

Reproductive Medicine Act monitoring

Key results 2021

Bern, 15 June 2023

1 Introduction: Reproductive Medicine Act monitoring

The Reproductive Medicine Act (RMA) specifies the conditions under which techniques of medically assisted reproduction may be used in Switzerland. On 1 September 2017, a partial revision of the RMA came into force, involving in particular the legalisation of preimplantation diagnosis.

Also included in the revised Act are provisions concerning evaluation (Art. 14a RMA). Whether the Act fulfils its purpose is to be determined by a review of its effectiveness.¹ To provide a basis for the evaluation of the legislation, the Federal Office of Public Health (FOPH) is also conducting a monitoring programme. This programme systematically collects data on reproductive medicine in Switzerland, thus creating transparency. Büro Vatter (policy research and consultancy) was requested to carry out data collection and processing for this monitoring. The most important results are published online by the FOPH.

Thematically, this report is structured in accordance with the FOPH web page. No figures or tables are included; instead, for each section, reference is made to the analyses and explanations provided by the FOPH on the web page “Reproductive Medicine: facts & figures”.²

¹ <https://www.bag.admin.ch/bag/en/home/medizin-und-forschung/fortpflanzungsmedizin/wirksamkeitspruefung-fmedg.html>; (accessed 17 May 2022)

² <https://www.bag.admin.ch/bag/en/home/zahlen-und-statistiken/zahlen-fakten-zu-fortpflanzungsmedizin.html>; (accessed 17 May 2022)

2 Medical practice in the area of reproductive medicine

<https://www.bag.admin.ch/bag/en/home/zahlen-und-statistiken/zahlen-fakten-zu-fortpflanzungsmedizin/medizinische-praxis-im-bereich-fortpflanzung.html>

2.1 Assisted reproductive techniques

<https://www.bag.admin.ch/bag/en/home/zahlen-und-statistiken/zahlen-fakten-zu-fortpflanzungsmedizin/medizinische-praxis-im-bereich-fortpflanzung/verfahren-der-fortpflanzungsmedizin.html>

Couples starting IVF treatment: In 2021, 3,473 couples started in vitro fertilisation (IVF) treatment – a further increase compared to the previous few years. Compared to 2020 (3,092 couples), the increase amounts to 12.3%.

Reason for IVF treatment: In almost all cases, the reason for starting IVF treatment was infertility. In 2021, only 61 couples started IVF treatment to avoid the risk of transmitting a serious genetic disease. Since 2017, when data on this reason for treatment was first collected, the number has risen steadily (2020: 32 couples).

IVF treatment overall: The total number of couples undergoing IVF treatment in a given year increased as in the previous year. In 2021, it was 6,934 couples, compared to 6,237 in 2020. The total number of treatment cycles was also higher again, at 13,226 (2020: 11,982). IVF embryos from 3,095 couples were preserved; again more than in previous years (2020: 2,828). Before 1 September 2017, preservation of embryos was only permitted in exceptional cases. In the revised legislation, preservation of embryos was legalised and made subject to the same requirements as preservation of impregnated ova (Art. 16 para. 1 RMA).

Preimplantation diagnosis (permissible since 1 September 2017): Here, a distinction is to be made between testing for specific genetic diseases (preimplantation genetic diagnosis, PGD) and screening for chromosome abnormalities (preimplantation genetic testing for aneuploidy, PGT-A). 10.1% of all couples undergoing treatment in 2021 used the preimplantation diagnosis (2020: 6.1%). Compared to previous years, the proportion thus increased markedly. Requests for PGD were almost twice as high in 2021 compared to 2020: in 2019, 23 couples underwent PGD, in 2020 it was 19, and 36 in 2021. In the case of PGT-A, the total increased from 306 to 333 from 2019 to 2020 and reached 623 in 2021. In addition, both PGD and PGT-A were performed for 38 couples in 2021 (compared to 21 in 2019 and 25 in 2020). In previous years, polar body diagnosis was still accounted for separately. That stopped in 2021.

2.2 Handling of embryos from in vitro fertilisation

<https://www.bag.admin.ch/bag/en/home/zahlen-und-statistiken/zahlen-fakten-zu-fortpflanzungsmedizin/medizinische-praxis-im-bereich-fortpflanzung/umgang-mit-embryonen-nach-in-vitro-fertilisation.html>

Embryos developed: For several years up to 2016, the total number of embryos developed per year was between roughly 18,000 and 19,000. Thereafter, the total rose sharply, reaching 33,945 in 2018. After a slight decrease in 2019, the number of embryos hit a new record total of 37,511 in 2021. The increase after 2017 is most likely attributable, in particular, to two changes in the legislation. Firstly, up to a maximum of twelve embryos may now be developed per treatment cycle (previously three; Art. 17 para. 1 RMA). Secondly, the preservation of embryos is now no longer only permissible in exceptional cases (Art. 16 para. 1 RMA).

Embryos preserved: As a result of these changes in the legislation, the number of embryos preserved also increased dramatically: 251 embryos were preserved in 2016 and 12,075 in 2020, with a further increase to 13,233 in 2021.

Embryos transferred: Conversely, the same period saw a marked decrease in the number of embryos transferred – from 14,659 in 2016 to 9,669 (2020). In 2021, however, the number of embryos transferred increased again (10,536). The decline seen over the previous years is attributable to two developments, only the first of which was still observable in 2021. Thus, after the partial revision of the RMA, decreasing numbers of embryos, on average, were transferred per cycle than previously: in 2016, two or three embryos were transferred simultaneously in almost two thirds (66%), and one individual embryo in only a third of all cases (34%). In contrast, only one embryo was transferred in 83% of all cases in 2020, and in 85% in 2021. Secondly, the number of transfers initially declined from 2017: from 2009 to 2016, more than 8,500 transfers were recorded each year; since then, the figure has decreased, with 7,891 transfers recorded in 2019. In 2020, however, the number of transfers rose again, to 8,206, as in 2021 also (9,115).

Embryos destroyed: Compared to 2016, the total number of embryos destroyed has quadrupled: while 3,297 embryos were destroyed in 2016, the total rose to 15,652 in 2021. As in previous years, by far the most frequent reason for destruction was failure of embryo development (12,720 embryos).

2.3 Pregnancy and birth after in vitro fertilisation

<https://www.bag.admin.ch/bag/en/home/zahlen-und-statistiken/zahlen-fakten-zu-fortpflanzungsmedizin/medizinische-praxis-im-bereich-fortpflanzung/schwangerschaft-geburt-in-vitro-fertilisation.html>

Birth rate: Of all treatment cycles started in 2021, 18% resulted in a birth. The birth rate had previously risen slightly from 17% in 2017 to 19% in 2019.

Births after IVF with preimplantation diagnosis: In 2021, as in previous years, the number of births after IVF treatment increased (from 2,122 in 2020 to 2,403). Overall, the number of (singleton or multiple) births after IVF with preimplantation diagnosis increased markedly over the previous year (2020: 54): 240 such treatments resulted in a birth (singleton or multiple in 2021). 212 births followed IVF with PGT-A, 12 occurred after PGD and 16 after PGD combined with PGT-A. In 2019, there were 65 births in total.

Multiple births after IVF: Since the entry into force of the revised RMA, the number of multiple births decreased up to 2020. In 2017, 295 IVF treatments resulted in a twin birth and 6 in a triplet birth. In 2020, only 90 sets of twins and 2 sets of triplets were born following IVF treatment. In 2021, the number of sets of twins was slightly up at 96, with one set of triplets being born. The proportion of singleton births has increased from 84% to 96% since 2017. For comparison, of all births recorded in Switzerland in 2020, over 98% were singleton births, with multiple births accounting for just under 2% (source: Swiss Federal Statistical Office).

Premature births: 286 births after IVF in 2021 occurred before the end of the 37th week (2020: 307). The proportion of premature births thus decreased from 21% of all births after IVF in 2017 to 12%.

2.4 Preservation of reproductive cells

<https://www.bag.admin.ch/bag/en/home/zahlen-und-statistiken/zahlen-fakten-zu-fortpflanzungsmedizin/medizinische-praxis-im-bereich-fortpflanzung/konservierung-eigenvorsorge-und-spende.html>

Note: due to late registration there have been changes to the figures for 2020 and 2019 regarding the number of reproductive cells for preservation. These changes have been made on the internet platform, but they are not included in the published short reports from previous years.

Oocytes and ovarian tissue preserved: Individuals may have their reproductive cells preserved as a precautionary measure under the RMA. The maximum preservation period is generally 10 years (Art. 15 RMA). As of 31 December 2021, oocytes or ovarian tissue was preserved from a total of 2,502 women, representing a marked increase over 2020 (1,796). Preservation was undertaken for medical reasons in 928 cases (2020: 741), and for other reasons in 1,574 cases (2020: 1,055). The increase is thus primarily attributable to preservation for other reasons.

Sperm and testicular tissue preserved: As of 31 December 2021, sperm or testicular tissue was preserved from 5,836 men, representing an increase (2020: 5,354). In 4,544 cases, the preservation was for medical reasons (2020: 4,359). Sperm or testicular tissue was preserved from 1,292 men for other reasons (2020: 995). The increase thus applies to both categories, whereby it is greater in the latter case.

3 Actors in reproductive medicine

<https://www.bag.admin.ch/bag/en/home/zahlen-und-statistiken/zahlen-fakten-zu-fortpflanzungsmedizin/akteure-der-fortpflanzungsmedizin.html>

Physicians with a licence: The number of physicians with a licence for reproductive medicine in accordance with Art. 8 RMA has once again slightly increased – from 79 in 2017 to 93 in 2021 and 95 in 2022; of this total, 66 are authorised to carry out preimplantation diagnostic procedures. In 2017 – the year in which preimplantation diagnosis was legalised – 15 were authorised to conduct procedures of this kind.

Laboratories conducting genetic testing on embryos: In 2021, seven genetic laboratories in Switzerland were authorised to conduct genetic testing on embryos; this number has remained unchanged since 2017. All laboratories carried out tests of this kind in 2021.

4 Sperm donor-conceived children

<https://www.bag.admin.ch/bag/en/home/zahlen-und-statistiken/zahlen-fakten-zu-fortpflanzungsmedizin/kinder-aus-samenspende.html>

Reported births registered: Since 2001, physicians performing IVF have been required to report births of sperm donor-conceived children to the Federal Office for Civil Registration (EAZW), so that the children can subsequently obtain information about the donor. In the EAZW donor data registry, a total of 3,661 births were registered from 2001 to the end of 2018; these may be multiple births. Since then, there has been a further marked increase in the number of births registered: 4,234 births were included in the EAZW registry at the end of 2020, 4,374 at the end of 2021, and 4,524 on 31 December 2022. 150 births were thus newly registered in 2022 (2021: 140).

Registered sperm donors: In the period from 2001 to the end of 2019, 776 sperm donors were registered following births reported to the EAZW. A year later, the total had increased by 1 to 777. By the end of 2021, the total number of registered sperm donors had risen by 36 to 813, and by 24 to 837 by the end of 2022.

Children's requests for information: In 2020, for the first time, one child conceived using donated sperm cells requested information from the EAZW on the donor, in accordance with Art. 27 para. 1 RMA. The donor concerned agreed to make contact. In 2021, two further requests were received. In one of these cases, the donor agreed to make contact. In 2022, there were also 2 requests. In the same year, one donor agreed to make contact, in one case the donor declined contact.

5 Sources used for RMA monitoring

As far as possible, monitoring relies on existing data sources. Only a small proportion of the information is specially collected for the monitoring programme, using direct surveys of physicians licensed to conduct activities in accordance with Art. 8 para. 1 RMA. Monitoring is based on the following data sources.

- *FIVNAT:* Fécondation In Vitro National (FIVNAT) is a committee of the Swiss Society for Reproductive Medicine (SGRM) which collects in vitro fertilisation (IVF) data. Some of this data has also been published for many years by the Swiss Federal Statistical Office; for this reason, some IVF statistics go back as far as 2007.
- *Physicians with a licence:* These are physicians who use assisted reproductive techniques, preserve reproductive cells or arrange the supply of sperm cells and therefore require a licence under Article 8 RMA. For monitoring purposes, they are directly surveyed, inter alia, on insemination using preserved sperm cells, on the precautionary preservation of reproductive material by individuals, and on donated sperm cells stored by them. Information is thus collected on activities requiring a licence which are not directly connected with IVF treatment.
- *Cantonal licensing authorities:* Responsibility for enforcement of the RMA lies with the cantonal licensing authorities, who are surveyed for monitoring purposes. They provide, inter alia, information on licence holders.
- *EAZW:* The Federal Office for Civil Registration (EAZW) manages data in accordance with the RMA on sperm donors and children conceived through sperm donation. The first data available for monitoring relates to 2018.
- *SFSO:* The SFSO criminal justice statistics cover offences against the criminal provisions of the RMA. Up to 2021, however, no convictions based on these provisions are recorded.
- *FOPH:* The FOPH grants licences to laboratories which perform genetic testing on reproductive cells or embryos. These laboratories require authorisation under Article 8 of the Federal Act on Human Genetic Testing (HGTA). For monitoring, data on these laboratories is obtained from the FOPH.