceptive implants, and injectables, and do not require any daily tasks from the user. Hence, these methods are as effective in practical use as at their theoretical best. Expert organizations advocate the use of LARC methods as a first-line choice for all women, as these methods are not only effective but also safe and cost-effective. However, on the global scale, there are many barriers to LARC use. These include lack of patient and provider awareness, high up-front costs, and misconceptions about safety. For this this reason, in most Western countries, these methods are not as widely used as short-acting methods. Programs addressing these barriers and promoting LARC have been evaluated, but little is known of the effects of a public program providing LARC methods free of charge on the population level.

This thesis evaluates the effects and characteristics of a public LARC program in the City of Vantaa in the Helsinki Metropolitan Area of Finland. In Vantaa, rates of induced abortion were for a long time higher than both national and regional levels. In January 2013, a public program was launched aiming at preventing unintended pregnancies and thus reducing rates of induced abortions. This program offered all women their first LARC method free of charge at public family planning clinics. These clinics have been in place since the 1970s, with well-established services, and they are frequently used by the local population. When the LARC program started, the only new benefit was the provision of free-of-charge LARC methods, while all other services, legislation, and access regarding induced abortion remained unchanged.

For this thesis, a new population cohort was established. The complete study population comprised all women living in Vantaa in 2013–2014 aged 15–44 years who were eligible for free-of-charge LARC, almost 50,000 women in total. Eligibility was defined as not having a LARC initiation or removal at public clinics since 2000. All women using public contraceptive services during the first two years since the beginning of the public LARC program were identified (9,669 women), as were all women who initiated a LARC method free of charge (2,035 women). The cohort participants were monitored by means of national registers to identify all the pregnancies that had started before February 28th, 2016.

This dissertation consists of three articles. The first article describes factors predicting the initiation of a free-of-charge LARC method among those eligible. A history of delivery increased the odds for initiating a free-of-charge LARC method in all age groups (odds ratio [OR] 5.39, 95% confidence interval [CI] 4.69–6.19). A history of induced abortion was also associated with initiation (OR 1.39, 95% CI 1.21–1.56), but in age-stratified models, this association was only present among women younger than 25 years of age. Other factors significantly associated with LARC initiation were being 20–24 years old (OR 1.25, 95% CI 1.07–1.47), being

married (OR 1.23, 95% CI 1.08–1.40), and not having used public family planning clinic services within two years before this study (OR 1.31, 95% CI 1.17–1.46).

The second article assesses the need for induced abortion during follow-up among women eligible for a free-of-charge LARC method. Altogether, 78,500 person-years were monitored, and the mean follow-up time was two years. Women initiating and those not initiating LARC methods at public family planning clinics were compared. In addition, both groups were compared with age-matched population controls from the complete study population not using public family planning services. The rate of induced abortions was 80% lower among women who initiated free-of-charge LARC compared to women not initiating a LARC method, despite being eligible for one free of charge (adjusted rate ratio [aRR] 0.20, 95% CI 0.11–0.32). Furthermore, the rate of induced abortions was more than 70% lower among women initiating LARC methods than among their population controls (aRR 0.26, 95% CI 0.14–0.43). However, there was no difference in the rate of induced abortions among women using public family planning services but not initiating a free-of-charge LARC as compared to their population controls (aRR 1.01, 95% CI 0.87–1.18).

In the third study, times series methods were used to investigate the effects of the public program on the population level. The step change in monthly mean rates of LARC initiations was assessed, adjusting for confounders on the aggregated level. A significant increase in the rate of LARC initiations was identified in all age groups: almost four-fold among 15–19-year-olds and approximately two-fold among 20–44-year-olds. The time series of induced abortions in the neighboring municipality of Espoo was included when evaluating the change in monthly mean rates of induced abortions to control for possible concurrent events affecting the local rates of induced abortions. These analyses revealed a reduction in the rates of induced abortions of 36% among 15–19-year-old women (aRR 0.64, 95% CI 0.54–0.74) and of 14% among 20–24-year-old women (aRR 0.85, 95% CI 0.74–0.96). The modest reduction in rates of induced abortions seen among 25–44-year-olds was not statistically significant (aRR 0.94, 95% CI 0.84–1.03).

To conclude, the public program in Vantaa reached women with a history of induced abortion and delivery well. The program was associated with a reduced need for induced abortion assessed by both survival analysis on the individual level and with time series analysis on the aggregated level. Thus, the free-of-charge program addressed an unmet need for family planning services in the population. In addition, the program was cost-effective among women under 25 years of age.

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