MANDATED BENEFIT REVIEW OF SENATE BILL 622

SUBMITTED TO THE 193rd GENERAL COURT:

AN ACT RELATIVE TO LGBTQ FAMILY BUILDING

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CHIA

Mandated Benefit Review of Senate Bill (S.B.) 622 Submitted to the 193rd General Court

An Act Relative to LGBTQ Family Building

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List of Acronyms and Definitions

Assisted Reproductive Technology (ART): During ART, eggs are removed from a woman's ovaries, combined with sperm in a laboratory, and then returned to the woman's body or donated to another woman.

Cisgender: Used to describe a person whose gender identity matches the sex they were assigned at birth.

Cryopreservation: Used to store human embryos and sperm at very low temperatures, generally for invitro fertilization (IVF).

Embryo: A fertilized egg.

Gametes: A male or female cell that can unite with a cell of the opposite sex for the purpose of reproducing.

Gestational Carrier: A woman who has a fertilized egg from another woman implanted in her uterus to have a child on behalf of another individual.

Heteronormative: Used to describe the concept that human beings are either male or female; assuming heterosexuality is the standard for normal sexual behavior.

Intrauterine insemination (IUI): Sperm that has been collected from a partner or procured from a donor is processed in a laboratory and inserted into the uterine cavity.

In vitro fertilization (IVF): A multicomponent process in which patient is given a medication injection to induce egg maturation; mature eggs are retrieved from the ovaries and then combined (fertilized) with sperm in a culture dish in a laboratory. The resulting embryo or embryos are then transferred into the uterus while fresh or can be frozen for later use (cryopreservation)

LGBTQ+: An acronym for "lesbian, gay, bisexual, transgender and queer" with a "+" sign to recognize the boundless sexual orientations and gender identities of the community.

Oocyte: An immature egg.

Reciprocal IVF: A type of IVF that allows both (biological female) partners to contribute equally to the family-building process. The egg can be provided by one partner, which is then fertilized in the lab and transferred into the other partner's uterus for pregnancy.

Surrogacy: The transfer of an embryo into a surrogate's uterus. The surrogate will then carry the pregnancy until birth for the intended parent(s).

1.0 Benefit Mandate Overview: Senate Bill 622 Titled: An Act Relative to LGBTQ Family Building

1.1 History of the Bill

The Massachusetts Legislature's Committee on Health Care Financing referred S.B. 622 (hereinafter the "bill"), titled "An Act Relative to LGBTQ Family Building,"[1] to the Massachusetts Center for Health Information and Analysis (CHIA) for review. Massachusetts General Law (MGL) Chapter 3 §38C requires CHIA to review the medical efficacy of treatments or services included in each mandated benefit bill referred to the agency by a legislative committee, should it become law. CHIA must also estimate each bill's fiscal impact, including changes to premiums and administrative expenses.

This report is not intended to determine whether the bill would constitute a health insurance benefit mandate for purposes of Commonwealth of Massachusetts (Commonwealth) defrayal under the Affordable Care Act (ACA), nor is it intended to assist with Commonwealth defrayal calculations if it is determined to be a health insurance mandate requiring Commonwealth defrayal.

1.2 What Does the Bill Propose?

As submitted to the 193rd General Court of the Commonwealth of Massachusetts, the bill requires health insurers to cover medically necessary expenses for a diagnosis of infertility and fertility treatment and preservation.

The bill amends current law related to insurance coverage for infertility services, striking out existing language and replacing it with updated language and additional coverage. The bill requires that health insurance provide, as a benefit for all individual subscribers or members within the Commonwealth and all group members having a principal place of employment within the Commonwealth, coverage for medically necessary expenses of diagnosis of infertility and fertility treatment and preservation, to the same extent that benefits are provided for other pregnancy-related procedures.

The bill defines infertility as:

[T]he condition of an individual, whereby an individual is unable to become pregnant or to carry a pregnancy to live birth, or whereby an individual is unable to cause pregnancy and live birth in the individual's partner. An individual qualifies for the diagnosis of infertility and fertility treatment and preservation under this section if the following conditions are met: (1) a board-certified or board-eligible obstetrician-gynecologist, subspecialist in reproductive endocrinology, oncologist, urologist or andrologist verifies that the individual has a need for infertility treatment; or (2) the individual has not been able to carry a pregnancy to live birth.

The bill requires coverage for fertility preservation services when the member has a diagnosed medical or genetic condition that may directly or indirectly cause impairment of fertility by affecting reproductive organs or processes. Coverage under the bill includes procurement, cryopreservation, and storage of gametes, embryos, or other reproductive tissue.

The bill specifically prohibits conditions to receive benefits based on:

- Required waiting periods
- Number of attempts
- Prior treatment
- Age
- Sexual orientation
- Familial status

The bill also notes that coverage, and any limitations thereon, should be based on standards or guidelines developed by the American Society for Reproductive Medicine (ASRM) or the Society for Assisted Reproductive Technology.

In response to a request for clarification, the bill sponsor indicated the bill's intent is to:

- Resolve current heteronormative language in State law to increase access to infertility and fertility preservation treatment for LGBTQ+ [i] persons and nonheteronormative partnerships.
- Apply reasonable time limits related to biological childbearing years.
- Include plans operated by the Group Insurance Commission (GIC) for the Benefit of Public Employees (Chapter 32A) and Health Maintenance Organizations (HMOs) (Chapter 176G).

Furthermore, the sponsor noted, in response to questions about coverage for surrogacy/gestational carriers, that the bill, as filed, "is not definitive." Therefore, this analysis applies reasonable limits for infertility and fertility preservation services applied equitably to the LGBTQ+, single women, and heterosexual populations. The cost report excludes coverage for gestational carrier services and reciprocal IVF.

The language in this report endeavors to be respectful of individual identity expression, and the diverse gender spectrum. Recognition is given to individuals who may identify differently from the sex they were assigned at birth.[ii] For clarity and consistency throughout this paper the term "biological male" refers to an individual who can produce sperm and "biological female" refers to an individual who has reproductive organs that can carry a pregnancy.

1.3 Medical Efficacy of the Bill

Generally, infertility refers to a person's inability to reproduce either as an individual, or with their partner, without medical intervention. Impaired fecundity is a condition related to infertility and refers to women who have difficulty getting pregnant or carrying a pregnancy to term. [2] Policies and clinical practices often define infertility as the failure to establish a clinical pregnancy after a period of regular and unprotected sexual intercourse or other method of exposure to semen: after 12 months for women below age 35, or after six months for women age 35 or older. [3]

Fertility-related challenges are common and may be related to one or both partners. [4,5] Several diseases, disorders, and life events might affect fertility.[6] Fertility in women declines substantially with age. [7] Medically induced infertility refers to when a person becomes infertile due to a medical procedure—often due to chemotherapy or radiation for cancer or related to gender-confirming medical treatments.[8,9,10]

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[i] Although the bill's language does not include the "+," the sponsor's response reflected the inclusion of "+." This language acknowledges the diverse range of sexual orientations and gender identities embraced by individuals within the community.
[ii] Human Rights Campaign. Glossary of Terms. Accessed July 27, 2023. **https://www.hrc.org/resources/glossary-of-terms.**

Fertility preservation refers to the process of saving or protecting sperm, eggs, or reproductive tissue so that a person can use them to have biological children in the future.[11] Treatments for preserving fertility often rely on cryopreservation (freezing) of sperm, eggs, and embryos. Cryopreservation techniques require ART to achieve pregnancy.[12,13]

The methods of cryopreservation of gametes (semen and oocytes) and embryos have been widely used in human reproductive medicine and subject to study for their effectiveness in cell survival and attaining live birth.[14] Long-time storage of semen does not seem to affect its fertilization potential.[15,16] Studies also suggest that the length of oocyte storage also does not affect pregnancy rate outcomes.[17,18] However, younger age of patient is associated with higher oocyte yield with fewer ovarian stimulation cycles, and higher live birth rates, reinforcing the impact of age on fertility preservation.[19,20] Embryo cryopreservation may also be a preferred choice when feasible.[21] Storage of human embryos cryopreserved up to eight years also does not appear to impact pregnancy outcomes.[22]

Treatments for infertility may include IUI or invitro fertilization (IVF). IUI is less invasive, and less costly, but requires a person with a functioning uterus, along with their own egg production either via natural cycle or ovarian stimulation.[23,24] IUI also yields relatively low rates of pregnancy and live births, unless pursued for several cycles. IVF is an intensive and costly procedure involving external handling of egg, sperm, and embryo with transfer into the person carrying the pregnancy. It may use the patient's or donor gametes, or donor embryo. IVF may offer higher likelihood of pregnancy and live birth.[25]

The treatments will vary effectiveness in producing pregnancies and live births, and in avoiding birth complications associated with births of multiples. Treatment outcomes depend on several factors. For fertility preservation, it will depend on the age of the patient, conditions associated with need for service and for individuals who are transitioning, stage of transition. The outcomes for infertility treatment heavily depend on the age of the persons providing the egg, and of the intended pregnancy carrier, and the quality of the sperm provided. Even with such variation, medical evidence supports the use and provision of fertility preservation and treatment, according to professional guidelines, for patients that qualify and may benefit from these services.

1.4 Current Coverage

Although the Commonwealth currently requires coverage for infertility[iii], there is no requirement to provide coverage to preserve fertility. BerryDunn assisted CHIA with performing a mandated benefit review of a proposed bill in 2020 requiring fertility preservation by commercial health insurers. The current bill adopts similar language as the proposed legislation previously analyzed, although the current bill includes language specifically broadening the definition of infertility to include the LGBTQ+ population.

BerryDunn surveyed 10 insurance carriers in the Commonwealth, and five responded. Carriers require that, prior to qualifying for a definition of infertility and related coverage for infertility services, biological female members, without a biological male partner, must undergo three to six cycles of IUI using donor sperm. These initial IUI cycles are inconsistently covered by carriers. However, donor sperm is covered in the cases of male-factor infertility. Carriers

[iii] MGL c.175 §47H, c.176A §8K, c.176B §4J, and c.176G §4I

also report coverage for fertility preservation services, with varying lengths of time gametes can be stored (12 – 24 months).

1.5 Cost of Implementing the Bill

The estimated impact of the proposed requirement on medical expenses and premiums appears below. The analysis includes development of a best estimate "mid-level" scenario, as well as a low-level scenario, and a high-level scenario using more conservative assumptions. The cost of the bill is driven by the provisions of the bill that require coverage of an expansion of fertility and infertility benefits for two populations, biological females with a biological female partner and biological females with no partner, to have consistent coverage of IUI and donor sperm (for both IUI and IVF) and an expansion of coverage for services preserving fertility for medically induced infertility.

Requiring coverage for this benefit by fully insured health plans would result in an average annual increase, over five years, to the typical member's health insurance premium, of between $0.10 to $0.23 per member per month (PMPM) or between 0.016% to 0.038% of premium.

1.6 Plans Affected by the Proposed Benefit Mandate

The bill amends statutes that regulate health insurance carriers in the Commonwealth. It includes the following sections, each of which addresses statutes regarding a particular type of health insurance policy when issued or renewed in the Commonwealth:[26]

- Chapter 32A – Plans Operated by the GIC for the Benefit of Public Employees
- Chapter 175 – Commercial Health Insurance Companies
- Chapter 176A – Hospital Service Corporations
- Chapter 176B – Medical Service Corporations
- Chapter 176G – Health Maintenance Organizations (HMOs)

1.7 Plans Not Affected by the Proposed Benefit Mandate

Self-insured plans (i.e., where the employer or policyholder retains the risk for medical expenses and uses a third-party administrator or insurer to provide only administrative functions), except for those provided by the GIC, are not subject to state-level health insurance mandates. State mandates do not apply to Medicare and Medicare Advantage plans or other federally funded plans, including TRICARE (covering military personnel and dependents), the Veterans Administration, and the Federal Employees Health Benefit Plan, the benefits for which are determined by, or under the rules set by, the federal government.

This report is not intended to determine whether the bill would constitute a health insurance benefit mandate for purposes of Commonwealth of Massachusetts (Commonwealth) defrayal under the ACA, nor is it intended to assist with Commonwealth defrayal calculations if it is determined to be a health insurance mandate requiring Commonwealth defrayal.

Endnotes

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[18] *Op. cit. Waterstone M, Anastácio, Rodriquez-Wallberg KA. Clinical Outcomes of Assisted Reproductive Techniques Using Cryopreserved Gametes and Embryos in Human Medicine. Cryopreservation in Biotechnology in Biomedical and Biological Sciences.*

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[26] Although Chapters 176G and 32A are not included in the bill's current language, the sponsor confirmed the bill's intent is to include both.

AN ACT RELATIVE TO LGBTQ FAMILY BUILDING

MEDICAL EFFICACY ASSESMENT

2.0 Medical Efficacy Assessment

Senate Bill (S.B) 622, as submitted to the 193rd General Court, requires health insurers to cover medically necessary expenses for the diagnosis and treatment of infertility, as well as fertility preservation.

The intent of the bill, as provided by the bill sponsors, is to increase access to infertility treatment and fertility preservation services for the LGBTQ+ population by updating the amended statutes' language to be inclusive. The bill also expands infertility treatment and fertility preservation services for members who do not identify as LGBTQ+.

The language in this report endeavors to be respectful of individual identity expression, and the diverse gender spectrum. Recognition is given to individuals who may identify differently from the sex they were assigned at birth. For clarity and consistency throughout this paper the terms "biological male" refers to an individual who can produce sperm and "biological female" refers to an individual who has reproductive organs that can carry a pregnancy.

The report proceeds in the following sections:

2.0 Medical Efficacy Assessment

- Section 2.1 Fertility Challenges for the LGBTQ+ Population
- Section 2.2 Options for Family Building
- Section 2.3 Medically Induced Infertility and Fertility Preservation
- Section 2.4 Family Building and Fertility Intentions of LGBTQ Individuals and Couples
- Section 2.5 Effectiveness of ART
- Section 2.6 Massachusetts State Law Compared to Other States

3.0 Conclusion

2.1 Fertility Challenges for the LGBTQ+ Population

Impaired fertility refers to difficulty getting pregnant or carrying a pregnancy to term.[1] Infertility is generally defined as the failure to establish a clinical pregnancy after 12 months of regular and unprotected sexual intercourse—assuming involvement of both a biological male and a biological female partner.[2] Fertility in biological females is known to decline steadily with age; some providers, state laws, and insurance policies specify a six-month (rather than 12-month) period of exposure to semen prior to evaluation and treatment of women aged 35 years or older.[3] However, when LGBTQ+ couples have two same-sex partners, a specified period of unprotected sex will have no effect on the likelihood of attaining pregnancy.

In the 2015 – 2019 cycle of the Centers for Disease Control and Prevention's (CDC) National Survey of Family Growth, 12% of women aged 15 – 49 years reported that they had received any type of service to diagnose or treat infertility and 8.9% received medical assistance to become pregnant.[4]

Becoming pregnant involves a sequence of steps and conditions; infertility might result from an issue with one or both partners and with any or several of the steps involved in attaining conception. Regardless of sexual orientation, sexual identity, or marital status, fertility-related challenges are common.[5,6,7]

Advocates and professional groups recognize the specific and substantial barriers faced by single persons, LGBTQ+ couples, and transgender and nonbinary persons seeking to build families.[8,9] Single persons, LGBTQ+ couples, and many transgender and nonbinary persons need infertility treatments, including donor materials, to have biological children[10,11]; LGBTQ+ family building generally requires 1) donated sperm or eggs in same-sex couples and 2) ART treatments, typically either IUI or invitro fertility (IVF).[12] The process may also require a gestational carrier.

2.2 Options for Family Building

Couples interested in fertility treatment services may rely on either IUI or IVF, along with several other steps supporting these processes.[13] (See Appendix A for description of current health insurance coverage of the scenarios for different members seeking fertility treatment, as well as how coverage would likely change under the bill if it became law).

Individuals or couples who have a uterus and egg-producing functions may benefit from IUI ("artificial insemination"); sperm that has been collected from a partner or procured from a donor is processed in a laboratory and inserted into the uterine cavity. Insemination is performed at the time of ovulation. IUI is often done in conjunction with ovulation-stimulating drugs.[14] Ovarian stimulation can be used in conjunction with IUI to increase the chances of pregnancy.[15]

In IUI, sperm is "washed" in the lab to remove seminal fluid and concentrates the sperm. Placing the sperm higher into the uterine cavity bypasses the cervix and makes the passage to the fallopian tubes much shorter. The goal is to increase the chance that more sperm will encounter the egg.

More intensive treatment, known as ART, involves handling of both the egg and sperm.[16,17] In general, ART procedures involve surgically removing eggs from a biological female's ovaries, combining them with sperm in the laboratory, and returning them to the uterus of the person who will carry the pregnancy. ART does not include treatments in which only sperm are handled (i.e., intrauterine—or artificial—insemination) or procedures in which a biological female takes medicine only to stimulate egg production without the intention of having eggs retrieved.

IVF is the most common form of ART. IVF is a multicomponent process in which patient is given a medication injection to induce egg maturation; mature eggs are retrieved from the ovaries and then combined (fertilized) with sperm in a culture dish in a laboratory. The resulting embryo or embryos are then transferred into the uterus while fresh or can be frozen for later use (cryopreservation). The uterus can be prepared for embryo transfer with medications as medically needed.[18]

One cycle of IVF consists of oocyte retrieval, oocyte fertilization, and embryo implantation. If viable eggs or embryos are available from previous cycles and were frozen for later use (cryopreservation), implantation (or fertilization and then implantation) alone may be performed.[19]

ART, such as IVF, makes it possible for a person to be implanted with an egg that has been given by a donor and fertilized in a laboratory with sperm from another person, such as a patient, partner, or anonymous donor.

Use of Donor Materials

Egg or sperm donation is necessary when an individual or couple cannot produce their own viable egg or sperm or cannot conceive after attempting infertility treatments using their own egg and sperm. Additionally, individuals may themselves be fertile but are unable to conceive a child with their partners. But lacking a biologically compatible partner may not be recognized as cause of infertility in some clinical contexts, which impacts how insurance coverage is applied to these populations.[20]

Couples with testes but no uterus will typically need donated eggs to fertilize with one or both partners' sperm through IVF, as well as a surrogate to carry and deliver the child. Eggs can be obtained from a non-intimate directed donor (anonymous donor) via an egg bank or from a known egg donor. Third-party agencies recruit egg donors who go through the IVF process of egg retrieval; then the eggs can be frozen, or fertilized as embryos that are then frozen. Egg banks freeze and preserve eggs (cryopreservation), and they are the most efficient and cost-effective donor egg option.[21]

A couple in which each/either person has a uterus and egg-producing ovaries will need donated sperm to fertilize the egg of one partner. This can be the egg of the partner carrying the pregnancy, using donor sperm. Patients most commonly acquire donor sperm through a third-party sperm bank. In some cases, patients may work directly with a sperm donor, either someone known or unknown, which is called directed sperm donation. However, the ASRM advises against the use of fresh semen, stating that its use "can be justified only for sexually intimate partners" due to the potential of transmitting HIV and other infectious organisms before the donor becomes seropositive.[22]

The process of IUI involves injecting the donor sperm internally into the uterus around the time of ovulation. Fertilization may require methods of fertilization that take place outside the body and in a laboratory dish–fertilizing the egg through intracytoplasmic sperm injection (ICSI), or IVF. Any resulting embryos will be transferred back to the uterus for implantation.[23]

Reciprocal IVF

Reciprocal IVF allows both (biological female) partners to contribute to the IVF process. The egg can be provided by one partner, which is then fertilized in the lab and transferred into the other partner's uterus for pregnancy. Reciprocal IVF allows one partner to undergo controlled ovarian stimulation and egg retrieval; the egg is fertilized in the lab with donor sperm and the resulting embryo(s) is implanted into the other partner's uterus to carry the pregnancy. Both partners use medication to synchronize their menstrual cycles. Then, as one partner undergoes the ovarian stimulation and egg retrieval process, the other partner takes medication to prime the uterus to accept the embryo.[24]

Surrogacy/Gestational Carrier

Individuals who are single, who are in same-sex relationships, or who are transgender, may need to use a surrogacy/gestational carrier, in addition to some individuals who are in heteronormative relationships. In some cases, even in couples where there is a uterus, a medical condition may make pregnancy unsafe or not viable.

Surrogacy involves the transfer of an embryo into a surrogate's uterus, who will then carry the pregnancy until birth for the intended parent(s). Traditional surrogates use their own egg and carry a pregnancy for another person or couple; gestational surrogates carry a pregnancy created from the egg of another donor.[25] Massachusetts has no surrogacy laws that prohibit traditional surrogacy, but surrogacy is often treated as adoption under state law.[26]

Most reproductive specialists recommend or require surrogates to be gestational carriers, meaning the surrogate carries the pregnancy created using donated eggs (eggs from a different person) to achieve pregnancy, so that the child the surrogate delivers is not genetically related to surrogate. The website for the Massachusetts General Hospital LGBTQ Family-Building Program states the following: "The embryo must have at least one genetic link to the intended parent(s), either to the egg or sperm."[27]

Same-sex male couples will require donated eggs or embryos.[28,29] Costs associated with gestational carriers or surrogacy include any costs associated with donated materials (eggs, sperm, or embryos), IVF to create an embryo to implant (if needed), the implantation or insemination procedure, and the gestational carrier's or surrogate's fee and travel fees.

2.3 Medically Induced Infertility and Fertility Preservation

Several diseases, disorders, medical treatments, and life events might impact fertility. Medically induced infertility refers to impairment of reproductive function from other medical causes—often due to chemotherapy or radiation for cancer, and also related to gender-confirming medical treatments.[30] Gender-confirming hormone therapy and gender-confirming surgery jeopardize an individual's fertility, ranging from reducing fertility to completely eliminating it, depending on the type of treatment.[31] Through the process of fertility preservation, individuals can save their sperm, eggs, or reproductive tissue, prior to treatment, to use in the future. [32,33,34]

Fertility preservation is utilized by individuals of reproductive age as well as by prepubescent individuals whose future fertility might be compromised.[35] The ASRM encourages clinicians to inform patients about fertility preservation options prior to undergoing treatments that are likely to cause medically induced infertility.[36]

Fertility preservation often relies on freezing (cryopreservation) of sperm, eggs, and/or embryos for later use with assisted ART.[37] This can include:

- Sperm freezing: Sperm cells are collected and then frozen and stored for later use. Testicular sperm extraction may also be used to potentially produce samples viable for future purposes.
- Oocyte (egg) and/or embryo freezing: This procedure involves stimulating the ovaries with medications that cause multiple eggs to develop and mature. Mature eggs are then removed using a minor operative procedure. These unfertilized eggs can be frozen immediately or inseminated, using IVF, or to make frozen embryos.

Options for fertility preservation will depend on whether individuals are pre- or post-pubescent, and on their stage of transgender transition.[38] Sperm, oocyte, and embryo cryopreservation are available only to biological males and biological females who have gone through puberty and have mature sperm and eggs.[39]

Fertility preservation for prepubescent biological females may include ovarian tissue preservation. Either a whole ovary or a portion of an ovary is surgically removed through a simple procedure, which can often be performed using minimally invasive (laparoscopic) techniques. Strips of the ovarian tissue containing eggs are then frozen and can be thawed and surgically replaced in the pelvis in the future.[40] The ASRM no longer considers ovarian tissue banking experimental. Ovarian tissue banking is the only method to preserve fertility for prepubertal biological females since ovarian stimulation and IVF are not options."[41]

Prepubescent biological males may explore the option of testicular tissue collection for fertility preservation before gender-confirming hormone therapy or surgery. However, use of cryopreservation of the testicular tissue and later transplantation of cryopreserved testicular tissue have not yet been demonstrated for safe clinical use to restore fertility in humans.[42] Challenges remain before this approach can be implemented in clinical practice.[43]

Insurance Coverage for Fertility Preservation

The bill requires fertility preservation coverage for any member with "a diagnosed medical or genetic condition that may directly or indirectly cause impairment of fertility by affecting reproductive organs or processes," including gender-confirming healthcare. Although cost has been noted as a factor that impedes transgender patients from pursuing fertility preservation,[44] Commonwealth carriers report covering fertility preservation services for this population. However, the bill does not specifically prohibit a limit on the length of time that reproductive tissue is stored. Since individuals who seek gender-confirmation treatment are typically young adults and increasingly skewing into older adolescence,[45,46] their fertility preservation might require tissue storage of several years or decades.

Effectiveness of Fertility Preservation

The methods of cryopreservation of gametes (semen and oocytes) and embryos have been widely used in human reproductive medicine and subject to study for their effectiveness in cell survival and attaining live birth.[47,48] Long-time storage of semen does not seem to affect its fertilization potential.[49,50] Studies also suggest that the length of oocyte storage does not affect pregnancy rate outcomes.[51,52] However, younger patients tend to have higher oocyte yield with fewer ovarian stimulation cycles, and higher live birth rates, reinforcing the importance of age on fertility preservation.[53,54] A recent study indicates that using frozen sperm or frozen embryo transfer have different effects on the different IVF stages: frozen sperm mainly increases fertilization rate and reduces birth defects, while cryopreservation of embryos increases pregnancy rate.[55] Storage of human embryos cryopreserved up to eight years also does not appear to impact pregnancy outcomes.[56]

2.4 Family Building and Fertility Intentions of LGBTQ+ Individuals and Couples

Even though fewer individuals in the millennial generation are planning to become parents compared to older generations, more LGBTQ+ individuals are planning to become parents, and they are closing the gap between LGBTQ+ and non-LGBTQ individuals who are planning to build their families.[57]

A 2019 survey by the advocacy group Family Equality[58] reports the following:

- 48% of LGBTQ+ individuals ages 18 – 35 are actively planning to grow their families.
- 63% of LGBTQ+ individuals planning families expect to use ART, foster care, or adoption to become parents; approximately 40% are considering using ART.
- 32% of LGBTQ+ individuals with annual incomes greater than $100,000 and 20% of LGBTQ+ individuals with annual incomes less than $35,000 are considering IUI and/or IVF to grow their families.

Most transgender women and transgender men wish to parent a child (67.4% and 61.9%).[59] More transgender women preferred to build families through adoption, while more transgender men desired biological offspring and would prefer to build families through sexual intercourse or by carrying a pregnancy.[60] However, barriers to fertility preservation include cost, lack of information, invasiveness of procedures, and desire not to delay medical transition.[61,62]

2.5 Effectiveness of ART

Several process and outcome measures exist to monitor the effectiveness of fertility treatments.[63] This section focuses on the primary outcomes of attaining pregnancy and attaining live births.

Effectiveness of IUI

The effectiveness of IUI depends on multiple factors, including whether it is performed in tandem with uterine stimulation. Older patients may require many repeated IUI cycles to conceive; success rates near 50% have been reported following six cycles of IUI. Lesbian women who underwent eight cycles of IUI with donor spermatozoa (IUI-DI) had a cumulative pregnancy rate of 70%, whereas single women who underwent the same number of IUI-DI cycles had a cumulative pregnancy rate of 47%.[64] IUI success rate also depends substantially on the age of a patient, with success rates by cycle ranging from 13% for patients under age 35, to 3% - 9% for patients over age 40.[65] IUI with ovarian stimulation for increased egg production is more likely to produce a pregnancy and a live birth compared to natural cycle IUI. But the use of such ovary stimulating methods increase the likelihood of a multiples (more than singleton) pregnancy.[66]

A recent study reports that lesbian women were more likely to ever have a clinical pregnancy through IUI compared with heterosexual women, at 42.2% compared to 29.8% respectively, and lesbian women were more likely to ever have a live birth compared with heterosexual women, at 36.7% compared to 23.3%, respectively.[67] However, among lesbian and heterosexual women who did become pregnant, the average number of cycles to achieve clinical pregnancy was higher for lesbian women compared with that for heterosexual women. With three cycles of IUI, clinical pregnancy rates were 27.5% for lesbian women and 25.4% for heterosexual women; live birth rates were 23.9% for lesbian women and 19.3% for heterosexual women. For a single IUI cycle, clinical pregnancy rates were 13.2% for lesbian women and 11.1% for heterosexual women; live birth rates were 10.4% for lesbian women and

8.3% for heterosexual women. These marginally higher success rates for lesbian women likely relate to the different reason this population often seeks fertility services (i.e., lack of exposure to sperm rather than biological infertility).[68]

Effectiveness of ART Treatments

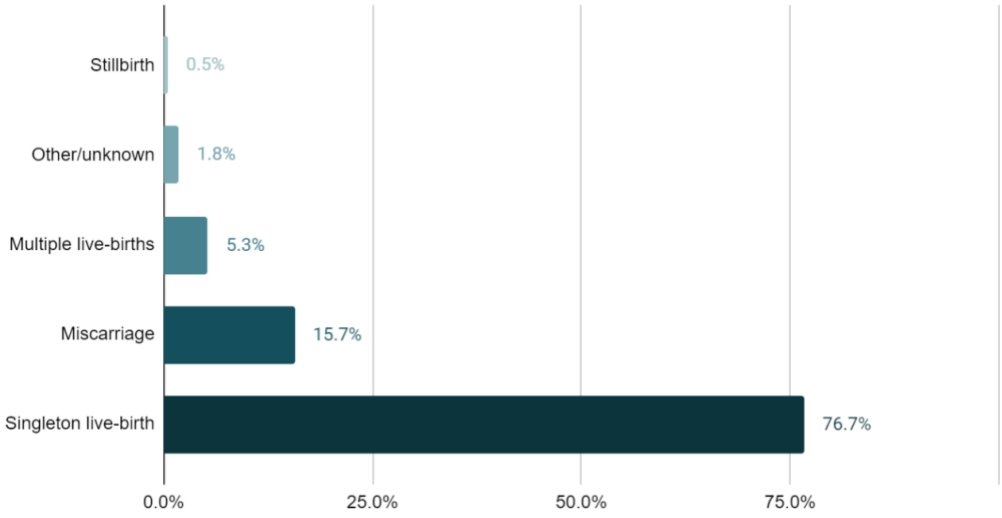
In 2020, 5.6% of all infants born in in the Commonwealth resulted from using ART. This compares to 2.0% of all births in the United States resulting from using ART.[69] IVF has become the most effective treatment for attaining pregnancy and live birth in cases of infertility, but it is more invasive and expensive than IUI and other infertility treatments [70, 71]

Cumulative live birth rates increase after each oocyte retrieval, so the rate for the first oocyte retrieval will be lower than the rate for the third oocyte retrieval. For example, a 35-year-old patient with a body mass index of 25 kg/m^2 who has never been pregnant and does not have unexplained infertility diagnoses has a 48% live birth rate after the first oocyte retrieval, a 69% cumulative live birth rate after the second oocyte retrieval, and an 80% cumulative live birth rate after the third oocyte retrieval. These rates are higher than for patients who have diminished ovarian reserve (29% for first, 48% for second, and 62% for third) and for patients who are 40 years old with unexplained infertility (25% for first, 41% for second, and 52% for third).[72]

Although most infants conceived through ART are singletons, biological females who undergo ART procedures are more likely than biological females who conceive without fertility treatments to have multiple births because multiple embryos may be transferred. Multiple births can pose increased risks for both mothers and infants, including obstetric complications, pre-term birth, and low birthweight. In 2020, a greater percentage of infants conceived through ART were low birth weight (13.2%) and born before 37 weeks of pregnancy were completed or pre-term (20.9%), compared with infants in the birth population overall (8.2% and 10.1%, respectively).[73]

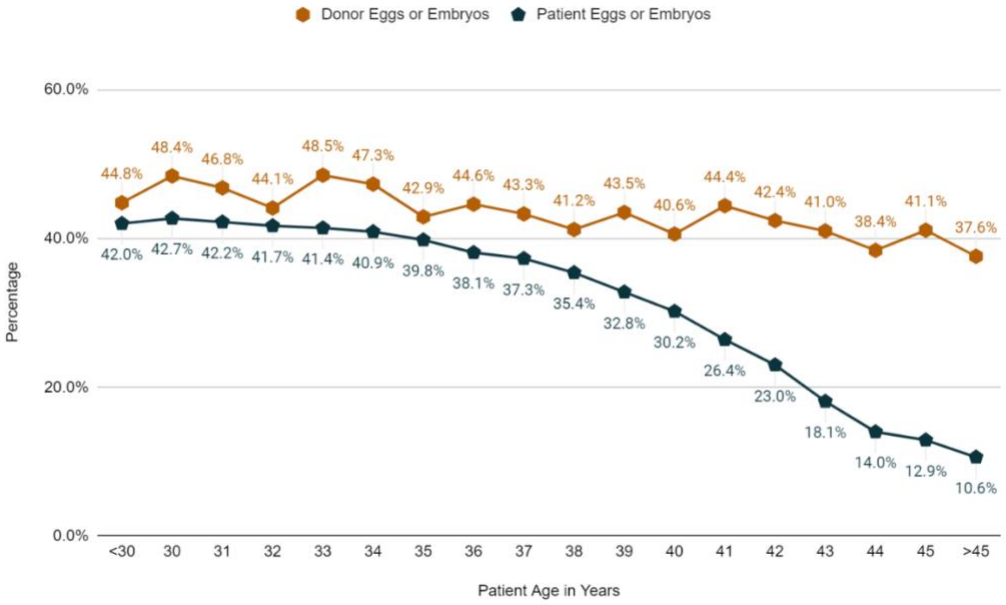
The CDC National ART Summary[74] reports that approximately "82% of clinical pregnancies from ART cycles started in 2020 resulted in a live birth delivery."[75] Figure 1 displays the detail of outcomes: of clinical pregnancies, 76.7% resulted in the birth of a single infant, while 5.3% resulted in the birth of multiple infants. Clinical pregnancies that did not result in a live birth delivery included miscarriage (15.7%) and stillbirth (0.5%). For 1.8% of pregnancies, the outcome was reported as other or unknown.

Figure 1 Outcomes of Clinical Pregnancies Resulting from ART: National Data[76]



The effectiveness of ART varies by age of the biological female. Persons over the age of 40 years who are producing eggs will on average require more oocyte retrievals per live birth and have lower birth rates after embryo transfer compared to younger persons. Patient age, along with use of donor egg or embryo, will affect the percentage of embryo transfer cycles started that result in live birth delivery of one or more live infants. (Egg donors are typically younger and do not have infertility.) The likelihood of a fertilized egg implanting is related to the age of the person who produced the egg. For 2020, the percentage of embryo transfer cycles that used patient eggs or embryos and resulted in live birth delivery generally decreased as the age of the person increased; ranging from 42.7% for those under age 30 to 10.6% for those age 45 (see Figure 2). But for people of all ages who used donor eggs or donor embryos, 41.4% of embryo transfer cycles resulted in live birth delivery, with a small decline in later years.[77]

Figure 2 Percentage of Embryo Transfers that Resulted in Live Birth Delivery, by Patient Age and Egg or Embryo Source: National Data[78]



Massachusetts-specific data, for the reporting year 2020, show the following:

- 41.3% of all ART procedures resulted in pregnancy.
- 34.2% of all ART procedures performed resulted in a live birth delivery.
- Of the ART births, 94% were singleton, and 6% were multiples.[79]

Each fertility center in Massachusetts reports its own outcomes for the services it offers. Table 1 displays data from the Massachusetts General Hospital Fertility Center for 2020.[80] It shows that about 49% of retrieval procedures result in live births for patients under age 35, and this live birth success rate falls substantially for older patients. Older patients more frequently deliver multiple babies and deliver pre-term.

Table 1. Live Births per Intended Egg Retrieval, All Embryo Transfers (Massachusetts General Hospital Fertility Center Final Clinic Summary Report 2020)[81.iv]

	AGE OF PREGNANCY CARRIER				
	<35	35-37	38-40	41-42	>42
Mean number of embryos transferred per live birth	1.2	1.3	1.8	2.6	2.6
Live Births	48.9%	49.7%	28.6%	14.5 %	3.4%
Singleton (percentage of live births)	94.5%	93.6%	87.0%	3/4	1/1
Twins (percentage of live births)	5.5%	6.4%	13.0%	6/8	0/1
Pre-term	7.3%	3.8%	10.9%	2/8	0/1

Insurance coverage for infertility treatment does appear to reduce the risk of multiples-pregnancies and associated adverse outcomes. An evidence review of ART conducted for a recent bill in California concluded such mandates are associated with a decrease in the number of embryos transferred per IVF cycle, due to relieving the cost pressures associated with the procedures.[82] This decrease in the proportion of cycles transferring two or more embryos, results in lower rates of multiple births, and a lower likelihood of other adverse birth outcomes. They also note overall lower pregnancy rates resulting from IVF cycles due to a decrease in embryos transferred.

2.6 Other State Mandates

Fertility Preservation

State-specific laws govern required benefits for fertility preservation. Sixteen states have enacted state laws requiring certain insurers in the state to subsidize the costs associated with fertility preservation, including ovarian stimulating medications, egg and sperm retrieval procedures, and initial freezing.[83] However, coinsurance and copays vary widely, and comprehensive coverage is not guaranteed as state mandates apply only to certain types of insurers and policy plans. As well, the impact of these state laws for transgender individuals may be unclear: gender-confirming healthcare treatment may not be deemed "medically necessary" in the same way that other fertility-compromising care is for other medical conditions, such as cancer.[84]

Assisted Reproductive Technology

Definitions of "infertility" vary within each state's insurance legislation; many definitions of "infertility" reference failed efforts toward pregnancy via intercourse. As a result, some states laws have the effect of extending infertility coverage only to partnered heterosexual, biological females within certain age brackets.[85]

Nationally, as of June 2023, 21 states have passed fertility treatment insurance coverage laws. Of states with fertility treatment laws, 14 include IVF coverage.[86] Massachusetts is among 10 states with laws identified as including "comprehensive" IVF mandates, meaning they require third-party coverage for IVF with minimal restrictions to patient eligibility, exemptions, and lifetime limits. [87]

[iv] Please note that the source presents Singleton, Twins, and Pre-term for 41-42 and >42 in ratios, and accordingly it is presented in this report in the same format.

State infertility mandates for third-party coverage vary substantially, with a wide range of patient eligibility requirements, covered services, restrictions, and exclusions. Laws generally only apply to a subset of insurance carriers. A study of state laws as of 2022 reports the following: [88]

- *Twelve mandates (60%) require coverage for fertility preservation for patients at risk of medically induced infertility.*
- *Eight mandates (40%) require patients to demonstrate infertility for a duration longer than the medical definition for their infertility treatments to qualify for coverage.*
- *Six out of thirteen states (46%) with a mandate to cover IVF require patients to first attempt less costly treatments for infertility.*
- *Eleven states (55%) place a lifetime limit on the number of cycles or total dollar amount for treatment provided under the infertility mandate.*
- *Three states (15%) have age restrictions (ages 42–46) after which mandated benefits are no longer covered.*

Generally, health insurance does not cover costs associated with the use of surrogacy/gestational carriers. [89] New Hampshire's 2020 law includes coverage for medical expenses for third-party services, including medical costs related to procuring biologic donor materials (semen or oocyte) and some medical costs related to surrogacy (costs associated with fertilization).[90] The law does not include coverage for the embryo transfer into the surrogate or any nonmedical expenses.

3.0 Conclusion

Fertility preservation and treatment services offer the potential to overcome challenges in conceiving pregnancies and delivering live births. The treatments have varied effectiveness in producing pregnancies and live births, and in avoiding birth complications associated with births of multiples. Treatment outcome depends on several factors; for fertility preservation, it will depend on the age of the patient, conditions associated with need for service and, for individuals undergoing gender transition, the stage of their transition. The outcomes for infertility treatment heavily depend on the age of the persons providing the eggs and of the intended pregnancy carrier, and the quality of the sperm provided. Even with this variation, medical evidence supports the use and provision of fertility preservation and treatment according to professional guidelines for patients that qualify and may benefit from these services.

The LGBTQ+ community often faces fertility obstacles that differ from those of heterosexual couples. For example, lesbian couples may require sperm donors, or transgender individuals may seek fertility preservation prior to transitioning. Current statutory guidelines are not tailored to address the LGBTQ+ community, although most Massachusetts carriers report providing family-building services for members who identify as LGBTQ+. The bill expands the definition of infertility to specifically address the LGBTQ+ community. The bill would also require coverage for storage of gametes for reasonable time periods consistent with childbearing years. Both provisions would likely increase access to family-building services for populations they are intended to reach.

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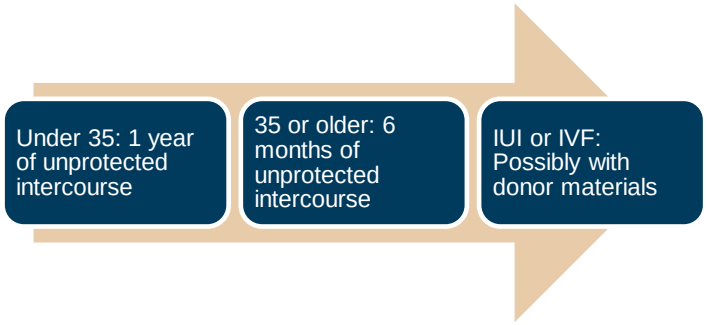
Appendix A: Assisted Reproductive Technology: Current Carrier Coverage and Coverage Under the Bill

Biological Female and Biological Male

Present:

IUI or IVF covered after meeting the current statutory requirement for infertility.



If Bill Passes:

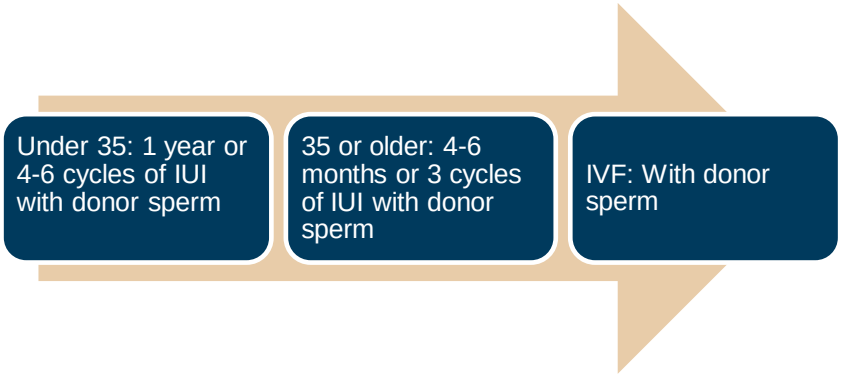
Reasonable limits, consistent with professional guidelines, are permitted.[v] Little to no impact.

[v] The American Society for Reproductive Medicine provides, "Infertility…defined as the failure to achieve a successful pregnancy after 12 months or more of regular unprotected vaginal intercourse. Earlier evaluation and treatment may be justified on the basis of the medical history and physical findings and is warranted after 6 months without conception for women aged 35 years and older due to the accelerated decline in fertility."
Optimizing Natural Fertility: A Committee Opinion (2022). Accessed July 23, 2023. **https://www.asrm.org/practice-guidance/practice-committee-documents/optimizing-natural-fertility-a-committee-opinion-2021/?_t_id=qkx7XgSjywBKDtZe92RCEA==&_t_uuid=eL1d2BulTEKlLca15xJj8A&_t_q=infertility&_t_tags=siteid:01216f06-3dc9-4ac9-96da-555740dd020c,language:en,andquerymatch&_t_hit.id=ASRM_Models_Pages_ContentPage/_e8b0b6a7-6cba-4683-86db-d137a0e55dca_en&_t_hit.pos=2**.

Biological Female and Biological Female

Present:

- Inconsistent coverage of IUI prior to eligibility for fertility treatment
- No coverage of donor sperm for IUI or IVF attempts
- Coverage of IVF after IUI attempts
- Reciprocal IVF not covered



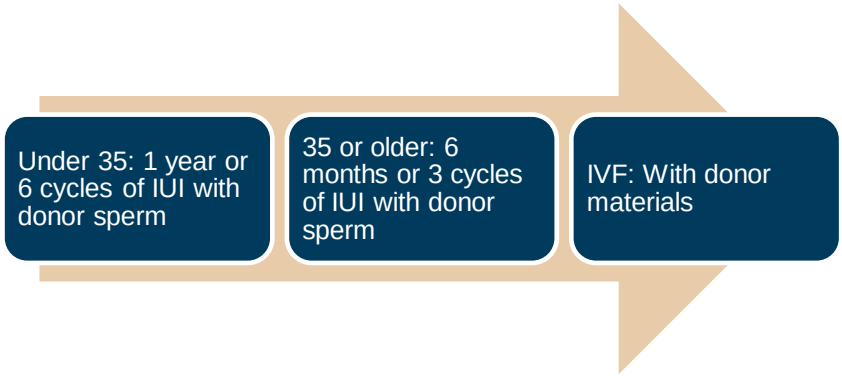
If Bill Passes:

- Coverage of IUI in order to meet infertility treatment eligibility requirements (i.e., six months to one year)
- Coverage of donor sperm for IUI
- Continued coverage of IVF after IUI attempts
- Coverage of donor sperm for IVF
- Reciprocal IVF coverage unclear and not included in this analysis

Biological Female With no Partner

Present:

- Inconsistent coverage of IUI
- No coverage of donor sperm for IUI or IVF attempts
- Coverage of IVF after IUI attempts



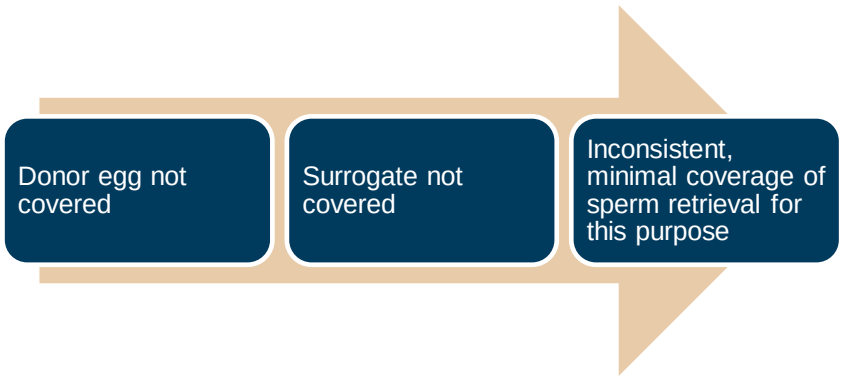
If Bill Passes:

- Coverage of IUI in order to meet infertility treatment eligibility requirements (i.e., six months to one year)
- Coverage of donor sperm for IUI
- Continued coverage of IVF after IUI attempts
- Coverage of donor sperm for IVF
- Reciprocal IVF coverage unclear and not included in this analysis

Biological Male and Biological Male or Biological Male without Partner

Present:

- No coverage of surrogate or donor egg
- Inconsistent coverage of sperm retrieval from member or donor sperm if member has male-factor infertility (for surrogacy)



If Bill Passes:

- Bill does not mandate surrogacy/gestational carrier coverage, so no impact.

AN ACT RELATIVE TO LGBTQ FAMILY BUILDING

ACTUARIAL ASSESSMENT

1.0 Executive Summary

As submitted to the 193rd General Court of the Commonwealth of Massachusetts, the bill requires health insurers to cover medically necessary expenses of diagnosis of infertility and fertility treatment and preservation.

The bill amends current law related to insurance coverage for infertility services, striking out existing language and replacing it with updated language and additional coverage. The bill requires that health insurance provide, as a benefit for all individual subscribers or members within the Commonwealth and all group members having a principal place of employment within the Commonwealth, coverage for medically necessary expenses of diagnosis of infertility and fertility treatment and preservation, to the same extent that benefits are provided for other pregnancy-related procedures.

The bill defines infertility as:

[T]he condition of an individual, whereby an individual is unable to become pregnant or to carry a pregnancy to live birth, or whereby an individual is unable to cause pregnancy and live birth in the individual's partner. An individual qualifies for the diagnosis of infertility and fertility treatment and preservation under this section if the following conditions are met: (1) a board-certified or board-eligible obstetrician-gynecologist, subspecialist in reproductive endocrinology, oncologist, urologist or andrologist verifies that the individual has a need for infertility treatment; or (2) the individual has not been able to carry a pregnancy to live birth.

The bill requires coverage for fertility preservation services when the member has a diagnosed medical or genetic condition that may directly or indirectly cause impairment of fertility by affecting reproductive organs or processes. Coverage under the bill includes procurement, cryopreservation, and storage of gametes, embryos, or other reproductive tissue.

The bill specifically prohibits conditions to receive benefits based on:

- Required waiting periods
- Number of attempts
- Prior treatment
- Age
- Sexual orientation
- Familial status

The bill also notes that coverage, and any limitations thereon, should be based on standards or guidelines developed by the ASRM or the Society for Assisted Reproductive Technology.

In response to a request for clarification, the bill sponsor indicated the bill's intent is to:

- Resolve current heteronormative language in State law to increase access to infertility and fertility preservation treatment for LGBTQ+ [6] persons and nonheteronormative partnerships.

[6] Although the bill's language does not include the "+," the sponsor's response reflected the inclusion of "+." This language acknowledges the diverse range of sexual orientations and gender identities embraced by individuals within the community.

- Apply reasonable time limits related to biological childbearing years.
- Include plans operated by the Group Insurance Commission (GIC) for the Benefit of Public Employees (Chapter 32A) and Health Maintenance Organizations (HMOs) (Chapter 176G).

Furthermore, the sponsor noted, in response to questions about coverage for surrogacy/gestational carriers, that the bill, as filed, "is not definitive." Therefore, this analysis applies reasonable limits for infertility and fertility preservation services applied equitably to the LGBTQ+, single women, and heterosexual populations. The cost report excludes coverage for gestational carrier services and reciprocal IVF.

Chapter 3 §38C requires CHIA to review the medical efficacy of treatments or services included in each mandated benefit bill referred to the agency by a legislative committee, should it become law. CHIA must also estimate each bill's fiscal impact, including changes to premiums and administrative expenses. This report provides the fiscal analysis.

This report is not intended to determine whether the bill would constitute a health insurance benefit mandate for purposes of Commonwealth of Massachusetts (Commonwealth) defrayal under the ACA, nor is it intended to assist with Commonwealth defrayal calculations if it is determined to be a health insurance mandate requiring Commonwealth defrayal.

The language in this report endeavors to be respectful of individual identity expression, and the diverse gender spectrum. Recognition is given to individuals who may identify differently from the sex they were assigned at birth. For clarity and consistency throughout this paper the term "biological male" refers to an individual who can produce sperm and "biological female" refers to an individual who has reproductive organs that can carry a pregnancy.

1.1 Current Insurance Coverage

Under the ACA, essential health benefits (EHBs) are defined by state benchmark plans. The Commonwealth benchmark plan, Blue Cross Blue Shield of MA-HMO Blue provides coverage for the diagnosis and treatment of infertility.[1] The benchmark plan also provides that coverage may be offered for fertility preservation services, including cryopreservation, when a member has been diagnosed with cancer and, after treatment, the member is expected to become infertile. [2]

Current Massachusetts law mandates insurance coverage for infertility.[3] Pursuant to MGL c.175 §47H, MGL c.176A §8K, MGL c.176B §4J, and MGL c.176G §4(e) "infertility" is defined as the condition of an individual who is unable to conceive or produce conception during a period of one year if the biological female is age 35 or younger or during a period of six months if the biological female is over the age of 35. It does not include specific language to include the LGBTQ+ community.

BerryDunn surveyed 10 insurance carriers in the Commonwealth, and five responded. These carriers do adhere to current state law in coverage of infertility services. Carriers also report coverage for fertility preservation services. Consistent with the bill's intent, carriers report placing age limits, consistent with childbearing years, on biological females for coverage of infertility treatment, generally up to age 44 while allowing exceptions in specific circumstances.

1.2 Analysis

BerryDunn estimated the incremental impacts of the revised language surrounding infertility benefits. As carriers largely cover fertility and infertility services today, the analysis focused on the two populations impacted by the mandate: biological females with a biological female partner and biological females with no partner. BerryDunn

estimated the number of people impacted by using population data and academic literature. The incremental cost comes from new and/or increased coverage for IUI services and donor sperm for these populations. The costs for these services and the number of services utilized were determined using the All-Payer Claims Database (APCD) and academic literature. In addition, the proposed legislation requires that insurers cover standard fertility preservation services when the member has a diagnosed medical or genetic condition that may directly or indirectly cause impairment of fertility by affecting reproductive organs or processes. To estimate the incremental impact of this benefit, BerryDunn relied on the results of a previous mandated benefit study performed in April 2021 and trended them forward to the current period.[4]

Combining the two components, and accounting for current coverage and carrier retention, results in a baseline estimate of the proposed mandate's incremental effect on premiums, which is projected over the five years following the assumed January 1, 2024, implementation date of the proposed law.

1.3 Summary Results

The estimated impact of the proposed requirement on medical expense and premiums appears below. The analysis includes development of a best estimate "mid-level" scenario, as well as a low-level scenario, and a high-level scenario using more conservative assumptions.

Table ES-1 displays the summary results for a five-year period. This analysis estimates that the bill, if enacted as drafted for the General Court, would increase fully insured premiums by as much as 0.038% on average over the next five years; a more likely increase is approximately 0.027%, equivalent to an average annual expenditure of $3.8 million over the period 2024 – 2028.

Table ES-1. Summary Results

	2024	2025	2026	2027	2028	WEIGHTED AVERAGE	FIVE-YEAR TOTAL
Average Projected Members (000s)	2,110	2,178	2,246	2,275	2,273		
Medical Expense Low ($000s)	$1,456	$2,138	$2,265	$2,398	$2,540	$2,280	$10,796
Medical Expense Mid ($000s)	$2,415	$3,547	$3,756	$3,978	$4,212	$3,782	$17,907
Medical Expense High ($000s)	$3,391	$4,981	$5,275	$5,586	$5,916	$5,312	$25,149
Premium Low ($000s)	$1,696	$2,491	$2,637	$2,793	$2,958	$2,656	$12,575
Premium Mid ($000s)	$2,812	$4,131	$4,375	$4,633	$4,906	$4,405	$20,857
Premium High ($000s)	$3,950	$5,801	$6,144	$6,506	$6,890	$6,187	$29,291
PMPM Low	$0.09	$0.10	$0.10	$0.10	$0.11	$0.10	$0.10
PMPM Mid	$0.15	$0.16	$0.16	$0.17	$0.18	$0.17	$0.17
PMPM High	$0.22	$0.22	$0.23	$0.24	$0.25	$0.23	$0.23
Estimated Monthly Premium	$577	$593	$609	$625	$642	$609	$609
Premium % Rise Low	0.016%	0.016%	0.016%	0.016%	0.017%	0.016%	0.016%
Premium % Rise Mid	0.027%	0.027%	0.027%	0.027%	0.028%	0.027%	0.027%
Premium % Rise High	0.037%	0.037%	0.037%	0.038%	0.039%	0.038%	0.038%

Note: Table ES-1 displays projected membership based on a population projection and also applies a 72% adjustment factor to the first-year (2024) implementation to account for ramp up in implementation.

2.0 Introduction

As submitted to the 193rd General Court of the Commonwealth of Massachusetts, Senate Bill (S.B.) 622 ("the bill")[5] requires health insurers to cover medically necessary expenses of diagnosis of infertility and fertility treatment and preservation.

The bill amends current law related to insurance coverage for infertility services, striking out existing language and replacing it with updated language and additional coverage. The bill requires that health insurance provide, as a benefit for all individual subscribers or members within the Commonwealth and all group members having a principal place of employment within the Commonwealth, coverage for medically necessary expenses of diagnosis of infertility and fertility treatment and preservation, to the same extent that benefits are provided for other pregnancy-related procedures.

Section 3.0 of this analysis outlines the provisions and interpretations of the bill. Section 4.0 summarizes the methodology used for the estimate. Section 5.0 discusses important considerations in translating the bill's language into estimates of its incremental impact on healthcare costs, and steps through the calculations. Section 6.0 discusses results.

The language in this report endeavors to be respectful of individual identity expression, and the diverse gender spectrum. Recognition is given to individuals who may identify differently from the sex they were assigned at birth. For clarity and consistency throughout this paper the terms "biological male" refers to an individual who can produce sperm and "biological female" refers to an individual who has reproductive organs that can carry a pregnancy.

3.0 Interpretation of the Bill

3.1 Reimbursement

As submitted to the 193rd General Court of the Commonwealth of Massachusetts, S.B. 622 ("the bill")[6] requires health insurers to cover medically necessary expenses of diagnosis of infertility and fertility treatment and preservation, to the same extent that benefits are provided for other pregnancy-related procedures. It expands the current statutory definition of infertility to specifically include the LGBTQ+ population as follows:

> *[T]he condition of an individual, whereby an individual is unable to become pregnant or to carry a pregnancy to live birth, or whereby an individual is unable to cause pregnancy and live birth in the individual's partner. An individual qualifies for the diagnosis of infertility and fertility treatment and preservation under this section if the following conditions are met: (1) a board-certified or board-eligible obstetrician-gynecologist, subspecialist in reproductive endocrinology, oncologist, urologist or andrologist verifies that the individual has a need for infertility treatment; or (2) the individual has not been able to carry a pregnancy to live birth.*

Although the bill prohibits conditions to receive benefits based on required waiting periods, number of attempts, prior treatment, age, sexual orientation, or familial status, the bill also provides that limitations may be utilized if based on standards or guidelines developed by the ASRM or the Society for Assisted Reproductive Technology.

The bill requires coverage of standard fertility preservation services when the member has a diagnosed medical or genetic condition that may directly or indirectly cause impairment of fertility by affecting reproductive organs or processes. The bill requires coverage for procurement, cryopreservation, and storage of gametes, embryos, or other reproductive tissue.

Carriers currently provide coverage of infertility treatment and fertility preservation treatments with reasonable limits related to age (consistent with the current state infertility mandate). The effect of the bill, if it were to pass, would be 1) to require coverage of the initial period of IUI for infertility treatment (IVF) eligibility (6 –12 months) with donor sperm (for IUI and IVF) for same-sex women couples; 2) an extension of the length of time for cryopreservation of eggs, sperm, and embryos.

For the current analysis, BerryDunn assumes the bill does not include mandatory coverage for surrogacy/gestational carriers or reciprocal IVF.

3.2 Plans Affected by the Proposed Mandate

The bill amends statutes that regulate commercial healthcare carriers in the Commonwealth. It includes the following sections, each of which addresses statutes dealing with a particular type of health insurance policy when issued or renewed in the Commonwealth:[7]

- Chapter 32A – Plans Operated by the GIC for the Benefit of Public Employees
- Chapter 175 – Commercial Health Insurance Companies
- Chapter 176A – Hospital Service Corporations
- Chapter 176B – Medical Service Corporations
- Chapter 176G – Health Maintenance Organizations (HMOs)

Self-insured plans, except for those managed by the GIC, are not subject to state-level health insurance benefit mandates. State mandates do not apply to Medicare or Medicare Advantage plans, the benefits of which are qualified by Medicare. This analysis excludes members over 64 years of age who have fully insured commercial plans, and this analysis does not address any potential effect on Medicare supplement plans, even to the extent they are regulated by state law.

3.3 Covered Services

BerryDunn surveyed 10 insurance carriers in the Commonwealth, and five responded. The responding carriers adhere to current state law and provide coverage of infertility services. Carriers also report coverage for fertility preservation services, including for infertility that would be caused by gender-confirmation treatment. Carriers do place varying restrictions on services (e.g., eligible up to age 44, storage length of time restrictions) for both infertility and fertility preservation service coverage.

The carriers report excluding coverage for gestational carrier services and for reciprocal IVF, and the bill's existing language does not require such coverage. The sponsor notes, in response to questions about coverage for surrogacy/gestational carriers, that the bill, as filed "is not definitive."

3.4 Existing Laws Affecting the Cost of the Bill

No Commonwealth or federal law requires coverage for preserving fertility.8 Under the ACA, EHBs are defined by state benchmark plans. The Commonwealth benchmark plan, Blue Cross Blue Shield of MA-HMO Blue provides coverage for the diagnosis and treatment of infertility.[9] Furthermore, the plan provides that it may approve coverage for infertility, including cryopreservation services, when a member has been diagnosed with cancer and, after treatment, the member is expected to become infertile.

The existing Massachusetts law pertaining mandates insurance coverage for infertility.[10] Pursuant to MGL c.175 §47H, MGL c.176A §8K, MGL c.176B §4J, and MGL c.176G §4(e), "infertility" is defined as the condition of an individual who is unable to conceive or produce conception during a period of one year if the (biological) female is age 35 or younger or during a period of six months if the (biological) female is over the age of 35.

4.0 Methodology

4.1 Overview

As submitted to the 193rd General Court of the Commonwealth of Massachusetts, S.B. 622 ("the bill")[11] requires health insurers to cover medically necessary expenses of diagnosis of infertility and fertility treatment and preservation.

Fertility and infertility treatments are largely currently covered by carriers, as discussed above. Given that reasonable limits, based on standards or guidelines developed by the ASRM or the Society for Assisted Reproductive Technology, are allowable, there is no incremental cost for individuals in a relationship between individuals who are biologically female and biologically male, as requiring a set period whereby individuals try to conceive before pursuing fertility and infertility services is consistent with ASRM guidelines. The incremental cost of coverage for the mandate is primarily for biological females with a biological female partner or with no partner. Requiring that a set number of cycles of IUI be performed prior to IVF is consistent with evidenced-based research.[12,13] For these populations the incremental cost is related to the coverage of IUI by carriers that do not currently cover the service and the cost of donor sperm.

The incremental cost of coverage for these services is estimated by determining the number of impacted biological females in childbearing years using population data and academic literature, estimating the cost of IUI and donor sperm for those individuals, using claims data from the APCD and literature, and estimating the utilization and the length of time to achieve pregnancy using a combination of claims data from the APCD, population data, and academic literature.

The incremental cost of preserving fertility stems from removing the time limit imposed by carriers for storage, and any additional utilization that may occur due to removing this cost barrier. BerryDunn performed a mandated benefit review of An Act Relative to Preserving Fertility in April 2021.[14] The results of this study were trended forward and used as a cost estimate for the purposes of this report. While the cost of preserving fertility for individuals who are transgender remains immaterial during the five-year period of the mandated benefit review, there is likely a more material cost long-term for this population, as discussed further in Section 4.4.

4.2 Data Sources

The primary data sources used in the analysis are as follows:

- Information about the intended effect of the bill, gathered from the bill's sponsoring legislators and staff to clarify the bill's intent
- Information, including descriptions of current coverage, from responses to a survey of commercial carriers in the Commonwealth
- The Massachusetts All-Payer Claims Database (APCD)
- Published scholarly literature, published reports, and population data, cited as appropriate

4.3 Steps in the Analysis

This section summarizes the analytic steps used to estimate the impact of the bill on premiums.

1. **Calculate the population of biological females with a biological female partner needing IUI and donor sperm services**
   - **A.** Estimated the number of same-sex couple households for biological females in Massachusetts, using the 2021 American Community Survey.
   - **B.** Multiplied the total number of households by the age distribution to calculate the number of same-sex couple households with biological females of childbearing age.
   - **C.** Multiplied the result from 1.B. by the percentage of households covered by fully insured commercial insurance.
   - **D.** Multiplied the result from 1.C. by the percentage of same-sex couples actively planning a family.
   - **E.** Multiplied the result from 1.D. by the percentage of same-sex couples actively planning a family that are considering IUI/IVF services and would require donor sperm coverage.
   - **F.** Multiplied the result from 1.E. by the percentage of carriers that are not currently covering IUI for this population to get the incremental number of biological females with a biological female partner requiring IUI coverage.
2. **Calculate the population of biological females with no partner needing IUI and donor sperm services**
   - **A.** Estimated the U.S. population of biological females who do not have partners actively planning a family (single mother by choice), using literature.
   - **B.** Estimated the U.S. population of all biological females who ever had a biological child using literature.
   - **C.** Estimated the percentage of adoptions from literature and multiplied with the results from 2.B. to get the total number of females with children.
   - **D.** Divided estimate from 2.A. by the estimate from 2.C. to get the percentage of single mothers by choice among all females with children.
   - **E.** Estimated the number biological females in Massachusetts of childbearing age using U.S. Census Bureau.
   - **F.** Estimated the percentage of women who expect to have child in the future based on a report from the CDC.

G. Multiplied results from 2.E. with 2.F. to get the number of females in Massachusetts who expect to have a child.

H. Multiplied results from 2.G. with results from 2.D. to estimate the number of single mothers by choice who are planning to have a child.

I. Multiplied the result from 2.H. by the estimated percentage of single mothers by choice covered by commercial insurance.

J. Multiplied the total commercially insured single mothers by choice from 2.I. by the estimated percentage of the population with fully insured coverage.

K. Multiplied the result from 2.J. by the percentage considering IUI/IVF services to get the number of commercial fully insured single mothers by choice who need donor sperm services.

L. Multiplied the result from 2.K. by the percentage of carriers that are not currently covering IUI for this population to get the incremental number of single mothers by choice requiring IUI coverage.

3. **Calculate the lifetime cost of IUI services for individuals, including donor sperm**

A. Estimated the cost of IUI per cycle from literature.

B. Multiplied the cost of IUI per cycle by the estimated number of cycles to get the total cost associated with each pregnancy attempt.

C. Multiplied the total cost of IUI from 3.B. by an estimate of the planned number of children to get the lifetime cost of IUI services.

D. Estimated the cost of donor sperm from the MA APCD.

E. Multiplied the cost of donor sperm per IUI cycle by the estimated number of cycles to get the total cost associated with each pregnancy attempt.

F. Multiplied the total cost of donor sperm from 3.E. by an estimate of the planned number of children to get the lifetime cost of donor sperm.

4. **Calculate the average annual cost of incremental IUI services**

A. Estimated the lifetime cost of IUI services for biological females who have a biological female partner by multiplying the results of 1.F. with the estimated cost from 3.C.

B. Divided the lifetime cost from 4.A. by the average number of relevant childbearing life-years to get the average annual cost of IUI services for biological females who have a biological female partner.

C. Estimated the lifetime cost of IUI services for single mothers by choice by multiplying the results of 2.L. with the estimated cost from 3.C.

D. Divided the lifetime cost from 4.C. by the average number of relevant childbearing life-years to get the average annual cost of IUI services for single mothers by choice.

5. Summed together the results from 4.B. and 4.D. to get the total average annual cost of IUI services.

6. **Calculate the average annual cost of donor sperm**

   A. Estimated the lifetime cost of donor sperm for biological females who have a biological female partner by multiplying the results of 1.E. with the estimated cost from 3.F.

   B. Divided the lifetime cost from 5.A. by the average number of relevant childbearing life-years to get the average annual cost of donor sperm for biological females who have a biological female partner.

   C. Estimated the lifetime cost of donor sperm for single mothers by choice by multiplying the results of 2.K. with the estimated cost from 3.F.

   D. Divided the lifetime cost from 5.C. by the average number of relevant childbearing life-years to get the average annual cost of donor sperm for single mothers by choice.

   E. Summed together the results from 5.B. and 5.D. to get the total average annual cost of donor sperm.

7. **Calculate the average annual cost of preserving fertility**

   A. Estimated the cost of preserving fertility using the results from the 2021 mandated benefit study.

8. **Calculated the impact of the projected claim costs on insurance premiums.**

   A. Added the incremental cost from calculated in Steps 4, 5, and 6 to calculate the total incremental claims impact.

   B. Estimated the fully insured Commonwealth population under age 65, projected for the next five years (2024 – 2028).

   C. Multiplied the PMPM incremental net cost of the mandate by the projected population estimate, to calculate the total estimated marginal claims cost of the bill.

   D. Estimated insurer retention (administrative costs, taxes, and profit) and applied the estimate to the final incremental claims cost calculated in Step 7.C.

4.4 Assumptions and Limitations

While the claims data can inform the total number of fertility and infertility (IUI and ART) services performed, it does not reflect the characteristics of the populations who are currently using those services (heteronormative couples, biological females who have biological female partners, or biological females with no partner). BerryDunn relied on literature to estimate the different populations that are actively family planning, rather than using claims data. Notably, there is limited literature available for the U.S. population regarding family planning in these populations; however, given the difference in governmental supports for families (that may influence family planning) between the U.S. and countries where there was more available literature, BerryDunn relied primarily on the limited U.S. studies. There is scant information on the size of the population of biological females who do not have partners in the U.S., and no meaningful information on their preferred choice of family building (the population of single women with no partner intentionally planning a family is referred to as single mothers by choice). When possible, BerryDunn took a conservative approach in the estimates to account for this uncertainty.

It is also difficult to know how much utilization of fertility services may increase, if at all, in the presence of the mandate. The largest carriers in the Commonwealth already cover IUI services for biological female partners and biological females with no partner, and it is unlikely the cost of donor sperm is a high enough impediment for a commercially insured population to forgo fertility services. In addition, even for individuals insured by carriers where IUI services for these populations are not covered, many individuals may already be paying for these services out-of-pocket (or have a partner with current coverage), so the incremental impact of increased births is likely minimal, as the pregnancy costs for these individuals would currently be covered. Any additional cost due to these considerations is likely captured in the range of estimates, even though not explicitly modeled.

Based on feedback from the bill sponsor, BerryDunn assumed that reasonable limitations on fertility and infertility services could be applied based on standards or guidelines developed by the ASRM or the Society for Assisted Reproductive Technology. As such, waiting periods for heteronormative partners and requirements on IUI being attempted prior to IVF were assumed to be permissible, as well as reasonable age limits and requirements on certain test results (e.g., baseline hormonal bloodwork). To the extent this is not the case, the incremental cost of the mandate would be higher.

BerryDunn also assumed that the language of the bill did not require coverage for reciprocal IVF or costs associated with using a surrogate. As such, there is no incremental cost related to family planning for biological male and biological male partners or biological males with no partner. To the extent that the bill requires either of these services, the incremental cost of the mandate would be higher.

While BerryDunn relied on the mandated benefit review of An Act Relative to Preserving Fertility in April 2021 for the incremental cost of preserving fertility, importantly, there is increasingly more awareness of gender-confirming services for transgender individuals.[15] Over time, this will lead to increased costs associated with preserving fertility for this population, not only due to the long length of storage, but due to the increasing number of individuals seeking fertility preservation. As noted earlier, cost is not the only barrier to individuals seeking fertility preservation, particularly for transgender men. Current coverage by all carriers allows for egg retrieval, which is the biggest contributor of the high cost of preserving fertility for transgender men (as opposed to storage costs). Current APCD claims indicate a very low uptake rate (0.3%), which is consistent with indications that uptake is low for additional reasons outside of cost. As such, over the five-year period of the study it is unlikely the costs of providing unlimited storage will rise to the level of materiality. However, over a much longer time frame, as the population of individuals undergoing fertility preservation increases and there is an accumulation of the annual storage costs over time, the claims costs for this service will likely increase to a measurable amount.

BerryDunn projected the costs-per-user over the analysis period using the long-term average national projection for cost increases to physician services. The actual increase in costs over the projection period is uncertain.

COVID-19 impacted the number of commercial fully insured members starting in 2020. Fully insured membership declined due to decreased enrollment in employer-sponsored insurance (ESI). The impact that COVID-19 and economic trends will have on employment and, therefore, ESI in the 2024 – 2028 projection period is uncertain.

Appendix A addresses these limitations further.

5.0 Analysis

This section describes the calculations outlined in the previous section in more detail. The analysis includes a best estimate middle-cost scenario, a low-cost scenario, and a high-cost scenario using more conservative assumptions[7]. The analysis section proceeds as follows:

Section 5.1 describes the steps used to calculate the total estimated marginal cost of the bill.

Section 5.2 projects the fully insured population age 0 to 64 in the Commonwealth over the years 2024 – 2028.

Section 5.3 calculates the total estimated marginal cost of the bill.

Section 5.4 adjusts these projections for carrier retention to arrive at an estimate of the bill's effect on premiums for fully insured plans.

5.1 Incremental Cost of Coverage of Fertility and Infertility Services and Fertility Preservation

The proposed legislation requires health insurers to cover medically necessary expenses of diagnosis of infertility and fertility treatment and preservation, to the same extent that benefits are provided for other pregnancy-related procedures. The language of the bill expands on the existing definition of infertility, as discussed above, and requires fertility preservation. BerryDunn performed the analysis of the incremental cost of the bill in two parts – infertility services and fertility preservation. The following describes the analysis for each component of the bill.

Incremental Cost of Fertility and Infertility Services

As the bill is written, it encompasses an expansion of fertility and infertility benefits for two populations – biological females with a biological female partner and biological females with no partner. To determine the marginal impact of the proposed mandate, BerryDunn first estimated the number of individuals in each of the aforementioned populations that would be actively engaged in family planning and considering the use of IUI/IVF as a means of growing their family.

The 2021 American Community Survey[16] provides data on the number of married and unmarried same-sex households by gender, and the age distribution of those households. The Massachusetts households with two females of childbearing age were assumed to be the relevant population that the mandate is addressing in respect to biological females with a biological female partner, which is 9,316. BerryDunn estimated 25.3% have fully insured commercial insurance coverage (2,356). (See Appendix A for discussion of insured membership projections). Based on a review of carrier benefits, approximately 68.1% of this population already has IUI services as a covered benefit, leaving 754 individuals impacted by the expansion in coverage of IUI services.

According to a survey of LBGTQ+ millennials by the Family Equality Council,[17] 48% are actively planning to grow their families. Of that population, for families with an income greater than $100,000 a year, 32% are considering IUI and/or IVF as a means of growing their family (compared to 20% for families with an income of less than $35,000 a year). Given that the mandate is applicable to the commercially fully insured market, BerryDunn conservatively used

[7] Please note that the numbers used in the calculations are not rounded in the intermediate steps. However, in the report, the numbers are presented in rounded form for visual clarity.

the higher income metric and assumed 30% of biological females with a biological female partner would choose IUI/IVF to grow their families in the middle-cost scenario. Since individuals completing the survey could choose more than one method, the 32% may be overstated, and as such, 20% was assumed in the low-cost scenario. To the extent that the utilization may increase in the presence of the mandate or that Massachusetts residents may be more likely to use these services, 40% was assumed in the high-end scenario. Table 1 shows the number of biological females with a biological female partner needing IUI services.

Table 1. Number of Biological Females with a Biological Female Partner Needing IUI Services, Commercial Fully Insured for Carriers Not Currently Covering

	POPULATION	% OF ACTIVELY PLANNING	UPTAKE RATE	IUI USERS
Low Scenario	754	48%	20%	72
Mid Scenario	754	48%	30%	109
High Scenario	754	48%	40%	145

There is limited data on the number of biological females with no partners seeking to build a family in the U.S. This population tends to refer to itself as single mothers by choice, and an expert estimated approximately 2.7 million women in the U.S. are single mothers by choice[18]. The total number of all women who have had at least one biological child is estimated to be 42.8 million, as reported by the CDC in the National Survey of Family Growth, 2015-2019.[19] Applying an estimated 1% adoption rate[20], the estimated number of women with at least one child increases to 43.2 million. As such, single mothers by choice make up approximately 6.2% (2.7 million divided by 43.2 million) of the number of women with at least one child. There are 941,775 women in MA between ages 25 to 44[21] and an estimated 50% of females are planning to have a child[22]. This implies there are likely 29,195 women planning on becoming single mothers by choice (50% * 941,775 * 6.2%). In general, this population has a higher average income than the total population. BerryDunn estimated of these women, 90% have commercial insurance coverage and 35.4% of covered members were fully insured, yielding approximately 9,300 individuals. Based on a review of carrier benefits, approximately 68.1% of this population already has IUI services as a covered benefit, leaving 2,970 individuals impacted by the expansion in coverage of IUI services. BerryDunn found no academically robust literature that indicated how single mothers by choice would choose to grow their families. As such, it was assumed that this population would make similar choices to the biological females with a biological female partner in terms of uptake of IUI and IVF. Table 2 shows the number of biological females with no partner needing IUI services.

Table 2. Number of Biological Females with No Partner Needing IUI Services, Commercial Fully Insured for Carriers Not Currently Covering

	POPULATION	UPTAKE RATE	IUI USERS
Low Scenario	2,970	20%	594
Mid Scenario	2,970	30%	891
High Scenario	2,970	40%	1,188

For both populations, biological females with a biological female partner and biological females with no partner, donor sperm is not currently covered. Tables 3 and 4 show the number of users in each of these populations for donor sperm services.

Table 3. Number of Biological Females with a Biological Female Partner Needing Donor Sperm Services, Commercial Fully Insured

	POPULATION	% OF ACTIVELY PLANNING	UPTAKE RATE	DONOR SPERM USERS
Low Scenario	2,356	48%	20%	226
Mid Scenario	2,356	48%	30%	339
High Scenario	2,356	48%	40%	452

Table 4. Number of Biological Females with No Partner Needing Donor Sperm Services, Commercial Fully Insured

	POPULATION	UPTAKE RATE	DONOR SPERM USERS
Low Scenario	9,297	20%	1,859
Mid Scenario	9,297	30%	2,789
High Scenario	9,297	40%	3,719

Carriers are likely to continue to require that IUI services, which are less invasive and less costly per cycle, be performed prior to IVF services. The cost of IUI per cycle is approximately $500 and the cost of donor sperm per cycle is approximately $750. While the percentage of success of any given IUI cycle is relatively low, in the populations in question (who are not necessarily infertile) the cumulative success rate over six cycles is fairly high (87%[23]). BerryDunn assumed the average number of cycles that would be performed is four (after six cycles carriers allow IVF procedures and some portion of the population will become pregnant in fewer cycles). As such, the total cost per user for IUI for each intended pregnancy is estimated to be $2,000 ($500 x 4). Based on academic literature[24], BerryDunn estimated that five vials of donor sperm would be required, which is slightly higher than the number of IUI cycles. The estimated user cost for donor sperm services per each intended pregnancy is $3,750 ($750 x 5). Family planning typically involves one or more children. Over the course of an individual's lifetime, they may undergo cycles of IUI and IVF more than once as they build their family. In some instances, such as biological females with no partners, individuals may already have one or more children. One study indicated that 80% of single mothers by choice were over the age of 36 when seeking fertility services and 11% of single mothers by choice

already had at least one child when seeking fertility services (not all of whom were conceived with the help of a sperm donor).[25] BerryDunn adopted a conservative approach by assuming two children for biological females under age 35 and one child for biological females aged 35 and older. The distribution by age of each population was used to calculate the average number of children and the relevant child-bearing life years (to age 45) for each population.[26,27] Tables 5 and 6 show the lifetime cost of IUI and donor sperm for biological females with a biological female partner and biological females with no partner.

Table 5. Lifetime Cost of IUI for Biological Females with a Biological Female Partner and Biological Females with No Partner

	BIOLOGICAL FEMALES WITH A BIOLOGICAL FEMALE PARTNER				BIOLOGICAL FEMALES WITH NO PARTNER				TOTAL LIFETIME COST FOR BOTH POPULATIONS
	USERS	IUI COST PER USER	AVERAGE # OF CHILDREN	TOTAL LIFETIME COST	USERS	IUI COST PER USER	AVERAGE # OF CHILDREN	TOTAL LIFETIME COST	
Low Scenario	72	$2,000	1.6	$230,976	594	$2,000	1.2	$1,425,600	$1,656,576
Mid Scenario	109	$2,000	1.6	$346,464	891	$2,000	1.2	$2,138,400	$2,484,864
High Scenario	145	$2,000	1.6	$461,952	1,188	$2,000	1.2	$2,851,200	$3,313,152

Table 6. Lifetime Cost of Donor Sperm for Biological Females with a Biological Female Partner and Biological Females with No Partner

	BIOLOGICAL FEMALES WITH A BIOLOGICAL FEMALE PARTNER				BIOLOGICAL FEMALES WITH NO PARTNER				TOTAL LIFETIME COST FOR BOTH POPULATIONS
	USERS	DONOR SPERM COST PER USER	AVERAGE # OF CHILDREN	TOTAL LIFETIME COST	USERS	DONOR SPERM COST PER USER	AVERAGE # OF CHILDREN	TOTAL LIFETIME COST	
Low Scenario	226	$3,750	1.6	$1,353,240	1,859	$3,750	1.2	$ 8,367,000	$9,720,240
Mid Scenario	339	$3,750	1.6	$2,029,860	2,789	$3,750	1.2	$12,550,500	$14,580,360
High Scenario	452	$3,750	1.6	$2,706,480	3,719	$3,750	1.2	$16,734,000	$19,440,480

In combination, the number of individuals impacted and the lifetime costs of IUI and donor sperm calculated above yield the cost of the mandate over the childbearing years of the impacted populations. To determine the average annual claims cost, the resulting lifetime cost was divided by the average number of relevant childbearing life-years for each population. Table 7 shows the incremental average annual cost of IUI services and donor sperm.

Table 7. Incremental Average Annual Cost of IUI Services and Donor Sperm

	BIOLOGICAL FEMALES WITH A BIOLOGICAL FEMALE PARTNER			BIOLOGICAL FEMALES WITH NO PARTNER			TOTAL AVERAGE ANNUAL COST FOR BOTH POPULATIONS
	TOTAL LIFETIME COST	AVERAGE CHILDBEARING YEARS	AVERAGE ANNUAL COST	TOTAL LIFETIME COST	AVERAGE CHILDBEARING YEARS	AVERAGE ANNUAL COST	
Low Scenario	$1,584,216	10.4	$152,646	$9,792,600	6.4	$1,523,360	$1,676,006
Mid Scenario	$2,376,324	10.4	$228,969	$14,688,900	6.4	$2,285,040	$2,514,009
High Scenario	$3,168,432	10.4	$305,292	$19,585,200	6.4	$3,046,720	$3,352,012

Incremental Cost of Preserving Fertility

BerryDunn used the results of the 2021 mandated benefit study of An Act Relative to Preserving Fertility to inform the incremental cost of preserving fertility for individuals undergoing medically induced infertility.[28] Table 8 shows the incremental impact of preserving fertility.

Table 8. Incremental Cost of Preserving Fertility

	INCREMENTAL ANNUAL COST
Low Scenario	$24,181
Mid Scenario	$305,969
High Scenario	$608,303

The incremental costs of fertility and infertility services, including preserving fertility, due to the proposed mandate were summed together to get the projected claims cost. Table 9 shows the total incremental impact of the mandate.

Table 9. Total Incremental Fertility and Infertility Services, Including Preserving Fertility

	ANNUAL COST OF IUI AND DONOR SPERM SERVICES	ANNUAL COST OF PRESERVING FERTILITY	TOTAL ANNUAL COST
Low Scenario	$1,676,006	$24,181	$ 1,700,187
Mid Scenario	$2,514,009	$305,969	$ 2,819,978
High Scenario	$3,352,012	$608,303	$ 3,960,315

5.2 Projected Fully Insured Population in the Commonwealth

Table 10 shows the fully insured population in the Commonwealth ages 0 – 64 projected for the next five years. Appendix A describes the sources of these values.

Table 10. Projected Fully Insured Population in the Commonwealth, Ages 0 – 64

YEAR	2024	2025	2026	2027	2028
Total (0 – 64)	2,109,829	2,177,989	2,245,532	2,275,249	2,273,358

5.3 Total Marginal Medical Expense

The analysis assumes the mandate would be effective for all policies issued, delivered, or renewed in the Commonwealth on or after the assumed effective date of January 1, 2024. Based on an assumed renewal distribution by month, by market segment, and by the Commonwealth market segment composition, 72.1% of the member months exposed in 2024 will have the proposed mandate coverage in effect during calendar year 2024. The annual dollar impact of the mandate in 2024 was estimated using the estimated PMPM and applying it to 72.1% of the member months exposed.

Multiplying the total estimated PMPM cost by the projected fully insured membership over the analysis period and trending it forward using the long-term average national projection for cost increases to physician and clinical services (reported at 5.9%[29]) results in the total cost (medical expense) associated with the proposed requirement, shown in Table 11.

Table 11. Estimated Marginal Claims Cost

	2024	2025	2026	2027	2028
Low Scenario	$1,455,861	$2,138,359	$2,264,522	$2,398,129	$2,539,619
Mid Scenario	$2,414,731	$3,546,741	$3,755,999	$3,977,603	$4,212,281
High Scenario	$3,391,196	$4,980,966	$5,274,843	$5,586,059	$5,915,637

5.4 Carrier Retention and Increase in Premium

Assuming an average retention rate of 14.1% - based on CHIA's analysis of administrative costs and profit in the Commonwealth - the increase in medical expense was adjusted upward to approximate the total impact on premiums.[30] Table 12 displays the result.

Table 12: Estimate of Increase in Carrier Premium

	2024	2025	2026	2027	2028
Low Scenario	$1,695,645	$2,490,552	$2,637,495	$2,793,107	$2,957,900
Mid Scenario	$2,812,444	$4,130,899	$4,374,622	$4,632,725	$4,906,055
High Scenario	$3,949,735	$5,801,345	$6,143,624	$6,506,098	$6,889,957

6.0 Results

The estimated impact of the proposed requirement on medical expense and premiums appears in Table 13 below. The analysis includes development of a best estimate mid-level scenario, a low-level scenario, and a high-level scenario using more conservative assumptions. The impact on premiums is driven by the provisions of the bill that require coverage of an expansion of fertility and infertility benefits for two populations – biological females with a biological female partner and biological females with no partner and an expansion of coverage for services preserving fertility for medically induced infertility.

6.1 Five-Year Estimated Impact

For each year in the five-year analysis period, Table 13 displays the projected net impact of the proposed language on medical expense and premiums using a projection of Commonwealth fully insured membership. Note that the relevant provisions are assumed effective January 1, 2024.[8]

Table 13 Summary Results

	2024	2025	2026	2027	2028	WEIGHTED AVERAGE	FIVE-YEAR TOTAL
Average Projected Members (000s)	2,110	2,178	2,246	2,275	2,273		
Medical Expense Low ($000s)	$1,456	$2,138	$2,265	$2,398	$2,540	$2,280	$10,796
Medical Expense Mid ($000s)	$2,415	$3,547	$3,756	$3,978	$4,212	$3,782	$17,907
Medical Expense High ($000s)	$3,391	$4,981	$5,275	$5,586	$5,916	$5,312	$25,149
Premium Low ($000s)	$1,696	$2,491	$2,637	$2,793	$2,958	$2,656	$12,575
Premium Mid ($000s)	$2,812	$4,131	$4,375	$4,633	$4,906	$4,405	$20,857
Premium High ($000s)	$3,950	$5,801	$6,144	$6,506	$6,890	$6,187	$29,291
PMPM Low	$0.09	$0.10	$0.10	$0.10	$0.11	$0.10	$0.10
PMPM Mid	$0.15	$0.16	$0.16	$0.17	$0.18	$0.17	$0.17
PMPM High	$0.22	$0.22	$0.23	$0.24	$0.25	$0.23	$0.23
Estimated Monthly Premium	$577	$593	$609	$625	$642	$609	$609
Premium % Rise Low	0.016%	0.016%	0.016%	0.016%	0.017%	0.016%	0.016%
Premium % Rise Mid	0.027%	0.027%	0.027%	0.027%	0.028%	0.027%	0.027%
Premium % Rise High	0.037%	0.037%	0.037%	0.038%	0.039%	0.038%	0.038%

[8] With an assumed start date of January 1, 2024, dollars were estimated at 70.7% of the annual cost, based upon an assumed renewal distribution by month (Jan through Dec) by market segment and the Massachusetts market segment composition.

6.2 Impact on GIC

The proposed mandate would apply to self-insured plans operated for state and local employees by the GIC. This section describes the results for the GIC.

Findings from BerryDunn's carrier survey indicate that benefit offerings for GIC and other commercial plans in the Commonwealth are similar. For this reason, the cost of the bill for GIC per member will likely be similar to the cost for other fully insured plans in the Commonwealth.

BerryDunn assumed the proposed legislative change will apply to self-insured plans that the GIC operates for state and local employees, with an effective date of July 1, 2024. Because of the July effective date, the results in 2024 are approximately one-half of an annual value. Table 14 breaks out the GIC's self-insured membership, as well as the corresponding incremental medical expense.

Table 14. GIC Summary Results

	2024	2025	2026	2027	2028	WEIGHTED AVERAGE	FIVE-YEAR TOTAL
GIC Self-Insured							
Members (000s)	313	312	312	311	310		
Medical Expense Low ($000s)	$150	$306	$314	$328	$347	$321	$1,445
Medical Expense Mid ($000s)	$248	$508	$521	$544	$575	$533	$2,396
Medical Expense High ($000s)	$349	$714	$732	$763	$808	$748	$3,365

Endnotes

[1] *Op. cit. CMS. Massachusetts State Required Benefits.*

[2] CMS. Massachusetts State Required Benefits. Accessed October 12, 2020. **https://downloads.cms.gov/cciio/State%20Required%20Benefits_MA.PDF**.

[3] M.G.L. c. 175 §47H. Accessed May 24, 2023. **https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXXII/Chapter175/Section47H**.

[4] Massachusetts Center for Health Information and Analysis and Berry Dunn McNeil & Parker, LLC. Mandated Benefit Review of House Bill 1116 and Senate Bill 640 Submitted to the 192nd General Court: An Act Relative to Preserving Fertility. June 2021. Accessed July 27, 2023. **https://www.chiamass.gov/assets/docs/r/pubs/mandates/MBR-Preserving-Fertility.pdf**.

[5] The 193rd General Court of the Commonwealth of Massachusetts, Senate Bill 622, "An Act Relative to LGBTQ Family Building." Accessed May 17, 2023. **https://malegislature.gov/Bills/193/S622**.

[6] *Ibid.*

[7] The bill, as currently written, does not include Chapter 176A. However, the Sponsors confirmed that the bill's intent is to include Chapter 176A.

[8] *Op. cit. Weigel G, Ranji U, Long M, et al. Coverage and Use of Fertility Services in the U.S. Women's Health Policy. Kaiser Family Foundation (KFF).*

[9] *Op. cit. CMS. Massachusetts State Required Benefits.*

[10] *Op. cit. M.G.L. c. 175 §47H.*

[11] *Op. cit. The 193rd General Court of the Commonwealth of Massachusetts, Senate Bill 622, "An Act Relative to LGBTQ Family Building."*

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[14] *Op. cit. Massachusetts Center for Health Information and Analysis and Berry Dunn McNeil & Parker, LLC. Mandated Benefit Review of House Bill 1116 and Senate Bill 640 Submitted to the 192nd General Court: An Act Relative to Preserving Fertility.*

[15] *Ibid.*

[16] American Community Survey. (2021). 2021 ACS 1-year Supplemental Estimates and Documentation Released October 20, 2022. Accessed July 1, 2023. **https://www.census.gov/data/tables/time-series/demo/same-sex-couples/ssc-house-characteristics.html**.

[17] Family Equality (2019) LGBTQ Family Building Survey. Accessed July 1, 2023. **https://www.familyequality.org/fbs**.

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[26] *Ibid.*

[27]The United States Census Bureau. Characteristics of Same-Sex Couple Households: 2005 to Present. Accessed June 29, 2023. **https://www.census.gov/data/tables/time-series/demo/same-sex-couples/ssc-house-characteristics.html**.

[28] *Op. cit. Massachusetts Center for Health Information and Analysis and Berry Dunn McNeil & Parker, LLC. Mandated Benefit Review of House Bill 1116 and Senate Bill 640 Submitted to the 192nd General Court: An Act Relative to Preserving Fertility.*

[29] U.S. Centers for Medicare & Medicaid Services, Office of the Actuary. National Health Expenditure Projections. "Table 6, Hospital Care Expenditures; Aggregate and per Capita Amounts, Percent Distribution and Annual Percent Change by Source of Funds: Calendar Years 2018-2027; Private Insurance." Accessed May 23, 2022.

https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected.html.

[30] *Ibid.*

Appendix A: Membership Affected by the Proposed Language

Membership potentially affected by proposed mandated change criteria includes Commonwealth residents with fully insured, employer-sponsored health insurance issued by a Commonwealth-licensed company (including through the GIC); nonresidents with fully insured, ESI issued in the Commonwealth; Commonwealth residents with individual (direct) health insurance coverage; and lives covered by GIC self-insured coverage. Other populations within the self-insured commercial sector are excluded from the state coverage mandate due to federal Employee Retirement Income Security Act (ERISA) protections of self-insured plans.

The unprecedented economic circumstances due to COVID-19 add particular challenges to estimation of health plan membership. The membership projections are used to determine the total dollar impact of the proposed mandate in question; however, variations in the membership forecast will not affect the general magnitude of the dollar estimates. Given the uncertainty, BerryDunn took a simplified approach to the membership projections. These membership projections are not intended for any purpose other than producing the total dollar range in this study. Further, to assess how recent volatility in commercial enrollment levels might affect these cost estimates, please note that the PMPM and percentage of premium estimates are unaffected because they are per-person estimates, and the total dollar estimates will vary by the same percentage as any percentage change in enrollment levels.

CHIA publishes monthly enrollment summaries in addition to its biannual enrollment trends report and supporting databook (enrollment-trends-Data Through September 2022 databook[1] and Monthly Enrollment Summary – June 2021[2]), which provide enrollment data for Commonwealth residents by insurance carrier for most carriers, excluding some small carriers. CHIA uses supplemental information beyond the data in the Massachusetts APCD to develop its enrollment trends report and adjust the resident totals from the Massachusetts APCD. CHIA-reported enrollment data formed the base for the membership projections. For the base year 2019 in the membership projection, the 2019 Massachusetts APCD and published 2019 membership reports available from the Massachusetts Division of Insurance (DOI) [3,4] were used to develop a factor used to adjust the CHIA enrollment data for the few small carriers not present in the enrollment report. The adjustment was trended forward to 2022 and applied to CHIA enrollment data.

In 2021, commercial, fully insured membership was 5.6% less than in 2019, with a shift to both uninsured and MassHealth coverage. As part of the public health emergency (PHE), members were not disenrolled from MassHealth coverage, even when they no longer passed eligibility criteria. Shortly before the PHE ended, redetermination efforts began in April 2023 and are anticipated to occur over a 12-month period. Many of the individuals subject to redetermination will no longer be eligible for MassHealth coverage. It is anticipated that a portion of individuals losing coverage will be eligible for coverage in individual ACA plans and ESI. The impact of COVID-19 on the fully insured market over the five-year projected period (2024 – 2028) is uncertain. It is not anticipated that enrollment levels in commercial insurance will immediately return to 2019 levels.

The number of MassHealth members moving to commercially insured plans after the unwinding of the PHE was estimated by a study performed by the National Opinion Research Center (NORC) at the University of Chicago.[5] BerryDunn used these results and assumed MassHealth disenrollment occurs uniformly from April 2023 to March 2024. BerryDunn further assumed that the commercial market will return to pre-pandemic enrollment levels by the

end of the projection period in December of 2027.

The distribution of members by age and gender was estimated using Massachusetts APCD population distribution ratios and was checked for reasonableness and validated against U.S. Census Bureau data.[6] Membership was projected from 2024 – 2028 using Massachusetts Department of Transportation population growth rate estimates by age and gender.[7]

Projections for the GIC self-insured lives were developed using the GIC base data for 2018 and 2019, which BerryDunn received directly from the GIC, as well as the same projected growth rates from the Census Bureau that were used for the Commonwealth population. Breakdowns of the GIC self-insured lives by gender and age were based on the Census Bureau distributions.

Endnotes

[1] Center for Health Information and Analysis. Estimates of fully insured and self-insured membership by insurance carrier. Accessed March 17, 2023. https://www.chiamass.gov/enrollment-in-health-insurance/.

[2] Ibid.

[3] Massachusetts Department of Insurance. HMO Group Membership and HMO Individual Membership Accessed March 21, 2023. https://www.mass.gov/doc/quarterly-group-members-q4-2020/download; https://www.mass.gov/doc/quarterly-individual-members-q4-2020/download.

[4] Massachusetts Department of Insurance. Membership in Insured Preferred Provider Plans. Accessed March 21, 2023. https://www.mass.gov/doc/2019-ippp-medical-plans/download.

[5] NORC at the University of Chicago, Medicaid Redetermination Coverage Transitions, Accessed June 12, 2023. https://ahiporg-production.s3.amazonaws.com/documents/Medicaid-Redetermination-Coverage-Transitions-Methodology.pdf.

[6] U.S. Census Bureau. Annual Estimates of the Resident Population by Single Year of Age and Sex: April 1, 2010, to July 1, 2019. Accessed March 17, 2023. https://www2.census.gov/programs-surveys/popest/tables/2010-2019/state/asrh/sc-est2019-syasex-25.xlsx.

[7] Massachusetts Department of Transportation. Socio-Economic Projections for 2020 Regional Transportation Plans. Accessed November 12, 2020. https://www.mass.gov/lists/socio-economic-projections-for-2020-regional-transportation-plans.