Budget Impact Analysis of Etonogestrel Subdermal Implant in a Brazilian Private Health Insurance

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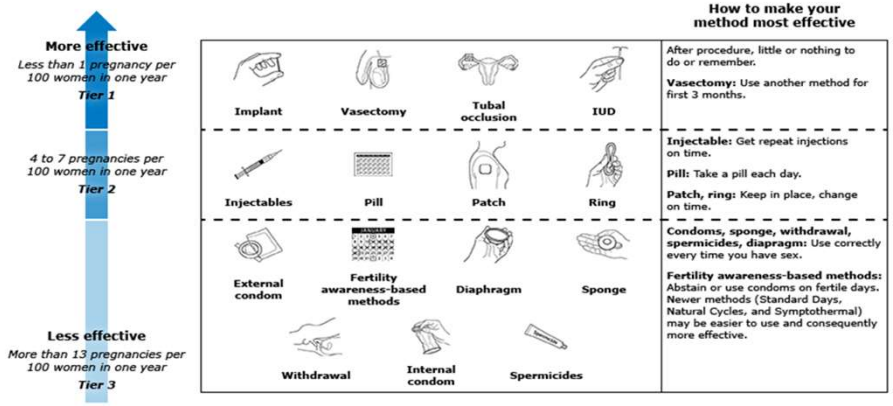
INTRODUCTION

The radiopaque etonogestrel implant is a long-acting hormonal contraceptive containing 68 mg of etonogestrel indicated for the prevention of pregnancy and is considered one of the most effective and safe (Figure 1). The dosing recommendations are for a single implant that is inserted subdermally in the upper (non-dominant) arm and can be left in place for three years (1). Etonogestrel is released gradually, starting at a rate of 60 to 70 mcg/day, which decreases to 35 to 45 mcg/day by the end of the first year, further reducing to 30 to 40 mcg/day by the end of the second year, and subsequently to 25 to 30 mcg/day beyond the third year (2). Findings from a prospective study suggest that the average serum concentration of etonogestrel remains at a level sufficient for contraception for at least up to the fifth year of implant use (3). The minimum serum etonogestrel level necessary to suppress ovulation is reported to be 90 pg/mL (4). Although individual characteristics and genetic variations may influence etonogestrel levels, this knowledge does not alter clinical management (5).

Figure 1 - Contraception effectiveness



OBJECTIVE

This study aimed to evaluate the budgetary impact of the etonogestrel subdermal implant (ESI) compared to the hormonal intrauterine device (IUD) from the perspective of a private health insurance in Brazil over a 5-year time horizon.

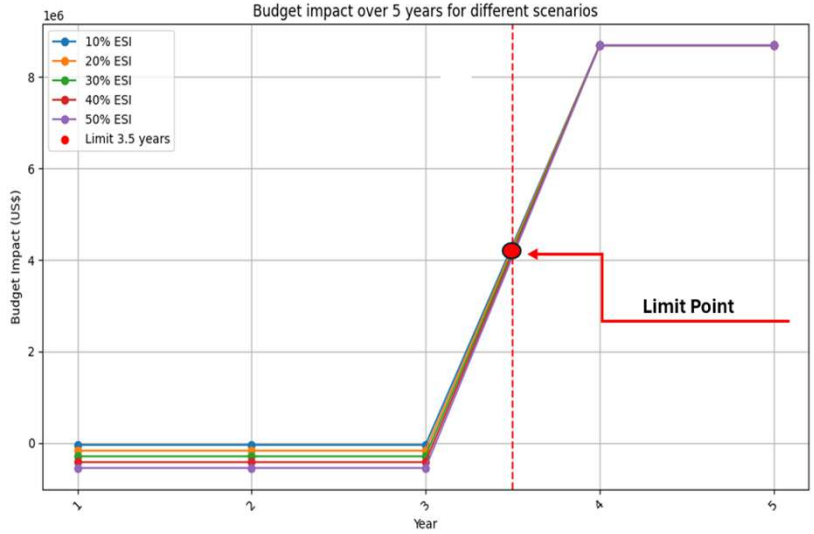
METHODS

A budget impact analysis (BIA) was conducted using data from Unimed Sorocaba health insurance from November/2022 to October/2023. The number of eligible patients was determined considering IUD insertions in clinics (IUD-C), hospitals (IUD-H), and ESI. In each subsequent cohort, we incorporated the estimated increase in usage, calculated as the ratio between insertions and the average annual beneficiary increase. Costs were estimated based on acquisition and insertion values, considering a 5-year usage period for IUD and 3-year for ESI, in accordance with Brazilian legislation, including ESI reinsertion. The reference scenario reflected the actual distribution between IUD-C, IUD-H, and ESI, while alternative scenarios were simulated with variable ESI market shares of 10%, 20%, 30%, 40%, and 50%.

RESULTS

Over 5 years, with an annual increase, 21,346 eligible patients were identified. The cost per patient for acquisition and insertion was US$ 263.23, US$ 288.28, and US$ 662.23 for ESI, IUD-C, and IUD-H, respectively. The budget impact in the reference scenario was $8,690,467.37. Over the 5 years, ESI was associated with cost savings in the first three years, resulting in a decreasing budget impact as its market share increases: 10% -US$40,053.67, 20% -US$165,870.31, 30% -US$291,686.95, 40% -US$417,503.59, 50% -US$543,320.23. Figure 2 below illustrates the point of diminishing cost-effectiveness ESI over a duration of 3.5 years. Sustaining an acceptable cost-effectiveness ratio for ESI necessitates its utilization by more than 50% of eligible patients subsequent to this timeframe.

Figure 2 – Limit point: 3.5 years



CONCLUSION

The favorable financial implications of adopting ESI as a substitute for the IUD are particularly notable, especially within a 3.5-year timeframe. Additionally, this method demonstrates potential for integration into social programs, as evidenced in Brazil, to mitigate the risk of unintended pregnancy among vulnerable populations, including homeless women and sex workers.

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