

# Cost-effectiveness analysis of etonogestrel contraceptive implant compared to 6 other contraceptive methods based on real world data in France

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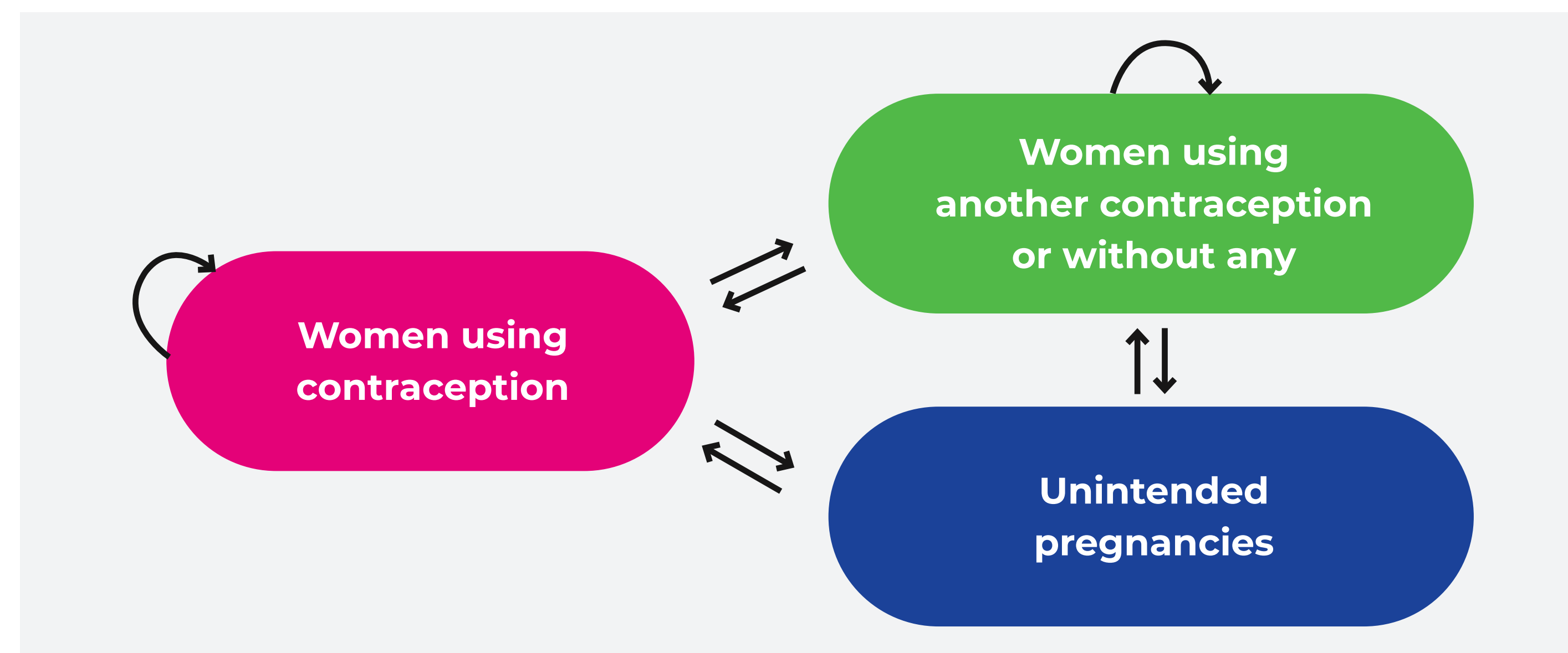
## BACKGROUND AND OBJECTIVES

- In France, the 2022 Social Security Financing Act (LFSS) introduced a strong measure on contraception: **since January 1<sup>st</sup>, 2022, the Health Insurance covers 100% of the cost of contraception and related procedures** (one consultation per year with a doctor or midwife and potential biological tests) without advanced payment for all women up to the age of 25.
- Within this context, an update of the 2020 cost-effectiveness analysis of the etonogestrel (ENG) implant, which is the only contraceptive implant available in France, has been achieved.

## METHODS

- The model was a Markov chain and simulated the contraceptive patterns of sexually active not-pregnancy-seeking French females of reproductive age for 6 years: in each cycle (1 year), a woman can either continue the same contraception, discontinue or switch to another contraception or be pregnant (Figure 1).
- The model assessed incremental cost per unintended pregnancy per person-year (UPPY) of the ENG implant vs other long-term and short-term reversible contraceptive methods: copper Intrauterine Device (IUD), 3 years and 5 years hormonal IUD, second generation oral contraceptive (OC), third and fourth generation OC and progestogen-only pills.
- The model estimates for each cycle the number of women under each contraceptive method, the number of UP and associated cost.

Figure 1: Model structure



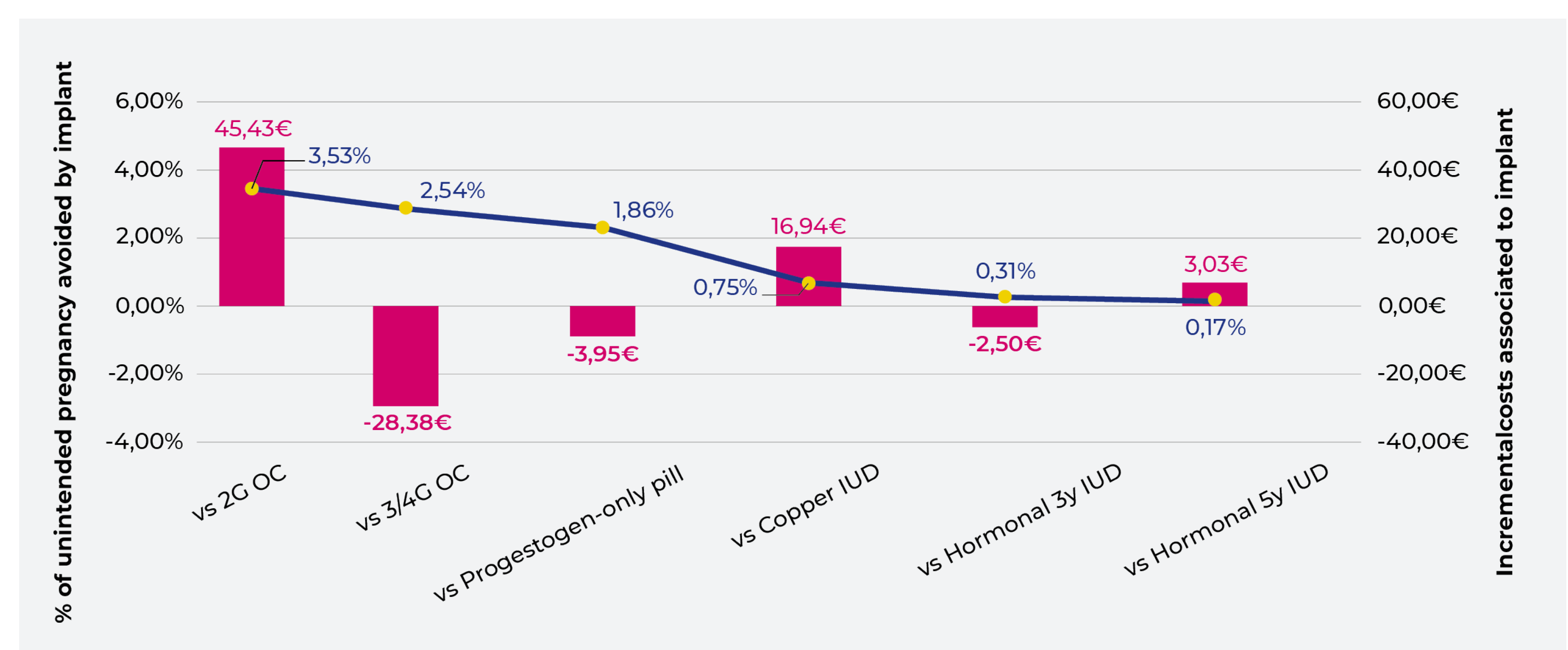
- Contraception effectiveness, switch/discontinuation rates, and pregnancy outcomes following contraceptive failure (birth, extra-uterine pregnancy, miscarriage and abortion), based on an analysis of 2012 French claim database (FACET study<sup>(1)</sup>), have not been modified. **In 2015, these data had been evaluated by the HAS Economic and Public Health Committee and no major objection was formulated.**
- These data are not likely to change over time, which justifies their re-use in this model.
- Contraception costs were composed of medical devices or drugs, exams and medical management (physician visits, procedures and hospitalizations). Since the previous evaluation, costs were updated to €2021 with the most recent databases available, among which Open DAMIR<sup>(2)</sup>.
- A **payer perspective** was adopted and a discount rate of 2.5% was applied to both efficacy and costs as recommended by HAS<sup>(3)</sup>.
- Deterministic sensitivity analysis (DSA) was conducted for key variables and probabilistic sensitivity analysis (PSA) was undertaken with 1,000 iterations.
- 3 new scenarios** were introduced in the model: duration of use of implant at 2 and 5 years and inclusion of midwife consultations for initial and follow-up visits.

## RESULTS

### Base case analysis

- The implant was the most effective contraceptive method among contraceptive strategies tested, avoiding 1.7‰ unplanned pregnancy (UP) per person-year (PPY) over 5 years hormonal IUD and 35.3‰ UP PPY over second generation (2G) COC (Figure 2).
- The implant was associated with additional costs compared to 2G OC, copper IUD and 5-years hormonal IUD, but savings compared to other contraceptive methods.
- Consequently, the implant was on the efficiency frontier along with 2G OC and copper IUD with an ICER vs copper IUD of 2,245€ per additional unintended pregnancy avoided.
- Among LARC, the implant was the most effective method with comparable costs.**

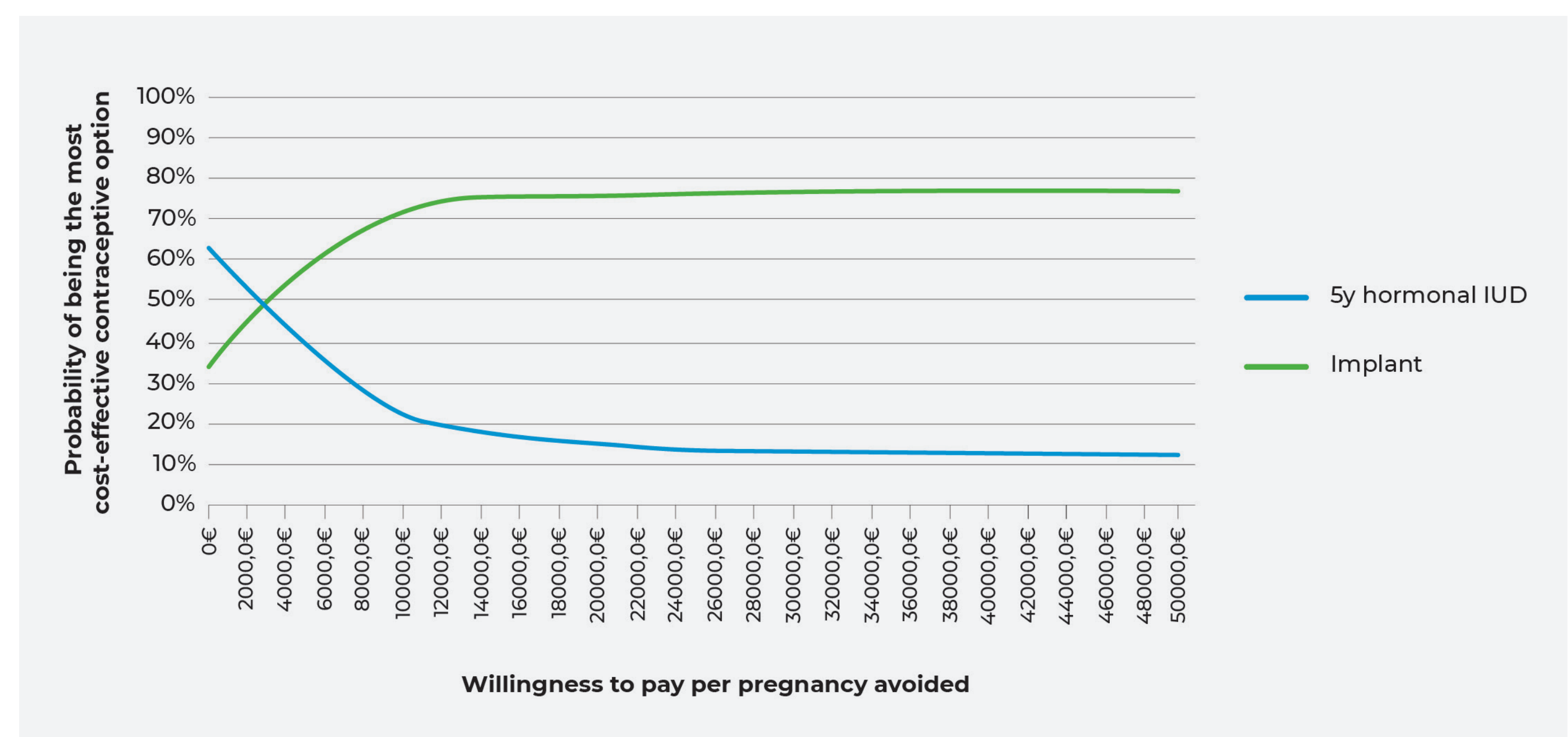
Figure 2: Estimated incremental costs or savings and pregnancy avoided by implant over other strategies



### Sensitivity and complementary analyses

- Sensitivity analyses, including variation of efficacy data or contraceptive persistence rate had a moderate impact on ICER varying from -44.6% to +34.4% of the base case value.
- In particular, two new scenarios confirmed the efficiency of the implant:**
  - The inclusion of midwives in gynecological follow-up** based on data from ARCANE survey<sup>(4)</sup>. The ICER decreased by 13% (1,946€) ;
  - The extension of the efficacy duration of the implant from 3 to 5 years** which resulted by a strong decrease of 43% in the ICER (1,282€).
- When considering a duration of 5 years for the implant, the ICER vs copper IUD was 1,282€ per additional unintended pregnancy avoided. Compared to 5 years hormonal IUD, at a willingness to pay of 10,000€ per pregnancy avoided, the ENG implant had a 77% probability to be the most cost-effective method (Figure 3).

Figure 3: Acceptability curve of 5 years implant versus 5 years hormonal IUD



## CONCLUSION

- The ENG implant remains cost-effective**, with an ICER of 2,245€ per additional unintended pregnancy avoided.
- The efficiency of the implant** compared to long-term and short-term reversible contraceptive methods **is not challenged and is even destined to continue in case its efficacy duration is increased.**
- The inclusion of midwife's consultations in the patient's care pathway, due to the average annual increase of 7% in their workforce<sup>(5)</sup> and their increasing involvement in gynecological follow-up, does not question the efficiency of ENG implant.

### DISCLOSURE:

L. DUMON and C. GOUZY are employed by ORGANON which sponsored the study.

J. ROBERT and C. FABRON are employed by CEMKA which performed the study.

### REFERENCES:

1. FACET study: French women and their Contraception in 2012 - an EGB database Analysis. 2. DAMIR : base complète sur les dépenses d'assurance maladie inter régimes. 3. HAS. Guide méthodologique « Choix méthodologiques pour l'évaluation économique à la HAS » validé par le Collège le 2 juillet 2020. 4. ARCANE survey. Contraception 2019: Parcours et attentes des femmes de 15 à 50 ans. Février 2019. 5. Rapport Charges et produits – Propositions de l'Assurance Maladie pour 2023.