Society of Family Planning

Science Says

Misoprostol Only is Safe and Effective

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The Society of Family Planning, with critical leadership from Sarah Baum, MPH, Heidi Moseson, PhD, MPH, Ruvani Jayaweera, PhD, MPH, and Caitlin Gerdts, PhD, MHS, compiled the following research to serve as a resource to members and advocates in need of a high-level summary of key evidence on the use of misoprostol only for abortion. Please note this summary of existing evidence should not be read as clinical guidance.

Medical guidance in the US and around the globe supports use of misoprostol only for abortion throughout pregnancy.

- Misoprostol only is a regimen for medication abortion that is commonly used worldwide. Misoprostol is widely available, inexpensive, and easy to administer.[1,2]
- Misoprostol is currently US Food and Drug Administration approved only for "the prevention and treatment of NSAID-induced gastric ulcers in patients taking NSAIDs and at high risk for ulceration"[3], but is commonly used for a range of off-label indications including: short-term treatment of active duodenal or gastric ulcers with other etiologies, medical management of miscarriage, cervical ripening, induction of labor, treatment of postpartum, and abortion.[4,5]
- Misoprostol is effective at initiating uterine contractions and cervical ripening at any gestational age, and it is used in decreasing doses as the pregnancy advances.[6–8] A randomized trial using misoprostol only for medication abortion after 12 weeks of pregnancy found high effectiveness of sublingual (91%) and vaginal (95%) routes at 48 hours after first dose.[9]
- Many national and international organizations, including the Society of Family Planning, American College of Obstetricians and Gynecologists, International Federation of Gynecology and Obstetrics, National Abortion Federation, and the World Health Organization all recommend two regimens for safe and effective medication abortion care: 1) mifepristone in combination with misoprostol, and 2) misoprostol only, particularly when mifepristone is not legally available or is inaccessible. A sample protocol for medication abortion with misoprostol only at or before 12 weeks is available to assist US clinicians and has been endorsed by the Society of Family Planning.[10] Misoprostol only medication abortion may also be appropriate after 12 weeks, particularly when mifepristone is not legally available or is inaccessible, with more information found in clinical guidance.[11,6]

Use of misoprostol only is effective in clinician-managed and self-managed settings.

Evidence from studies across a range of settings demonstrates that misoprostol only successfully terminates ~80-100% of pregnancies without the need for procedural intervention, with variations within that range based on regimen and pregnancy duration. Differences in reported effectiveness across studies may be attributed to wide variation in timing of follow-up and timing of evaluation for procedural intervention (ranging from <24 hours to 4 weeks), differences in route and timing of doses, number of additional doses of misoprostol, differences in counseling and preparedness, and comfort with or access to clinical care if needed.[12]

- Within the US, a recently published retrospective review analyzed records for 568 people who received misoprostol from the online telemedicine platform, Aid Access. Among 568 misoprostol-only users, 88% (498/568) reported a complete abortion without procedural intervention approximately four weeks following taking the pills.[13]
- A meta-analysis of all available clinical trial data on outcomes following clinician-managed use of misoprostol only for abortion <13 weeks' gestation found that 78% of 12,289 study participants across 42 clinical studies had a complete abortion without need for procedural intervention.[1] The studies varied widely in the misoprostol-only regimens used and time period under observation. For instance, the authors note that 44%of analyzed participants came from two 20-year-old retrospective reviews of patients advised to use now outdated regimens (2-3 doses of 800 mcg inserted vaginally every 24-48 hours).[14,15]
  - Among the 6,359 evaluable participants in the meta-analysis from studies in which ongoing pregnancy was evaluated, 6% (n=384) had ongoing pregnancies.[1]
- Two RCTs that reported on the misoprostol-only regimen currently recommended by SFP, ACOG, and FIGO found that 84% of participants with pregnancies <63 days and 93% of participants with pregnancies <70 days had a complete abortion without need for procedural intervention, assessed at 7-14 days.[16,17]
- Outside of the US, studies of self-managed use of misoprostol only via the 3x800 mcg every 3 hour regimen have found high levels of effectiveness, with 94-100% of participants reporting complete abortions without the need for procedural intervention. These self-managed settings represent a context in which clinical care is much less accessible, if at all, and thus present an opportunity to learn about the effectiveness of the medication when procedural intervention is largely unavailable.
  - A study in Pakistan documented abortion outcomes among 120 women with pregnancies <10 weeks gestation who used misoprostol only, supported by community health workers, to end their pregnancies. Four weeks after taking the pills, 100% (n=120) were no longer pregnant.[18]
  - A study in Indonesia followed 168 people who self-managed with misoprostol with support from a mobile phone app and found that 72% had a complete abortion without procedural intervention ~ 3 weeks later.[19]
  - A study in two countries with restrictive abortion laws (Argentina and Nigeria) followed 593 people who self-managed their abortion with accompaniment support using misoprostol only. Among participants with pregnancies up to 22 weeks gestation, 98.8% had a complete abortion without surgical intervention. Among those with pregnancies <9 weeks gestation, 99.0% had a complete abortion—concluded to be non-inferior to clinician-managed abortion with misoprostol only.[20]
  - A study in Nigeria followed 74 women who received >800 mcg misoprostol from drug sellers. Even when given inadequate information from the drug sellers, 95.9% reported a complete abortion without procedural intervention one month after taking misoprostol.[21]

Medication abortion with misoprostol only is safe.

Major complications are defined as abortion-related adverse events requiring hospital admission, blood transfusion, or surgery.[22] Major abortion-related complications are extremely rare following use of misoprostol only in both self-managed and clinician-managed settings, similar to safety observed with the combined regimen.

- Among 12,184 evaluable women in the meta-analysis of clinician-managed misoprostol-only abortion, <1% (n=26) received transfusion or were hospitalized for abortion-related reasons.[1]
- Among participants across studies from self-managed use of misoprostol only, the incidence of major abortion-related complications was between 0-1%.[13,18,20,21,23]
- Care seeking may be for symptoms or to confirm completion of abortion and not result in diagnosis or treatment.[21,22]
- Uterine rupture following use of misoprostol only has not been documented in early termination and is extremely rare in later abortion or when inducing labor.[8]

Side effects and acceptability of misoprostol only.

Side effects are similar for the misoprostol-only and combined mifepristone and misoprostol regimens. The side effects of misoprostol only may persist for longer due to the administration of multiple doses of the symptomatic medication.

- Common side effects of misoprostol include nausea, lower abdominal pain (cramping), diarrhea, and fever/chills.[16]
- One RCT that reported on the misoprostol-only regimen currently recommended by SFP, ACOG, and FIGO reported the mean duration of bleeding following use of misoprostol only was 11.5 days (SD=5.9).[16]
- Among 637 participants who self-managed their abortion with accompaniment support in three countries (Argentina, Nigeria, country in Southeast Asia) using misoprostol only, 52.6% of participants reported nausea, 36.4% reported diarrhea, and 28.4% reported fever. (Paper forthcoming)
- In the same study, 99.4% of participants reported experiencing at least some bleeding which typically started after the second (47.4%) or third (38.2%) dose of misoprostol, with heavy bleeding starting after the third dose for most (72.3%) participants. Most reported cramping lasting less than 2 days (80.6%). (Paper forthcoming)
- Data on teratogenicity is outside the scope of this summary.

References

1 Raymond EG, Harrison MS, Weaver MA. Efficacy of misoprostol alone for first-trimester medical abortion: A systematic review. Obstet Gynecol 2019;133:137–47. https://doi.org/10.1097/AOG.0000000000003017.

2 Blanchard K, Winikoff B, Ellertson C. Misoprostol used alone for the termination of early pregnancy. Contraception 1999;59:209–17. https://doi.org/10.1016/S0010-7824(99)00029-3.

3 US Food and Drug Administration. Misoprostol (marketed as Cytotec) Information 2015. https://www.fda.gov/drugs/postmarket-drug-safety-information-patients-and-providers/misoprostol-marketed-cytotec-information (accessed February 10, 2023).

4 Krugh M, Maani CV. Misoprostol. StatPearls, Treasure Island (FL): StatPearls Publishing; 2022.

5 Allen R, O'Brien BM. Uses of misoprostol in obstetrics and gynecology. Rev Obstet Gynecol 2009;2:159–68.

6 World Health Organization. Abortion care guideline. 2022.

7 Blanchard K. Misoprostol for women's health: A review. Obstet Gynecol 2002;99:316–32. https://doi.org/10.1016/S0029-7844(01)01701-X.

8 Kapp N, von Hertzen H. Medical methods to induce abortion in the second trimester. In: Paul M, Lichtenberg ES, Borgatta L, Grimes DA, Stubblefield PG, Creinin MD, editors. Manag. Unintended Abnorm. Pregnancy, Oxford, UK: Blackwell Publishing Ltd.; 2009, p. 178–92. https://doi.org/10.1002/9781444313031.ch12.

9 Tang OS, Lau WNT, Chan CCW, Ho PC. A prospective randomised comparison of sublingual and vaginal misoprostol in second trimester termination of pregnancy. BJOG Int J Obstet Gynaecol 2004;111:1001–5. https://doi.org/10.1111/j.1471-0528.2004.00222.x.

10 Raymond EG, Mark A, Grossman D, et al. Medication abortion with misoprostol-only: A sample protocol. Contraception 2023. https://doi.org/10.1016/j.contraception.2023.109998.

11 Morris JL, Winikoff B, Dabash R, Weeks A, Faundes A, Gemzell-Danielsson K, et al. FIGO's updated recommendations for misoprostol used alone in gynecology and obstetrics. Int J Gynecol Obstet 2017;138:363–6. https://doi.org/10.1002/ijgo.12181.

12 Ibis Reproductive Health. Research Brief: Misoprostol-alone medication abortion is safe and effective. n.d.

13 Johnson DM, Michels-Gualtieri M, Gomperts R, Aiken ARA. Safety and effectiveness of self-managed abortion using misoprostol alone acquired from an online telemedicine service in the United States. Perspect Sex Reprod Health 2023:psrh.12219. https://doi.org/10.1363/psrh.12219.

14 Aldrich T, Winikoff B. Does methotrexate confer a significant advantage over misoprostol alone for early medical abortion? A retrospective analysis of 8678 abortions. BJOG Int J Obstet Gynaecol 2007;114:555–62. https://doi.org/10.1111/j.1471-0528.2007.01274.x.

15 Billings DL. Misoprostol alone for early medical abortion in a Latin American clinic setting. Reprod Health Matters 2004;12:57–64. https://doi.org/10.1016/S0968-8080(04)24010-1.

16 von Hertzen H, Piaggio G, Huong NTM, Arustamyan K, Cabezas E, Gomez M, et al. Efficacy of two intervals and two routes of administration of misoprostol for termination of early pregnancy: A randomised controlled equivalence trial. The Lancet 2007;369:1938–46. https://doi.org/10.1016/S0140-6736(07)60914-3.

17 Sheldon WR, Durocher J, Dzuba IG, Sayette H, Martin R, Velasco MC, et al. Early abortion with buccal versus sublingual misoprostol alone: A multicenter, randomized trial. Contraception 2019;99:272–277.

18 Foster AM, Messier K, Aslam M, Shabir N. Community-based distribution of misoprostol for early abortion: Outcomes from a program in Sindh, Pakistan. Contraception 2022;109:49–51. https://doi.org/10.1016/j.contraception.2022.01.005.

19 Gerdts C, Jayaweera RT, Kristianingrum IA, Khan Z, Hudaya I. Effect of a smartphone intervention on self-managed medication abortion experiences among safe-abortion hotline clients in Indonesia: A randomized controlled trial. Int J Gynecol Obstet 2020;149:48–55. https://doi.org/10.1002/ijgo.13086.

20 Moseson H, Jayaweera R, Egwuatu I, Grosso B, Kristianingrum IA, Nmezi S, et al. Effectiveness of self-managed medication abortion with accompaniment support in Argentina and Nigeria (SAFE): A prospective, observational cohort study and non-inferiority analysis with historical controls. Lancet Glob Health 2022;10:e105–13. https://doi.org/10.1016/S2214-109X(21)00461-7.

21 Stillman M, Owolabi O, Fatusi AO, Akinyemi AI, Berry AL, Erinfolami TP, et al. Women's self-reported experiences using misoprostol obtained from drug sellers: A prospective cohort study in Lagos State, Nigeria. BMJ Open 2020;10:e034670. https://doi.org/10.1136/bmjopen-2019-034670.

22 Upadhyay UD, Desai S, Zlidar V, Weitz TA, Grossman D, Anderson P, et al. Incidence of emergency department visits and complications after abortion. Obstet Gynecol 2015;125:175–83. https://doi.org/10.1097/AOG.0000000000000603.

23 Foster AM, Arnott G, Hobstetter M. Community-based distribution of misoprostol for early abortion: Evaluation of a program along the Thailand-Burma border. Contraception 2017;96:242–7. https://doi.org/10.1016/j.contraception.2017.06.006.