



A Pilot Study of a CuIUD (Nova-T 380®) insertion technique (PPIUD) at Caesarean Section

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RCOG WORLD
CONGRESS 2025
23-25 June 2025 | ExCeL London

Introduction

Around 218 million women in low- and middle-income countries (LMICs) require modern contraception. In South Africa, 59% of sexually active women use modern methods, but only 1% use intrauterine devices (IUD) which maybe increased with Post Partum IUD (PPIUD) insertion during CS. However, concerns include higher expulsion rates (0-15%) and non-visible/ "missing" strings (30-60%) at follow up, which often necessitate further ultrasound/ X-ray/ specialist referral which create a barrier to it's consistent use.

Insertion Techniques and Guidelines:

Many training manuals focus on PPIUD following vaginal delivery a but those that include intra-CS PPIUD insertion recommend *against* guiding IUD strings through the cervix to avoid infection or displacement. However, several studies

have included manual insertion or the use of the inserter tube to guide strings through the cervix at the time of CS with especially lengthened IUD strings with Vicryl suture, facilitating removal if complications arise. These studies had small sample sizes and did not verify IUD fundal placement prior to hospital discharge.

Challenges and Barriers:

Non-visible strings at follow-up may result from expulsion, coiling in situ, malposition, or perforation. LMICs face additional challenges due to limited access to specialists and imaging tools.

Need for Further Research:

There are no randomized controlled trials comparing outcomes of passing strings through the cervix versus leaving them in the lower uterine segment during CS

Aim: To evaluate the accuracy & feasibility of a novel IUD insertion technique during CS.

Hypothesis: This technique may **reduce the need for ultrasound** to locate IUDs when **strings are missing**, while still ensuring accurate fundal placement

Method

Prospective observational pilot study at two hospitals in Cape Town, South Africa (August 2021 – May 2022)

Inclusion Criteria

- Women > 18 yrs undergoing CS & CuIUD insertion
- Sample size: convenient sample

Exclusion criteria

- WHO Medical Eligibility Criteria category 3/4 for CuIUD, prolonged rupture of membranes >18hours, antepartum hemorrhage, postpartum hemorrhage at CS.

Signed consent obtained by the two investigators

The two investigators performed the CS & inserted the Nova-T 380® (Bayer OY, Finland)

Method of Insertion at time of CS

- Proceed with CS, deliver baby and placenta
- Place sutures on each corner of uterine incision to aid hemostasis.
- Remove the Nova-T380® IUD from the package in a sterile manner. (Figure 1)
- Remove and discard the inserter rod.
- Leaving the IUD with flexible arms extended and still in the inserter tube, remove the yellow flange
- Cut strings to approximately 22cm in length. (Nova-T380 strings are 29cm)
- Using the inserter tube advance the IUD through the uterine incision into the uterine cavity and place the

IUD at the fundus of uterus

- Gently manipulate the inserter tube so that the caudal end can be threaded into the internal os
- Advance the inserter tube about 3cm through the cervix into the vagina allowing release of IUD from inserter tube. Check that IUD has not been dislodges from fundus
- Proceed with the usual closure of the uterus
- Whilst still in theatre, when the uterus is "rubbed up" and vaginal clots expelled, gently remove inserter tube from vagina digitally.
- Perform speculum examination to ascertain visibility of strings at cervical os. Trim strings to 2cm from external

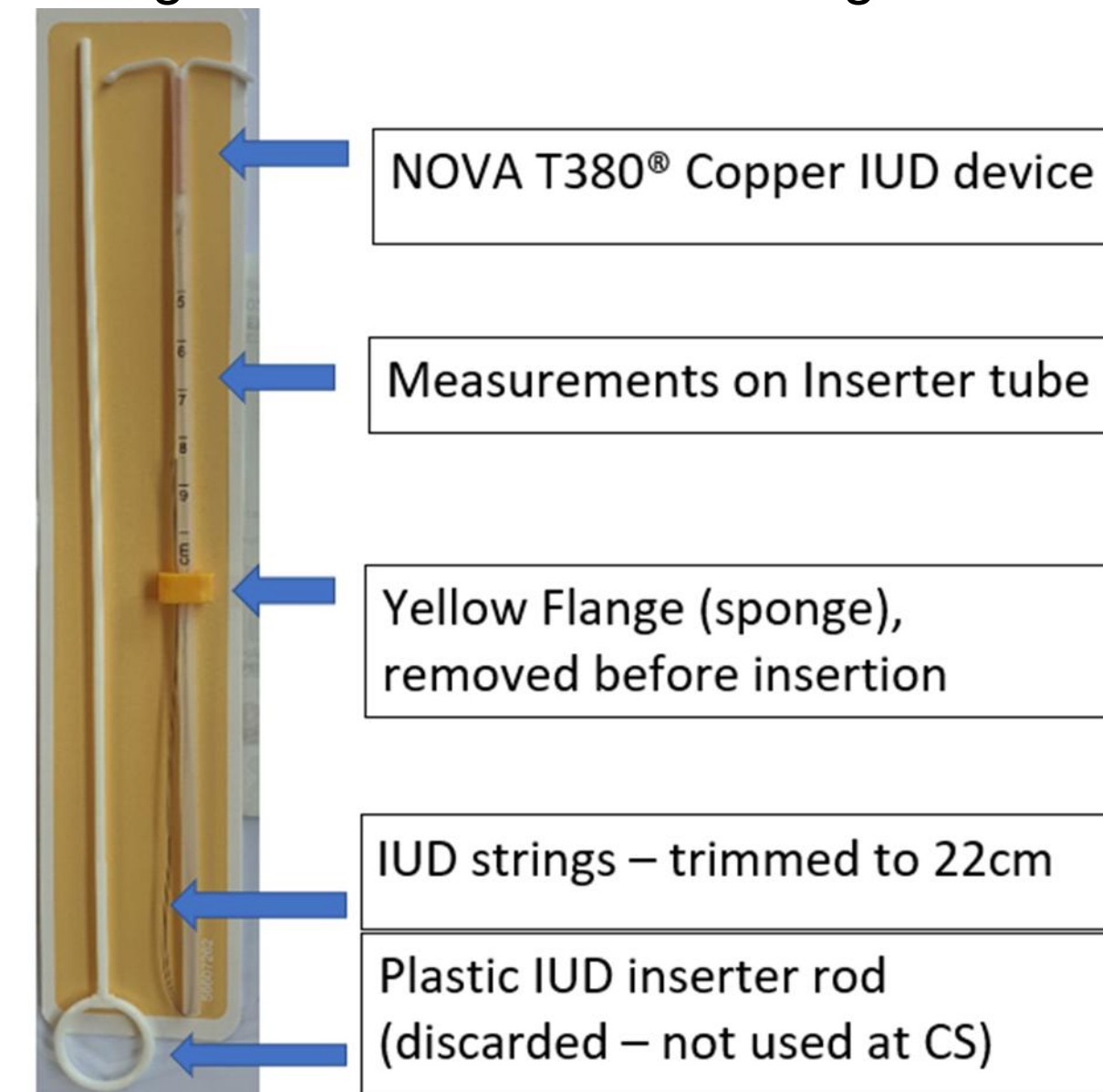


Figure 1. Nova T380® (Bayer) as provided in manufacturer's sterile packaging

Method continued...

Day2-3 Post CS

- Transabdominal ultrasound was performed and IUD location distance within the myometrium was recorded on sagittal view. (figure 2)
- The IUD myometrium distance was defined as the distance of the upper end of vertical arm of the IUD and the apex of the cavity of the uterus.

Figure 2: Day 2-3 Transabdominal US .



Follow up 4-8 weeks post partum

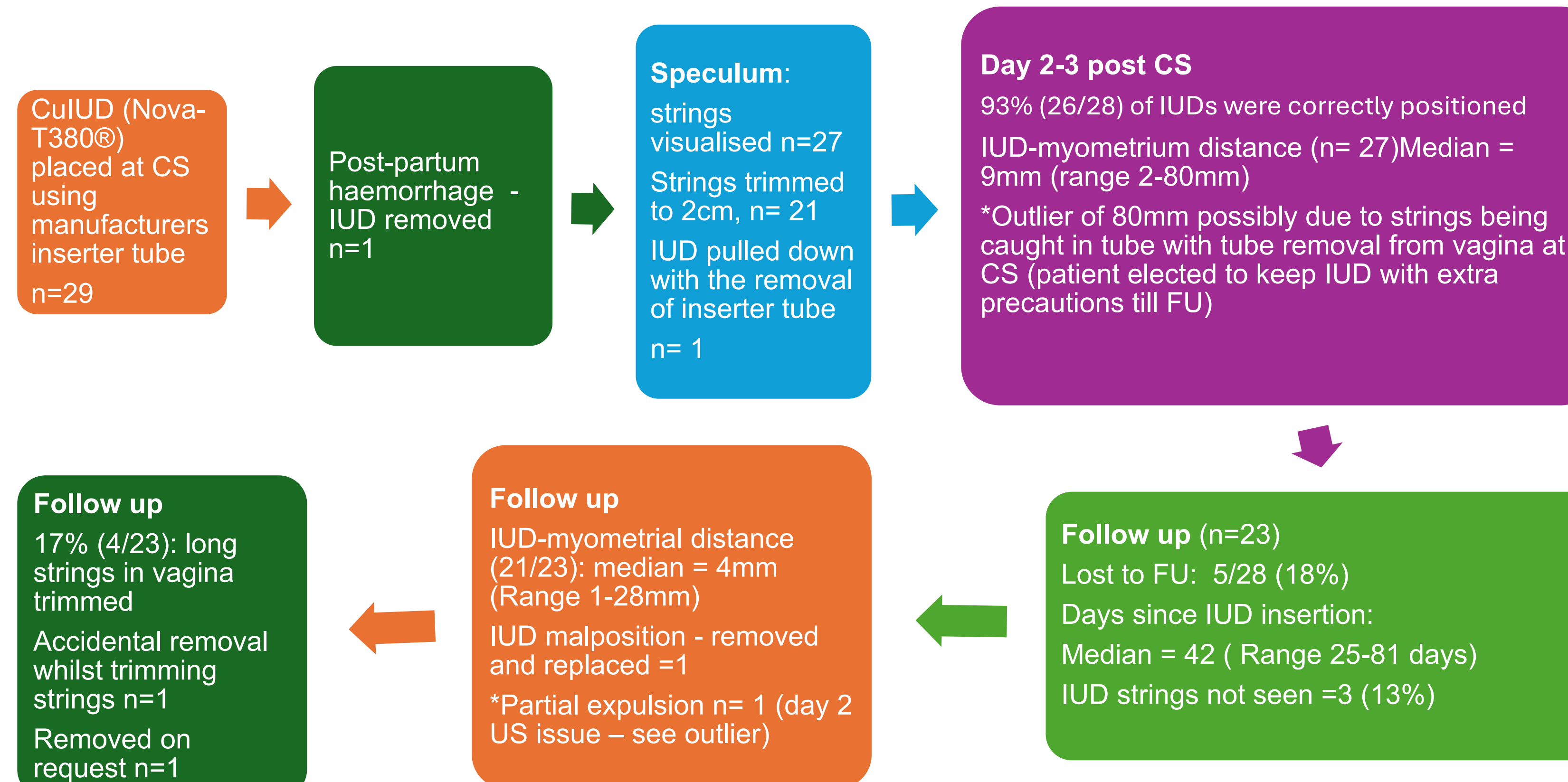
- Follow up: Speculum examination confirmed the presence of the IUD strings and timed. If necessary,
- Transvaginal ultrasound: IUD-myometrial distance (figure 3)
- Partial Expulsion determined If the stem of the IUD was seen on speculum examination or in the cervix on ultrasound.

Figure 3 :Follow up transvaginal US.



Results

Figure 4 : Study Flow: CuIUD (Nova-T380®) insertion at CS; Day 2-3 - and 4-8-week IUD-myometrial placement on ultrasound, and outcomes



Key Findings and Recommendations

• Simple Technique:

Using the standard IUD inserter tube during Caesarean section is feasible and practical — instruments are already available in the operating room.

• Important Caution:

When removing the inserter tube through the vagina, care must be taken to avoid traction that could dislodge the IUD from the fundus.

• Addressing Missing Strings:

This technique may help reduce the problem of missing strings by allowing the strings to pass through the cervix into the vagina.

• Call for Further Research:

- Larger studies are needed, with multiple clinicians involved to reflect real-world conditions.
- Randomized controlled trials (RCTs) are essential to determine the optimal IUD insertion technique at CS.

Ethics

The Human Research Ethics Committee of Stellenbosch University, South Africa approved the study. (HREC reference nr: S2011/327)

Conflicts of Interest

JK sits on the Adcock Ingram Women's Advisory board in South Africa. In the past she has received remuneration from Bayer, MSD and Organon. No remuneration or industry funded sponsorship was received for this study.

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