Reproductive Medicine Act monitoring

Key results 2020

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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 2020, 3,092 couples started in vitro fertilisation (IVF) treatment – an increase compared to the previous few years, in which less than 3,000 couples per year started IVF treatment. Compared to 2019 (2,872 couples), the increase amounts to 7.6%. In the years prior to the partial revision of the RMA, demand appears to have been higher: in every year from 2008 to 2016, between roughly 3,500 and 4,000 couples started IVF treatment. Since 2017, however, whether a couple is actually undergoing IVF treatment for the first time is checked electronically against existing records in the FIVNAT Registry. Multiple counting, as occurred in previous years, is thus avoided.

Reason for IVF treatment: In almost all cases, the reason for starting IVF treatment was infertility. In 2020, only 32 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 (2019: 26 couples).

IVF treatment overall: The total number of couples undergoing IVF treatment in a given year has increased. In 2020, it was 6,237 couples, compared to 5,993 in 2019. The total number of treatment cycles was also higher than in previous years, with 11,982 in 2020 compared to 11,163 in 2019. The number of couples from whom IVF embryos were preserved was likewise higher than in previous years (2,828 in 2020 vs 2,605 in 2019). 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). As in the previous years, these diagnostic procedures were only performed for a small proportion of the couples undergoing IVF treatment. Overall, a further rise in the number of diagnostic procedures was seen in 2020, although the increase was less marked, and there was even a slight decrease in the case of PGD: this procedure was performed for 14 couples in 2018, for 23 in 2019, and for 19 in 2020. In the case of PGT-A, the total increased from 182 in 2018 to 306 in 2019 and 333 in 2020. In addition, both PGD and PGT-A were performed for 25 couples in 2020 (compared to 21 in 2019 and

8 in 2018). PGD and polar body diagnosis was performed for 1 couple in 2020. Preimplantation diagnostic techniques were thus used for 6.1% of all couples undergoing IVF treatment in 2020 (2019: 5.8%).

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 (32,575), a new record total of 34,020 was recorded in 2020. 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 11,029 in 2019, with a further increase to 12,075 in 2020.

Embryos transferred: Conversely, the same period saw a marked decrease in the number of embryos transferred – from 14,659 in 2016 to 9,641 in 2019. In 2020, however, there was only a marginal change in the number of embryos transferred (9,669). The decline seen over the previous years is attributable to two developments, only the first of which was still observable in 2020. 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 in almost two thirds (66%), and one embryo in only a third of all cases (34%); in contrast, only one embryo was transferred in 79% of all cases in 2019, and in 83% in 2020. Secondly, the number of transfers has declined: 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.

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 13,479 in 2020. As in previous years, by far the most frequent reason for destruction was failure of embryo development (11,429 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 2020, 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 2020, as in previous years, the number of births after IVF treatment increased slightly (from 2,080 in 2019 to 2,122). Overall, however, the number of (singleton or multiple) births after IVF with preimplantation diagnosis decreased – from 65 in 2019 to 54 in 2020. Of this total, 51 births followed IVF with PGT-A, and 3 occurred after PGD and PGT-A.

Multiple births after IVF: Since the entry into force of the revised RMA, the number of multiple births has decreased. 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. Over the same period, the proportion of singleton births increased from 84% to 96%. 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: 307 births after IVF in 2020 occurred before the end of the 37th week (2019: 335). The proportion of premature births thus decreased from 21% of all births after IVF in 2017 to 14% in 2020.

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

Oocytes and ovarian tissue preserved: Individuals may have their reproductive cells preserved as a precautionary measure. The maximum preservation period is generally 10 years (Art. 15 RMA). As of 31 December 2020, oocytes or ovarian tissue was preserved from a total of 1,646 women, representing a marked increase over 2019 (1,390). Preservation was undertaken for medical reasons in 709 cases (2019: 675), and for other reasons in 937 cases (2019: 715). The increase is thus primarily attributable to preservation for other reasons.

Sperm and testicular tissue preserved: As of 31 December 2020, sperm or testicular tissue was preserved from 4,911 men, representing a slight decrease from the previous year (4,972). There is a difference between the trends observed for men and for women: while sperm or testicular tissue was preserved for medical reasons in a total of 4,003 cases – an increase over the previous year (3,910) – preservation was only undertaken for other reasons in 908 cases in 2020, compared to 1,062 in 2019.

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 91 in 2020 and 93 in 2021; of this total, 64 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 2020, seven genetic laboratories in Switzerland were authorised to conduct genetic testing on embryos; this number has remained unchanged since 2017. Of these seven laboratories, six actually carried out tests of this kind in 2020.

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: 4,126 births were included in the EAZW registry at the end of 2019, 4,234 at the end of 2020, and 4,374 at the end of 2021. 140 births were thus newly registered in 2021 (2020: 108).

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.

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; the other request was still being processed at the end of the year.

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 2020, 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.