

# A Canadian Perspective on Mifepristone (RU-486) and Abortion Services

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## Abstract

The provision of safe abortion services remains a worldwide problem. The World Health Organization (WHO) estimates that in 2008 there were approximately 22 million unsafe abortions. In an era when women are increasingly able to make their own decisions, Canada will soon have the only medication for first-trimester abortions recommended by the WHO available. Medical abortion allows women to induce an early abortion through the use of drugs rather than undergoing suction aspiration or a dilation and curettage (D & C). In order to be eligible, patients must be certain they want termination, be less than 9 weeks gestational age, be able to understand instructions and follow-up, and willing to have a D & C if required. This would allow for improvements from the perspective of both the patient and physician; an effective medical option would provide more patient-centred care whereby women can regain some control and privacy for their decisions and providers can redistribute their operating room time to be utilized for other surgeries. The hope is that Canada can uneventfully join the majority of the developed world by implementing use of this useful drug.

**Keywords:** Abortions; Mifepristone; Prostaglandins; Pregnancies

## Introduction

The provision of safe abortion services remains a worldwide problem. The World Health Organization (WHO) estimates that in 2008 there were approximately 22 million unsafe abortions, resulting in 47,000 deaths and 5 million hospitalizations for complications [1]. In Canada and the United States, one in three women will have had an abortion in their lifetime. This number is not surprising, considering half of pregnancies are unplanned.

In an era when women are increasingly able to make their own decisions, Canada will soon have Mifepristone available. Under the name Mifegymiso, Linepharma International's application to provide a pack of 200 mg of Mifepristone and 800mcg of Misoprostol has been approved, and availability is

projected for February 2016. To review, RU-486 has been available in France and China since 1988, most of Europe by 1999, the United States in 2000, and Australia in 2012 [2]. Medical abortions in general have been offered starting in the 1970s, beginning first with prostaglandins and eventually in the 1980s with anti-progesterone's such as Mifepristone. In fact, prior to the availability of these medications, pregnant women were required to undergo surgical procedures in order to remove the tissue, and in Canada surgery was the only option offered until the late 1990s.

Medical abortion would allow women to induce an early abortion through the use of drugs rather than undergoing suction aspiration or a dilation and curettage (D & C). In order to be eligible, patients must be certain they want termination, be less than 9 weeks gestational age, be able to understand instructions and follow-up, and willing to have a D & C if required. With regards to medical abortion, the WHO recommends the use of Mifepristone followed by Misoprostol, and has placed this regimen on its Model List of Essential Medicines [3]. RU-486 is considered the gold standard for medical abortion. Canada has been slow to integrate it into its formulary, and thus women have been subjected to the use of second-line Methotrexate or surgical management instead if they decide to terminate. Furthermore, Canadian medical abortion services are restricted to a few sites around the country, predominantly on the West coast in British Columbia [4]. Because of this, less than 5% of abortions are performed medically, as over 96% of the approximately 100,000 abortions performed annually in Canada are done surgically. Unfortunately, surgical abortions are not necessarily easy to access either [4]. Although not as sparsely accessible as the medical option, 46 of the country's 69 dedicated abortion clinics are located in the province of Quebec which holds less than a quarter (23.6%) of the Canadian population [5]. Despite the lack of laws restricting abortion, there are some provinces and territories that do not have any providers, and three major metropolises (Ottawa, Calgary and Edmonton) are served by a single clinic. Moreover, half of the provinces restrict the service to the first trimester. Thus access issues play a major role in pregnancy termination in Canada.

Notwithstanding financial constraints, providers in Canada will be able to offer RU-496 rather than Methotrexate for first-trimester abortions in the new year. There are many benefits to offering a valid medical abortion regime. Patients may avoid

an invasive operation and anaesthetic, can experience this process in the comfort of their own home, and can exert their own control over the process. Because surgical management requires that the patients are further along in gestation, the medical option shortens the time from decision to terminate to action. Success rates are generally high (95-99%), with a small percentage that may require repeated medications or surgical management [6]. Well-counselled patients should be aware that the process takes more time than a surgical procedure, and that it can take days to weeks for completion. Because of this follow-up is necessary.

Currently available for off-label use in Canada, Methotrexate works as an antimetabolite that blocks dihydrofolate reductase to block DNA synthesis while also working on the cytotrophoblast to stop implantation. It can be used up to 49 days gestational age, followed by Misoprostol up to a week later [7]. Mifepristone, unlike Methotrexate, is an anti-Progestin, a derivative of norethindrone. It is followed by Misoprostol within 1 week. By binding to the progesterone receptor, it causes decidual necrosis, cervical softening, increased sensitivity to prostaglandins, and uterine contractility. It has no impact on the growth of the embryo. Misoprostol works by ripening the cervix by decreasing collagen content, increasing collagen solubility, increasing matrix metallo-proteinases, and degrading collagen. Also, its inhibition of adenylyl cyclase reduces cAMP and increases calcium, thus increasing uterine tone which ultimately leads to tissue expulsion.

Although both medical regimens have a high rate of completion, Mifepristone requires less time to completion than Methotrexate, with over 90% completed by week 1 compared to less than 75%, respectively [7]. Other benefits include a longer period of time during which RU-486 can be utilized (up to 63 days vs 49 days), a higher patient acceptability (88.0% vs 83.2%), and the lack of teratogenicity should the pregnancy continue [8].

The availability of Mifepristone will provide Canadian women with a safe and effective alternative to surgery should

they decide not to continue on with their pregnancies. In the past, more than 50% of women questioned would choose medical abortion if available, however, this was not an option in Canada [9]. This would allow for improvements from the perspective of both the patient and physician; an effective medical option would provide more patient-centred care whereby women can regain some control and privacy for their decisions and providers can redistribute their operating room time to be utilized for other surgeries. The hope is that Canada can uneventfully join the majority of the developed world by implementing use of this useful drug.

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