

## Research Article

### FAMILY PLANNING AND CONTRACEPTION METHODS

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#### ABSTRACT

**Background & Aims:** Based on data from Badan Pusat Statistik (BPS), the increase in Indonesia's population growth by 2022 is estimated to increase by 1.17% compared to the previous year. The family planning (Keluarga Berencana or KB) program is a method implemented to the community in an effort to control the birth rate which results in suppression of the population growth rate. This article aim to summarize some modality of contraceptive method

**Method:** This literature review was compiled based on article obtained using search engine "Google Scholar" and "PubMed" with keyword "Contraceptive", "Intra Uterine Device", and "Implant". There were 34,400 articles were appropriate for this purpose. **Discussion:** The family planning program can effectively prevent maternal and child mortality by avoiding high-risk pregnancies. The types of contraceptives are divided into hormonal and non-hormonal. Intrauterine device (IUD) is a form of contraception which uses a small T-shaped device or object and placed inside uterus. IUD can be used by all women within reproductive age. Contraceptive Implant are long term reversible birth control and placed under the skin of upper arm. Each contraceptive method had its own pros and cons when used. **Conclusion:** There is a lot of contraceptive modalities to use for woman in reproductive age and there are many thing to consider when choosing fittest method. The pros and cons indicarion and contraindications in every method is also weighted in choosing the contraceptive method.

**Keywords:** Contraceptive, Intra Uterine Device, Implant.

#### BACKGROUND

Based on data from Badan Pusat Statistik (BPS), the increase in Indonesia's population growth by 2022 is estimated to increase by 1.17% compared to the previous year.<sup>1</sup> Indonesia ranks 4<sup>th</sup> place as the most populous country in the world with an estimated population of 275 million by 2023, which is divided into 138 million men and 135 million women.<sup>1</sup> Indonesia's SUSENAS in 2022 states that the Indonesian population aged 15-64 years amounts to about 69% of the total population in Indonesia, both female and male.<sup>2</sup> This explains that the majority of Indonesia's population is categorized as productive age. The family planning (Keluarga Berencana or KB) program is a method implemented to the community in an effort to control the birth rate which results in suppression of the population growth rate. The program has been ongoing since 1970 by the Badan Kependudukan dan Keluarga Berencanan BKKBN.<sup>3</sup> The highest number of birth control acceptors in Indonesia is injectable birth control acceptors as of 2022. This is followed by implants, pills, intrauterine devices (IUDs), tubectomy, and condom use. In general, the requirements of an ideal contraceptive method are safe, which does not cause severe complications to the patient; effective, which is beneficial to the patient; acceptable, which is acceptable among all users, culture, and environment; affordable, which is easy to find and buy by the community; and immediate return of fertility after discontinuation of contraceptive use, except permanent contraception such as surgery.

#### METHOD

This literature review was compiled based on article obtained using search engine "Google Scholar" and "PubMed" with keyword "Contraceptive", "Intra Uterine Device", and "Implant". There were 34,400 articles that were appropriate for this purpose.

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#### DISCUSSION

##### Family Planning

A contraceptive is a device used to prevent fertilization of an egg by a spermatozoa so that pregnancy does not occur. The family planning program can effectively prevent maternal and child mortality by avoiding high-risk pregnancies. The methods or devices used in family planning programs have three general functions, namely delaying pregnancy (<20 years), spacing pregnancy (20-35 years), and stopping fertility in the long term (35 years) for couples of childbearing ages.<sup>4</sup> Therefore, family planning programs can be temporary or permanent according to the type of contraceptive and its effectiveness. The types of contraceptives are divided into hormonal and non-hormonal.<sup>4</sup>

Non-hormonal contraceptives can be in the form of natural family planning which consists of the calendar method, basal body temperature method, cervical mucus method, lactational amenorrhea method (MAL) and coitus interruptus, then the use of devices such as male condoms, vaginal diaphragms, and spermicidal gels, then IUDs, as well as stable contraceptive surgery (tubectomy and vasectomy). Hormonal contraceptives include pills, injections, and implants.

The natural family planning calendar/periodic abstinence method is carried out with the rule that couples are prohibited from having intercourse when the wife is in the fertile period, but the effectiveness of this method is quite lacking. The MAL method relies on exclusive breastfeeding without other food > 8x a day until the baby is 6 months old.<sup>5</sup> The coitus interruptus method is defined as interrupted coitus in which the male genitalia is removed from the vagina shortly before ejaculation so that it is expected to reduce the possibility of meeting the sperm with the egg, but this method often fails. The condom method is useful to block the meeting of sperm and eggs and prevent the transmission of sexually transmitted infections. Furthermore, the use of IUDs is a contraceptive device that is installed in the uterus by

clamping the two channels so that fertilization does not occur.<sup>4</sup> High effectiveness reaches 99% and long-term methods up to 3-10 years from installation and is often used in the pregnancy spacing phase.<sup>4,6</sup> One of the most widely chosen contraceptives is injectable birth control, which consists of 1-month and 3-month injections.<sup>4</sup> This is because injections are practical, safe and inexpensive contraceptives, so their effectiveness is quite high if injections are carried out regularly according to schedule. Injectable birth control contains only progesterone and a combination of progesterone and synthetic estrogen.<sup>7</sup> Hormonal pills are also available as combined oral pills (POK), and mini pills (progesterone only). Meanwhile, implants are contraceptives inserted under the skin with progestin content and high effectiveness, 5 years of protection and rapid return to fertility after removal.<sup>8</sup> The method of stable contraception, namely tubectomy, is a voluntary procedure for women if they do not want to become pregnant again by occluding the fallopian tubes, or vasectomy by occluding the vas deferens to prevent sperm transportation.<sup>4</sup>

### Intrauterine Device

Intrauterine device (IUD) is a form of contraception which uses a small T-shaped device or object and placed inside uterus. IUD can be used by all women within reproductive age.<sup>9</sup>

There are two types of IUD which are copper and levonorgestrel-containing IUD. Copper-containing IUD is a type of non-hormonal IUD which able to damage the sperms, disrupting their viability, and inhibit their motility. Copper-containing IUD acts as spermicide by increasing the copper ions, prostaglandin, and white blood cells within the uterus, so the sperms are not able to travel through cervical mucus. The copper-containing IUD is also able to prevent implantation by altering the endometrial lining. Meanwhile, the levonorgestrel-containing IUD is a type of hormonal IUD which prevent pregnancy by releasing progestin. The progestin makes the sperm hard to enter the uterus because this hormone will thicken the mucus in the cervix. The levonorgestrel-containing IUD is also able to inhibit sperm mobility and ovum transport.<sup>10,11</sup>

All types of IUD have the same indication, which is used for contraception. The copper-containing IUD can be used up to 10-12 years, meanwhile the levonorgestrel-containing IUD can be used up to 3-5 years. IUD can be used at any time during menstrual period and if there are no contraindications to the wearer. IUD can be used as post-partum contraception which is placed within 10 minutes of delivery of the placenta or within 4-6 weeks after delivery. IUD may be used after abortion if it is not a septic abortion. The copper-containing IUD is also stated to be able to be used as emergency contraception within 5 days of unprotected intercourse. There are also several contraindications of the use of IUD which are pregnancy or suspected pregnancy, congenital uterine abnormality, uterine or cervical malignancy, abnormal uterine bleeding, sexually transmitted infection, pelvic inflammatory disease, pelvic infection, septic abortion and postpartum endometritis (within the last 3 months), hypersensitivity, and unremoved previously inserted IUD. There are also some specific contraindications according to the type of IUD. The additional contraindications of levonorgestrel IUD are acute liver disease, benign or malignant liver tumors, breast malignancy, and other progestin-sensitive cancers. Meanwhile, the contraindications of copper-containing IUD are allergy to copper and Wilson disease. The primary indication of removal of IUD is patient's preference. It can be removed if the patient has desire for pregnancy or unwanted side effects such as pain or discomfort, irregular bleeding pattern, and heavy menstrual bleeding. IUD must be removed if there is intrauterine pregnancy and uterine or cervical malignancy.<sup>10,12</sup>

The equipment needed in the installation of IUD include gynaecological examination table, non-sterile and sterile gloves, antiseptic liquid, speculum, tenaculum, and IUD itself. The procedure of IUD installation includes informed consent regarding the installation of IUD; standard precautions for the physician who will insert the IUD; preparation of the IUD user and assembly of IUD equipment with sterile technique; speculum placement inside the vagina for inspection; insertion of tenaculum to fixates the uterus position; determination of uterus length by placing uterine probe inside the uterus; and finally, insertion of IUD inside uterus using a special inserter.<sup>13</sup>

The benefits of using IUD include efficacy, it is highly effective in preventing short interval between pregnancies; ease of use, it can be inserted or removed at any time; reversible nature; it does not completely suppress ovulation; it has short time insertion (approximately 5 minutes). The fertility of the user will immediately be return once the IUD is removed. Meanwhile, the side effects of IUD include menstrual bleeding pattern change, pelvic pain, progesterone-related effects (nausea, headache, breast tenderness, acne, and mood changes), and expulsion of IUD. The copper-containing IUD can lead to cramping and heavy menstrual bleeding; meanwhile, the levonorgestrel-containing IUD can lead to irregular prolonged spotting, oligomenorrhea, or amenorrhea.<sup>10,14-17</sup>

### Implant

Contraceptive Implant are long term reversible birth control and placed under the skin of upper arm. The device took form of small plastic rod about the size of match stick. The implant works by slowly releasing progesterone in your body, so the ovulation will be halted. Progesterone also make the cervical mucus thicken and thinning the womb lining, those condition will obstruct sperm movement through the cervix and less likely for the uterus to accept the fertilized ovum.<sup>18</sup> The procedure is burrowing some rod under the skin usually in upper arm and then that implants will release steady dose of levonorgestrel. Replacement of the rod will be done every 5 years for Norplant and 3 years for Implanon. The benefit of using such contraceptive method are can be used in woman who cannot use contraceptive method that contain estrogen, do not increase blood pressure, and minimize change of ectopic pregnancy when compared to intra uterine device.<sup>19</sup> There is some contraindication for Levonorgestrel (LNG) implant or Norplant such as abnormal uterine bleeding, confirmed or suspected pregnancy, breast cancer, cancer of the genital tract, and cerebrovascular or coronary artery disease. Within six month of insertion there will be some probability of irregular menstrual bleeding like increased or decreased menstrual flow, spotting, irregularity, and amenorrhea, mood changes, and headaches for its side effects. The fertility after removal will return within 3 months for 50% user and 1 year for 80% users. The etonogestrel (ENG) implant or Implanon had some adverse effects such as irregular periods, weight gain, acne, headache, breast tenderness, emotional lability, and abdominal pain and the physiological ovarian function will return in 3-4 weeks after removal. The ENG implant is safe for all reproductive-aged women, they represent safe and effective systems even when inserted immediately post-partum or post-abortion.<sup>20</sup>

### CONCLUSION

There is a lot of contraceptive modality to use for woman in reproductive age and there are many thing to consider when choosing fittest methode. The pros and cons indicarion and contraindications in every methode is also weighted in choosing the contraceptive methode.

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