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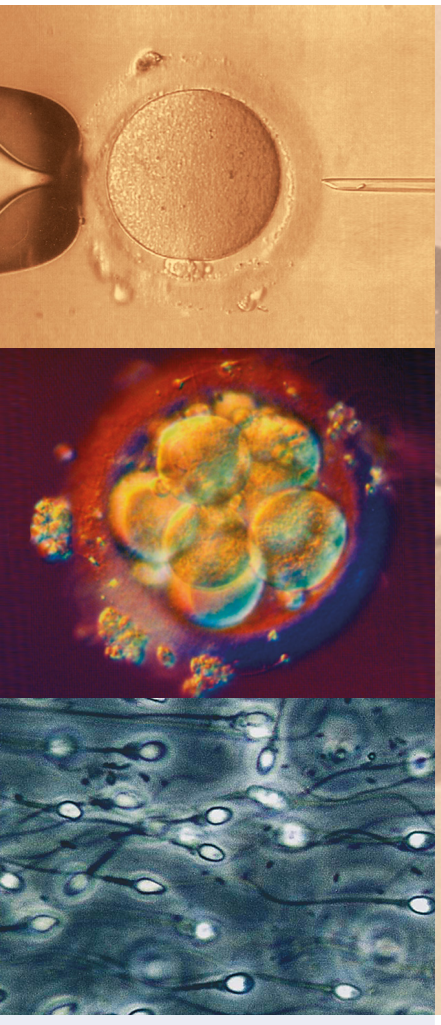
Andrology • Embryology & Molecular Biology • Endocrinology • Ethics & Law • Genetics
Gynaecology • Contraception • Psychosomatic Medicine • Reproductive Medicine • Urology









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# Contents

# Preface
# D·I·R Annual 2021 – The German IVF-Registry

S. Bartnitzky, V. Blumenauer, U. Czeromin, D. Fehr, C. Grewe, J.-S. Krüssel, M.S. Kupka, A. Tandler-Schneider, S.Tauchert

*Ladies and gentlemen, dear colleagues, dear D·I·R people!*

We are particularly pleased to be able to hand over the 2021 yearbook to you in this year of anniversaries! After Prof. Frank Lehmann laid the foundation for nationwide data collection in 1982, we began using digital data collection in 1996. 40 years of data collection, 25 years of digital data collection – regardless of the medium used: What has remained is the inherently medically motivated desire for documentation, exchange, the opportunity to learn from one another, to compare oneself and the methods used with the aim of continuously improving the quality of reproductive medicine in Germany.

## Background of this yearbook

The D·I·R currently has 140 member centers. This yearbook contains information on the 2020 treatment cycles (cycle outcomes and births) and the 2021 treatment cycles (cycle outcomes) from all 140 centers. The evaluations were carried out with the status of the database on May 24th, 2022.

In the preparation of this yearbook, we, the professionals and the volunteers, were again reminded of the complexity of register work. We are aware that the quality of the register not only depends on the diligence of data collection in the centers, but also on the IT structures of the acquisition software, the ARTbox® interface and the data analysis tool. Milestones were reached here, all center exports, regardless of the recording software used, could be integrated into the evaluation.

## This yearbook

As usual we have updated the standard evaluations for the following years – small changes are due to clarity and the space available. This yearbook is another premiere! The yearbook 2020 was created in parallel with the old evaluation system AND the parallel establishment of evaluation algorithms of our new evaluation software QLIK®. For the 2021 yearbook, we all benefited from the work invested in the IT structure through increased efficiency. Another innovation is that the 2021 yearbook, including the editorial texts and the main topics, is available to an international audience in English. It is published in the *Journal of Reproductive Medicine and Endocrinology*.

This year's main topic deals with the different results of the single embryo transfer (SET) and double embryo transfer (DET) depending on the cultivation period.

We have reached the next magic number in our treasury of data with 364,000 children that have been born and documented (between 1997–2020) in the D·I·R.

This number correspondents to the population of large cities such as Bochum or Wuppertal.

## *Ferti*PROTEKT and D·I·R

In this yearbook, the cooperation of the *Ferti*PROTEKT network comes into play again. We are pleased that these evaluations have become part of our yearbook! This cooperation is a pleasant example of the synergetic effects of respectful cooperation between colleagues who work together in solidarity. In July 2021, methods of preserving fertility were included in the reimbursement of statutory health insurance companies. Compared to the number of treatment cycles with the *Ferti*POTEKT indication, there had only been a slight increase from 580 in 2020 to 740 cycles in 2021.

## Privacy Protection Regulation

The enforcement of the Privacy Protection Regulation in May 2018 caused considerable additional work for the centers. At the request of the D·I·R, the employees in the centers obtained consent from patient couples for the transmission of pseudonymised treatment data records. For the year 2021, the register contains 91% pseudonymised, 8% anonymous and 1% subsequently revoked data records.

More information on this topic: For the transferal of anonymous data records, only the information to the patient is necessary. The consent of both partners is required for the transferal of pseudonymized data sets. No consent is required if physicians are obliged to report based on a state-specific health care professions law.

This results in a renewed request for the transferal of pseudonymized data sets: As physicians working in reproductive medicine ourselves, we know how much effort it takes to obtain patient consent. The necessary patient information is time-consuming. Despite that: Only large pseudonymized data sets enable patient-related evaluations of cumulative pregnancy rates, of *Ferti*PROTEKT and in the future also of PGD, even if a cross-center evaluation is no longer possible due to the omission of the National Patient ID.

At this point: Thank you for your effort, your commitment in talking to the patients, your organizational and documentation performance in the legally compliant implementation of the Privacy Protection Regulation. This is for the benefit of the quality of our register!

## Politics on a small scale/ Reimbursement ART/Reimbursement *Ferti*PROTEKT

Despite the statements made in the 2021–2025 coalition agreement, nothing has changed in the bureaucratic three-pillar funding program (statutory health insurance benefits, statutory benefits of individual health insurance companies, state/federal funds in individual states). The couple's place of residence still determines the amount of their own costs for reproductive medical treatment. It remains our demand for the resumption of 100% reimbursement as the right to four ART treatment cycles. A 100% reimbursement within the framework of social legislation

would be a just social legislative decision that pays the respect it deserves for the financial, emotional and temporal commitment of couples who face the responsibility of wanting to become parents.

The specifications for the implementation of the nationwide legal decision on the assumption of costs for fertility protection measures have been changed three times so far and are still ambiguous. We have the Federal Association of Reproductive Medicine Centers (BRZ) to thank for maintaining contact with the decision-makers. We hope that this will have the greatest possible positive impact on the patients concerned.

## Politics at large

The call for a reproductive medicine law to replace the 1990 Embryo Protection Act does not sound loud enough. With a broader interpretation of the Embryo Protection Act, in Germany known as "Deutscher Mittelweg (DMW)", it has been shown in recent years that blastocyst culture and single embryo transfer produce excellent quality of results and low multiple pregnancy rates possible in both fresh and cryo cycles. Everyone is waiting for the implementation of the changes in the field of reproductive medicine announced in the coalition agreement 2021–2025 to be enshrined in law. Improvement of quality would be, among other things, the legalization of **elective** single embryo transfers, legalization of embryo donation in the pronuclear stage and oocyte donation, 100% assumption of costs within the framework of statutory health insurance companies.

## Main topics of the past and the current yearbook

In recent years, the topic "Less is more" has been discussed as a request for increased implementation of single embryo transfer in prognostically good treatment cycles to avoid multiple pregnancies. The topic was covered with D·I·R numbers. For the year 2020 there is again a further decrease in the number of children born as multiples. The pregnancy and birth rates after single embryo transfer are impressive both in the fresh and in the thawing cycle if surplus embryos were previously frozen. This is the disposition to support. With the publication of the figures, we also want to encourage the centers to pursue the cultivation strategy with a broader interpretation of the Embryo Protection Act (DMW). In addition, we want to demonstrate the superiority of these procedures to the legislator.

It is very important to the D·I·R board and board of trustees to continue the value discussion about the decisive criterion of good reproductive medicine "good pregnancy rates, low rates of multiple births" in the coming years.

## Thanks

We would like to thank everyone who has contributed to the realization of this yearbook:

We thank the D·I·R data management and with it Markus Kimmel. He has taken on the challenge of using the evaluation software QLIK®. Together with the service providers Critex and QuinniSoft he questioned and uncovered pitfalls in the complex IT structure.

Last but not least: With the help of the service provider Transact, he developed, checked and applied the evaluation algorithms for the evaluation using the QLIK® software. This year we were able to harvest the fruits of this work. This applies not only to the yearbook but also to the centers. Center-specific evaluations in the form of KPIs and center profiles in a national comparison have become more stringent, efficient and flexible thanks to the QLIK® program used by Markus Kimmel.

The effort was worth it: Through good organization and stringent data processing, he provided us with valid evaluation results for this yearbook. With infinitive patience, he "drove" everyone involved in work. He developed the tools for creating the center-specific KPIs and center profiles. He has thus developed a tool that enables the individual D·I·R member centers to receive their center-specific data on a quarterly basis.

We would like to thank our designer Soo-Hee Kim not only for the beautiful layout, but especially for her patience and dedication. This year, too, it was unavoidable that she had to incorporate our many change requests at the last minute before going to press.

We would like to thank the yearbook partners who have made their financial contribution through generous support, so that we can once again hold this yearbook in our hands.

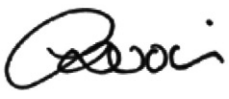
We would like to thank the board of trustees and especially the biologist and embryologist Verona Blumenauer.

**Lastly, the most important thing:**

Our special thanks go to the centers for the conscientious collection and forwarding the data. We would also like the centers for their generous financial commitment, without further developments and improvements to the data base and data analysis would not be possible.

With the creation of this yearbook and the necessary (preliminary) work, we experienced a great acceptance of the German IVF Register.

***Happy about that and thank you***
*Your D·I·R Board*



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# In a Nutshell – 2020's and 2021's Findings of the German IVF-Registry

- 140 centers of the German IVF-Registry exported 125,542 plausible cycles.
- A subset of 68.5 % of the cycles were about fresh cycles, 31.5 % concerned with cryo cycles. The proportion of cryo cycles thus continued to rise.
- The pregnancy rate per transfer in fresh cycles was 31.8 %, whereas the pregnancy rate per transfer in cryo cycles was 30.4 %.
- The increasing pregnancy rates in cryo cycles are remarkable, even though the single embryo transfer has been performed more often. In 2017 the pregnancy rate per cryo transfer was 26.2 %, in 2021 it was 30.4 %.
- 2020, the documented birth rate per embryo transfer was 23.5 % in fresh cycles and 21.1 % in cryo cycles.
- The age dependance of pregnancy and birth rate is noteworthy. While women in the 30-34 age group have a 39.4 % chance of pregnancy and a 30.0 % birth rate per embryo transfer, in the 41-43 age group the pregnancy rates per transfer drop to 17.8 % and the birth rate to 8.2 %. See example IVF.
- The continuous decrease in multiple births is encouraging. Between 2017 and 2020, the rate of multiple births reduced by 5-6 percentage points in both fresh and cryo cycles. 2020, multiple births added up to 16.6 % in fresh cycle and 11.0 % in cryo cycles. 2017, multiple births came to 20.0 % in fresh cycle and 15.0 % in cryo cycles.
- The single embryo transfer has been increasingly used in good prognosis patients. The pregnancy rates are indeed slightly lower in these cases, but the multiple pregnancy rates rise dramatically in this patient group, when double embryo transfer would be performed. Multiple pregnancies imply an additive hazard of pregnancy induced complications and premature births.
- The cumulative birth rate resulting from multiple fresh and cryo cycles following a single oocyte retrieval is considerable when cryopreservation was available and used. After just one fresh transfer and two cryo transfers half of the couples can look forward to having a child, even though only one fresh treatment cycle has been carried out.
- IVF and ICSI with donor sperm are increasing significantly (1,129 treatments in 2018, 1,404 treatments in 2019, 1,861 treatments in 2020).
- 363,940 children were born after in vitro fertilization cycles. This is comparable to the population of a large city like Bochum. In 2020, the proportion of premature births (birth before the 37th week of pregnancy) was 18 % for singletons, 83 % for twins and 100 % for triplets.
- Reproductive medicine techniques are safe – the risk of ovarian overstimulation as a result of hormone therapy was 0.5 %, egg retrieval complications such as vaginal bleeding was 0.8 %.

**Our recommendations if pregnancy does not occur:**

Do not be afraid! Get advice from a fertility center and then decide. Choose a center that is a member of the quality-conscious D·I·R.

Don't wait too long, the chances of successful treatment depend on age.

Take advantage of the opportunities offered by single embryo transfer, blastocyst culture and cryopreservation – not a single fertilized oocyte is lost and after thawing you have another chance with very little effort, also for a second child!

# Brief overview of the most important results for the public

You will find a brief overview of the most important results on this and the following three pages.

The first evaluation shows the results of the treatments carried out in the previous year, 2020 until birth.

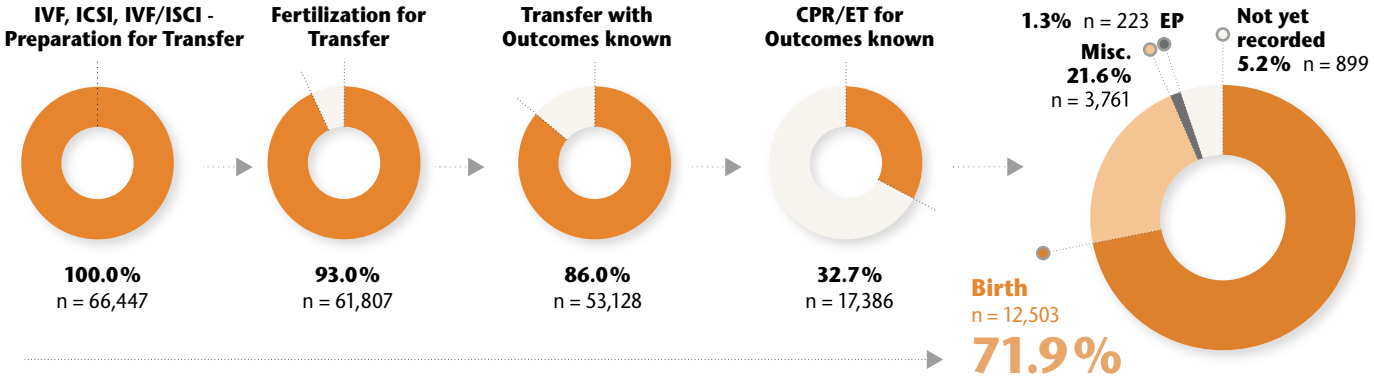
The second evaluation shows our results' dependence on the woman's age. This relates to pregnancy, birth, and miscarriage rates.

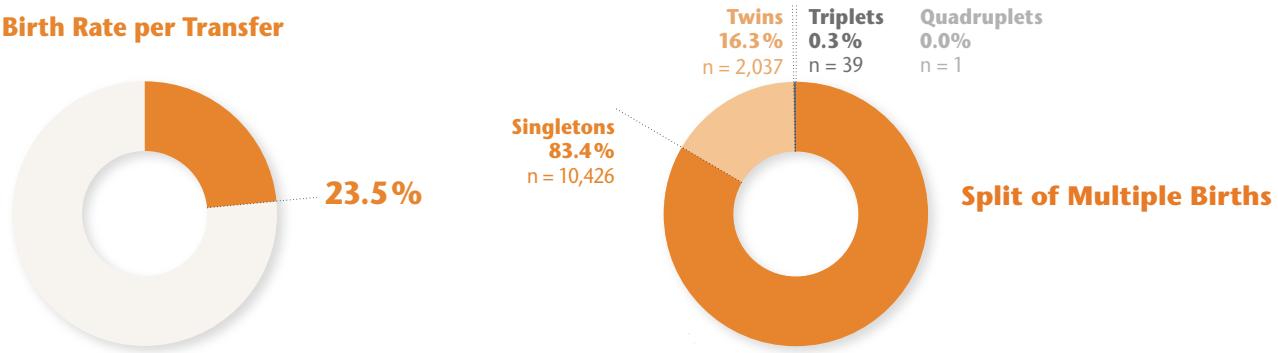
Regarding the third evaluation, you will find the comparison between the transfer of one embryo (SET) and the transfer of two embryos (DET). A distinction is made here between the fresh cycles after oocyte puncture and the thawing cycles.

The fourth and final evaluation cumulatively shows the pregnancy rate from 2018 to 2020, ranging from 34.4 % from the first transfer to over 70 %, with more than four transfers. This means it is possible to achieve a pregnancy in seven out of ten couples wishing to have a child.

## Summary D·I·R Statistic in Brief – CoD May 24th, 2022

IVF, ICSI, IVF/ISCI - Prospective and Retrospective Data




In 2020, 66,447 fresh cycles were performed in Germany in which an embryo transfer was planned in the same cycle using in vitro fertilisation and/or microinjection. Fertilisation occurred in 93 % and a transfer with a known cycle outcome in 86 %.

The pregnancy rate per embryo transfer was 32.7 %, the same as in the previous year.
On the other hand, the birth rate was 23.5 % per embryo transfer and increased slightly despite fewer embryos being transferred.

Overall, twins were born in 16.3 % and triplets in only 0.3 %.

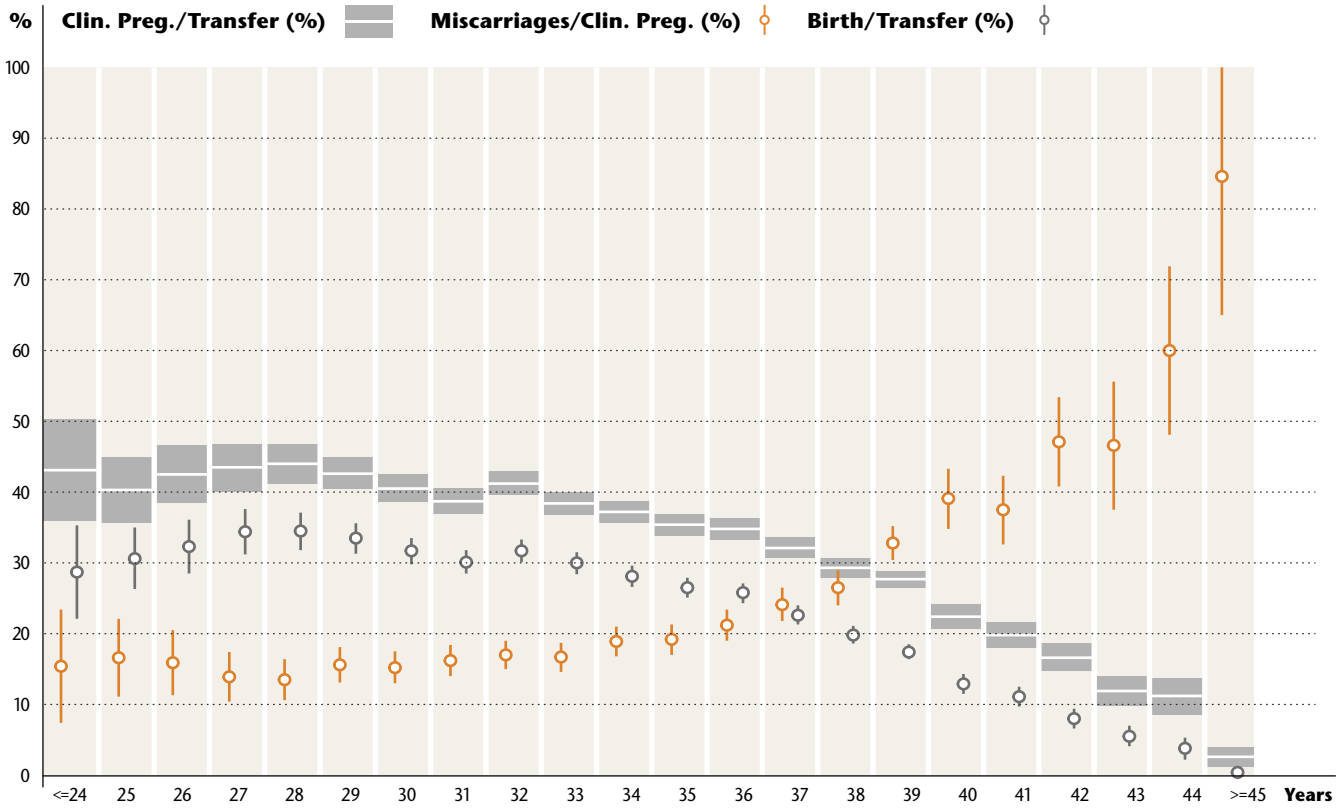
Thus, the proportion of singleton births increased to 83.4 % (the previous year 81.7 %). This phenomenon is primarily related to the increase in single embryo transfers. Worldwide, the proportion of multiple births is decreasing, and the number of single embryo transfers is increasing.

We are pleased about this development, as it means that fewer premature births are occurring. Nevertheless, there is a long way to go to reach other countries' low multiple birth rates, such as Scandinavia. There, multiples account for less than 5 % of births.

# Pregnancy Rate and Ongoing Pregnancy as a Function of Female Age 2020

Prospective Data

## IVF, ICSI, IVF/ICSI 2020




| | <=24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | >=45 | Years |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **n** | 181 | 435 | 580 | 853 | 1,236 | 1,869 | 2,454 | 2,862 | 3,252 | 3,478 | 3,624 | 3,719 | 3,729 | 3,843 | 4,144 | 5,324 | 2,274 | 1,918 | 1,458 | 980 | 583 | 507 | **ET** |
| **%** | 43.1 | 40.3 | 42.5 | 43.5 | 44.0 | 42.6 | 40.5 | 38.7 | 41.2 | 38.4 | 37.2 | 35.4 | 34.8 | 32.1 | 29.3 | 27.7 | 22.4 | 19.8 | 16.6 | 11.9 | 11.2 | 2.6 | **CP/ET** |
| **n** | 52 | 133 | 186 | 290 | 424 | 623 | 776 | 859 | 1,028 | 1,039 | 1,017 | 982 | 958 | 866 | 819 | 924 | 291 | 212 | 116 | 54 | 22 | 2 | **Birth** |

*Pregnancy, abortion and birth rates are presented here as a 95% confidence interval. So with a 95%-probability, the true mean lies within the defined confidence interval.*

In the above graph, analogous to previous years, you will find the results of cycles for transfer of at least one embryo after in vitro fertilisation and intracytoplasmic sperm injection (ICSI) 2020 as a function of the woman's age.

For women up to 32, pregnancy probabilities of over 40% per transfer are possible.
From the age of 33, however, pregnancy rate falls continuously; from the age of 40, it is below 20%, while from the age of 45, it is only 2.6% per embryo transfer.

This is even more evident in the birth rate, which is 30% up to the age of 33 and already falls below 20% from the age of 39. From the age of 45, only two children were born in Germany.

We conclude from these data that fertility treatment, even using reproductive medicine measures, should take place promptly and that one should not wait too long before realising one's desire to have a child.

# Single or double embryo transfer: Risk of multiple pregnancies! Differences between fresh and thawed transfer cycles: freezing is worthwhile!

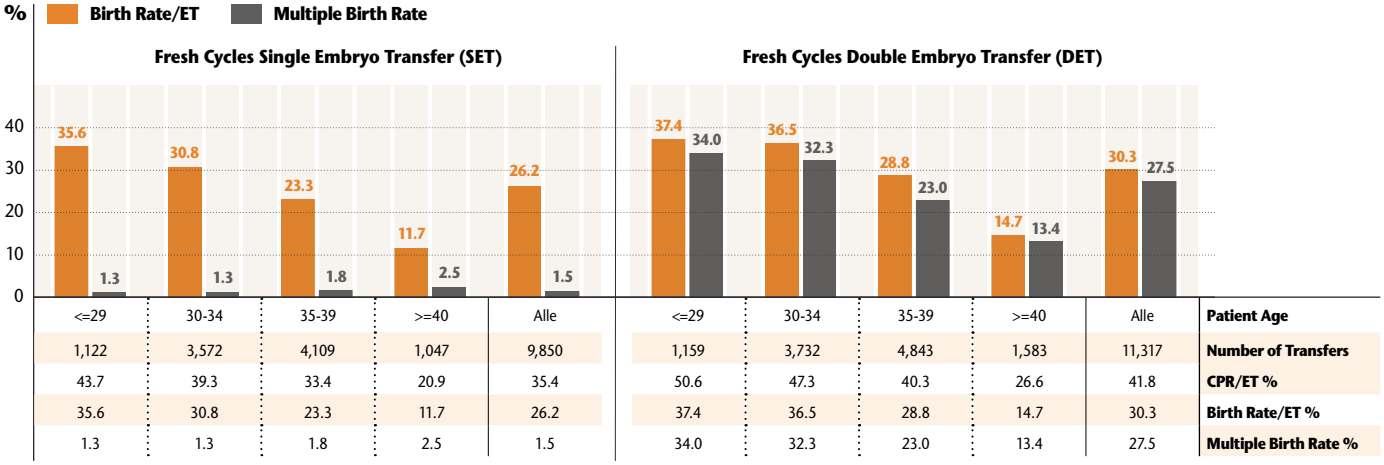
We are particularly interested in comparing the transfer of one embryo and two embryos. How do the chances develop? How do the risks increase?

For the first time, the birth rate is compared here in contrast to previous years, where only the pregnancy rate was presented.

It is also essential for us to show the results separately for fresh cycles and thaw cycles.

## Fresh Cycles by Age Group: Pregnancy and Multiple Birth Rates / Single versus Double Embryo Transfer

IVF, ICSI, IVF/ICSI 2020, Prospective Data, Transfer Days 5/6

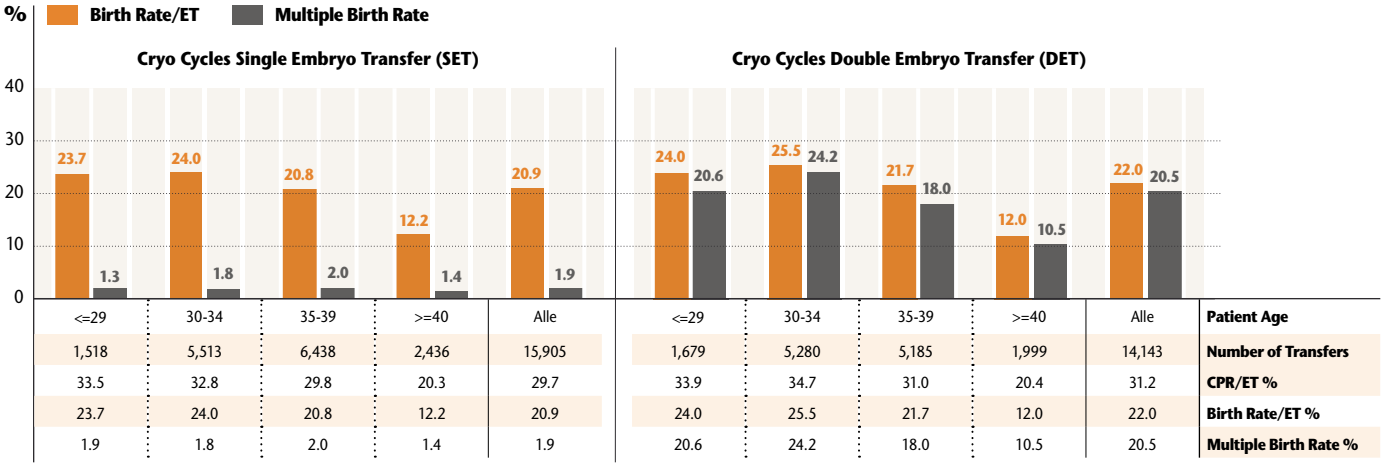



| Patient Age | <=29 | 30-34 | 35-39 | >=40 | Alle |
|---|---|---|---|---|---|
| Number of Transfers | 1,122 | 3,572 | 4,109 | 1,047 | 9,850 |
| CPR/ET % | 43.7 | 39.3 | 33.4 | 20.9 | 35.4 |
| Birth Rate/ET % | 35.6 | 30.8 | 23.3 | 11.7 | 26.2 |
| Multiple Birth Rate % | 1.3 | 1.3 | 1.8 | 2.5 | 1.5 |

| Patient Age | <=29 | 30-34 | 35-39 | >=40 | Alle |
|---|---|---|---|---|---|
| Number of Transfers | 1,159 | 3,732 | 4,843 | 1,583 | 11,317 |
| CPR/ET % | 50.6 | 47.3 | 40.3 | 26.6 | 41.8 |
| Birth Rate/ET % | 37.4 | 36.5 | 28.8 | 14.7 | 30.3 |
| Multiple Birth Rate % | 34.0 | 32.3 | 23.0 | 13.4 | 27.5 |

## Thawing Cycles by Age Group: Pregnancy and Multiple Birth Rates / Single versus Double Embryo Transfer 2020

Prospective Data




| Patient Age | <=29 | 30-34 | 35-39 | >=40 | Alle |
|---|---|---|---|---|---|
| Number of Transfers | 1,518 | 5,513 | 6,438 | 2,436 | 15,905 |
| CPR/ET % | 33.5 | 32.8 | 29.8 | 20.3 | 29.7 |
| Birth Rate/ET % | 23.7 | 24.0 | 20.8 | 12.2 | 20.9 |
| Multiple Birth Rate % | 1.9 | 1.8 | 2.0 | 1.4 | 1.9 |

| Patient Age | <=29 | 30-34 | 35-39 | >=40 | Alle |
|---|---|---|---|---|---|
| Number of Transfers | 1,679 | 5,280 | 5,185 | 1,999 | 14,143 |
| CPR/ET % | 33.9 | 34.7 | 31.0 | 20.4 | 31.2 |
| Birth Rate/ET % | 24.0 | 25.5 | 21.7 | 12.0 | 22.0 |
| Multiple Birth Rate % | 20.6 | 24.2 | 18.0 | 10.5 | 20.5 |

In fresh cycles, after transfer of one embryo (SET), birth occurred in 26.2%, and after transfer of two embryos (DET), birth occurred in 30.3%. This 4.1%-points higher birth rate came at the cost of a multiple birth probability of 27.5%, compared to only 1.5% for single embryo transfers.

Women under 30 have the highest risk of multiple births, with a probability of 34% if they have two embryos implanted. At least every second of these multiple births results in premature birth!

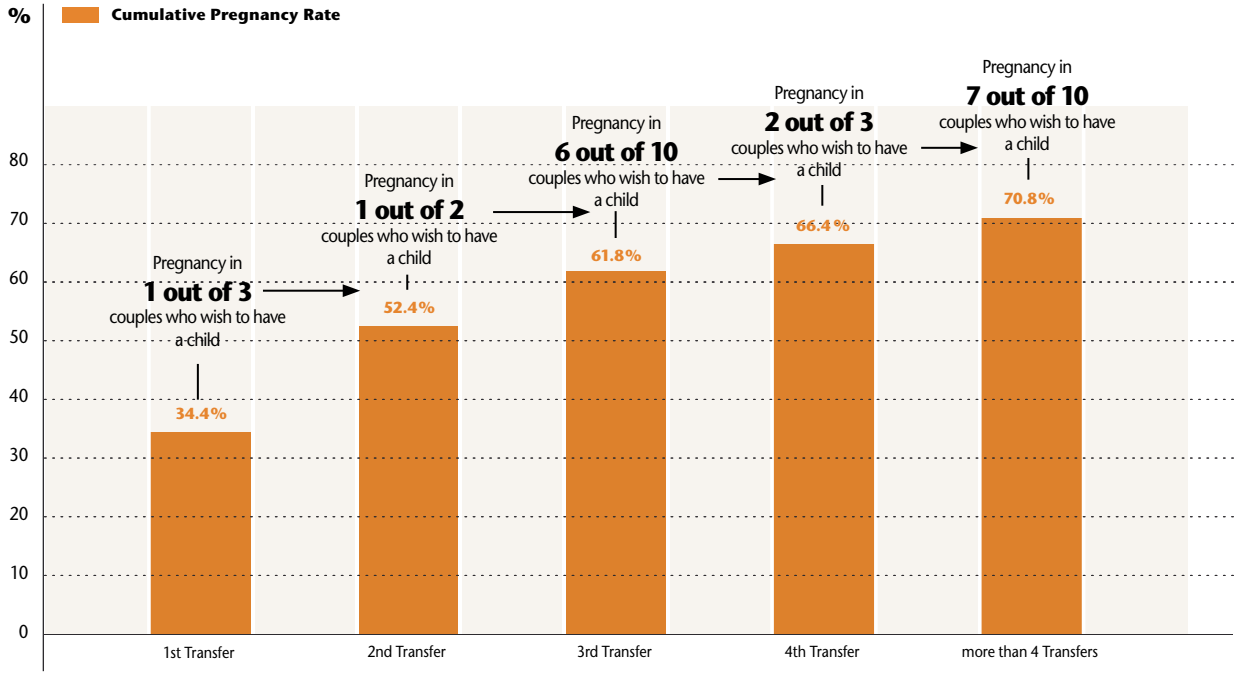
In thawing cycles, birth rates after one embryo transfer are 20.9% and only 1.1%-points higher at 22.0% after transfer of two embryos. Here, too, the probability of having multiples after transfer of two embryos is significantly higher at 20.5% than after transfer of one embryo (1.9%).

Age plays a subordinate role here: whether one or two embryos are transferred from the age of 40, birth rate is 12.2 or 12.0% respectively. So it makes little sense to transfer two embryos in thawing cycle from the age of 40.

However, our shared treatment goal remains to achieve a healthy child's birth in a healthy mother.

# Pregnancies Cumulative 2018 – 2020

## Prospective Data




| 2018 – 2020 total | Retrievals | CP (Fresh Cycles) | CP (Fresh Cycles) in % | Cryo Cycles w. Transfer | CP (Cryo Cycles) | CP/ET (Cryo Cycles) in % | Cum. CP | Cumulative Pregnancy Rate in % |
|---|---|---|---|---|---|---|---|---|
| 1st Transfer | 90,440 | 31,246 | 34.5 | 18,614 | 6,280 | 33.7 | 37,526 | **34.4** |
| 2nd Transfer | 32,886 | 10,262 | 31.2 | 30,691 | 9,396 | 30.6 | 57,184 | **52.4** |
| 3rd Transfer | 17,255 | 5,193 | 30.1 | 17,572 | 5,000 | 28.5 | 67,377 | **61.8** |
| 4th Transfer | 8,278 | 2,398 | 29.0 | 9,542 | 2,634 | 27.6 | 72,409 | **66.4** |
| >4 Transfers | 5,314 | 2,040 | 38.4 | 6,459 | 2,708 | 41.9 | 77,157 | **70.8** |

Based on patients who received their first embryo transfer in the years 2018 to 2020, the subsequent fresh and thawed cycles were examined.
While probability of pregnancy after a first embryo transfer was 34.4 % on average, it increased cumulatively from second transfer to over 50 %, from third transfer to 61.8 %. After fourth transfer, two out of three women were pregnant (66.4 %).

This shows that fertility treatment should always be thought about over a longer period. After a first transfer, it is less likely to become pregnant than not. However, after only three embryo transfers, the probability of being pregnant is higher than not being pregnant.

Also included in this consideration are cycles in which the first embryo transfer took place after thawing since an embryo transfer directly in the fresh cycle did not seem advisable for medical reasons. Here, the pregnancy rate compared to the first fresh cycle with the transfer is almost the same, 33.7 % versus 34.5 %. These figures are essential for counselling couples, to give them courage and not to give up too early!

Unfortunately, cryopreservation is still not covered by statutory health insurance in Germany. This prevents many couples from taking advantage of the opportunities offered by freezing and thawing without needing hormonal stimulation and renewed egg retrieval.

**Therefore: As sad as a negative pregnancy test after a transfer is – the fact that two out of three patients are pregnant after four treatments should encourage couples to draw strength for further treatment cycles!**

**Dr. med. Andreas Tandler-Schneider, Berlin (in charge)**
*Dr. med. Ute Czeromin, Gelsenkirchen*
*Prof. Dr. med. Jan-Steffen Krüssel, Düsseldorf*

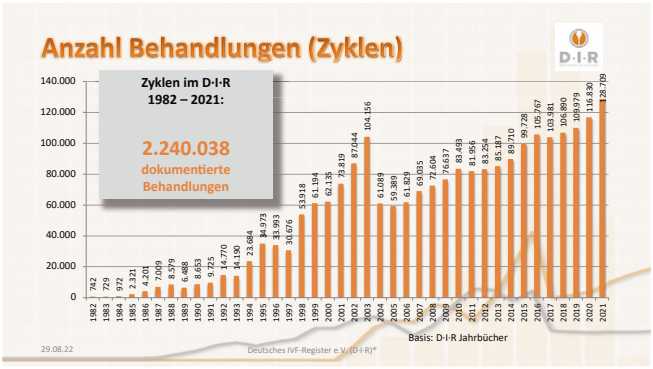
# Celebrations as they come – Reproductive Medicine in Germany

## 40 years of German IVF-Registry – 25 years of digital data collection

What one forgets in the daily effort of register work with data field definitions, selection fields, acquisition software, interfaces, databases, evaluation tools is how much has been achieved in these years!

We are thankful! The initiative of Prof. Dr. Frank Lehmann is unforgettable, who in 1982 motivated five exclusive university centers to jointly record, evaluate and discuss the reproductive medical treatment cycles. Back then, regardless of health policy or professional law requirements, he laid the foundation and whose spirit we still live by: The creation of an inherently medically motivated register work for quality assurance, for learning from one another, for exchange, for scientific evaluations and findings and thus for quality improvement.

A register database, which now includes 2,240,038 treatment cycles, was created from a collection of paper registration forms filled out by hand.




The database has consistently survived all changes in the necessary database structures. It was fed from different reporting channels, from paper registration forms to diskettes, floppy disks, USB sticks to the first (today a matter of course) online exports.

The database was fed by constantly changing acquisition software – the D·I·R own software IVF-C, MEDIS, D·I·R pro, DIRproNOVA, the commercial products DIR 1.0, RecDateFM, RecDate Advance, MedITEX, QuinniSoft – with all its updates and changes.

The data collection was fed with precisely programmed interfaces via the DIR DLL, now via the ARTbox®.

We owe the start of the electronic database, which is so valuable to us, to Mr. Wolfgang Dahncke, Schleswig-Holstein Medical Association. Previously, with the support of the Federal Association of Reproductive Medicine Centers (BRZ), the IVF register was established under the umbrella of the German Society for Gynecology and Obstetrics (DGGGG) and as an organ of the Working Group on Gynecological Endocrinology and Reproductive Medicine (AGGEF).

### What do we owe to Mr. Dahncke? Organisation and Order!

Order in definition of terms, in structures, in plausibility. Order of the data set, in the plausibility check, in the D·I·R DLL interface – and: Order in the coordination of the medical advisers of the Advisory Board and the working groups of reproductive medicine colleagues. At this point we would like to thank Mr. Dahncke, from whose work we still benefit.

The organizational home of the German IVF Registry has changed. Initially it was based at the Medical Association Westfalen-Lippe, then at the Medical Association Schleswig-Holstein. Since 2009 it has the status of a non-profit association. Since 2012 the German IVF Registry has had its home at the D·I·R office in Berlin, then in Düsseldorf.

### What do we owe to our volunteer colleagues?

Since 1982 the medical content of the register work has been carried out by volunteer colleagues. The board work, the work in the advisory board, the work in the current organs of the D·I·R such as the board or the board of trustees, the participation in the various working groups that are necessary again and again: Without the voluntary work done alongside the clinical work, the register structure could never have been filled with medically meaningful content. We cannot be thankful enough for that.

At this point we would like to name the former CEOs as representatives of all of them:

Prof. Dr. medical Frank Lehmann (1982-1992), Prof. Dr. medical Hanns-Kristian Rjosk (1992 -1995), Prof. Dr. medical Ricardo Felberbaum (1995-2007), Dr. medical Klaus Bühler (2007-2014). The additional naming of biologist and embryologist Verona Blumenauer is the exception. She is a member of the board of trustees for the 25th year in office. For us she is a veteran of D·I·R. We apologize to all other good spirits who have invested hours, days, weeks, years in the D·I·R work for not being mentioned by name here. Everyone is aware that the D·I·R would not exist without you!

### Publications

At the VI. Meeting of the German-speaking IVF-groups the data for 1991 were presented, for the years 1991 – 1995 we have the data in the form of the slides presented at that time. The yearbooks of the D·I·R have been published in-house since 1996, and since 2009 the D·I·R yearbooks have been citable publications in the Journal of Reproductive Medicine and Endocrinology. Since 2009, the standard evaluations have also been published in English. For the first time,

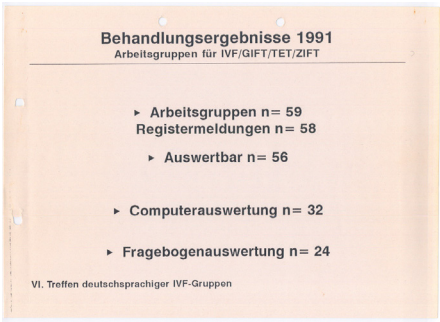



Figure 3


the 2021 yearbook, including all editorial texts and all special evaluations, will be accessible to the international public in English, in 2022. All D·I·R yearbooks offer a differentiated, meticulously compiled compilation of reproductive medical treatments in Germany. They not only provide physicians but also patients, the press, political decision-makers and the courts with a solid database.

## Quality assurance of the medical associations

Due to the high quality of the D·I·R numbers, the obligation to report to the D·I·R was included in the "Guidelines for carrying out Assisted Reproduction" of the German Medical Association in 1999 and implemented by most of the 17 states medical associations. In 2012, the sovereign professional tasks for quality assurance were decoupled by founding the medical association initiative QS-ReproMed. As of 2022, 14 of the 17 state medical associations are participating in QSReproMed. At the end of a lengthy discussion, thanks to the ability of all those involved to compromise, it was possible to use the same data set, the same acquisition software and the same interface for data transmission to the D·I·R and to QS-ReproMed. This saves the centers from having to enter data twice for both addressees.

## IVF Annual Meeting

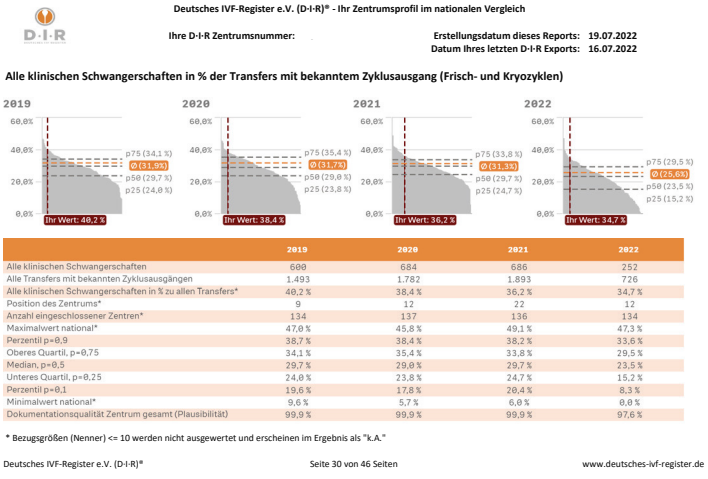
The figures for 1991 were published at the VI. IVF Annual Meeting. The XXXVI. IVF Annual Meeting will take place in November 2022. In addition to the scientific program of this congress, the publication of the 2021 yearbook will, as always, be a highlight.

## Independence of the D·I·R

It should not go unmentioned that the digitization of the D·I·R could not have been financed by the member centers without the support of the industry. The Serono company has financed the development of a uniform acquisition software for years, without having any influence on the content. The digitization push is due to the tireless dedication and intellectual commitment of Serono employee Norbert van Rooij. We still benefit from that!
The current EDP structure has been independent of industry and financed by the centers for years. The member centers have funded the current D·I·R proprietary acquisition program DIRproNOVA and are making it available to centers that cannot or do not want to use commercial software. Alternatively, the market offers IVF acquisition programs, which then can be used by the D·I·R centers if they have an exact interface to the ARTbox® and the data export to the register is thus secured. In times of transparency and compliance, the D·I·R has thus achieved an industry-independent structure.

## Use of the D·I·R for the centers

The database published in the yearbooks serves as a tool in daily patient counseling. In addition, the D·I·R for the centers has the inestimable advantage of being able to uncover any existing weaknesses in the quality of the results compared to the national values. Thus it offers the opportunity to identify potential for improvement.


Deutsches IVF-Register e.V. (D·I·R)® - Ihr Zentrumsprofil im nationalen Vergleich

Ihre D·I·R Zentrumsnummer:

Erstellungsdatum dieses Reports: 19.07.2022
Datum Ihres letzten D·I·R Exports: 16.07.2022

Alle klinischen Schwangerschaften in % der Transfers mit bekanntem Zyklusausgang (Frisch- und Kryozyklen)




| | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Alle klinischen Schwangerschaften | 600 | 684 | 686 | 252 |
| Alle Transfers mit bekannten Zyklusausgängen | 1.493 | 1.782 | 1.893 | 726 |
| Alle klinischen Schwangerschaften in % zu allen Transfers* | 40,2 % | 38,4 % | 36,2 % | 34,7 % |
| Position des Zentrums* | 9 | 12 | 22 | 12 |
| Anzahl eingeschlossener Zentren* | 134 | 137 | 136 | 134 |
| Maximalwert national* | 47,0 % | 45,8 % | 49,1 % | 47,3 % |
| Perzentil p=0,9 | 38,7 % | 38,4 % | 38,2 % | 33,6 % |
| Oberes Quartil, p=0,75 | 34,1 % | 35,4 % | 33,8 % | 29,5 % |
| Median, p=0,5 | 29,7 % | 29,0 % | 29,7 % | 23,5 % |
| Unteres Quartil, p=0,25 | 24,0 % | 23,8 % | 24,7 % | 15,2 % |
| Perzentil p=0,1 | 19,6 % | 17,8 % | 20,4 % | 8,3 % |
| Minimalwert national* | 9,6 % | 5,7 % | 6,0 % | 0,0 % |
| Dokumentationsqualität Zentrum gesamt (Plausibilität) | 99,9 % | 99,9 % | 99,9 % | 97,6 % |

* Bezugsgrößen (Nenner) <= 10 werden nicht ausgewertet und erscheinen im Ergebnis als "k.A."

Deutsches IVF-Register e.V. (D·I·R)® Seite 30 von 46 Seiten www.deutsches-ivf-register.de

**Finally, words from the current Executive Board and Board of Trustees:**

We are happy, grateful and proud of the history and present of the German IVF Register e.V. (D·I·R). We wish for the future that this lively, responsible, dynamic and also altruistic work will be continued. We hope that the acceptance and support of (almost) all German IVF centers will be maintained. Our D·I·R heart is attached to the spirit formulated by Prof. Frank Lehmann:

Work on a very own? medically motivated register work for quality assurance, for learning from each other, for exchange, for scientific evaluations and findings and thus for quality improvement.

In this sense!
***Your D·I·R Board and your Board of Trustees in 2022***

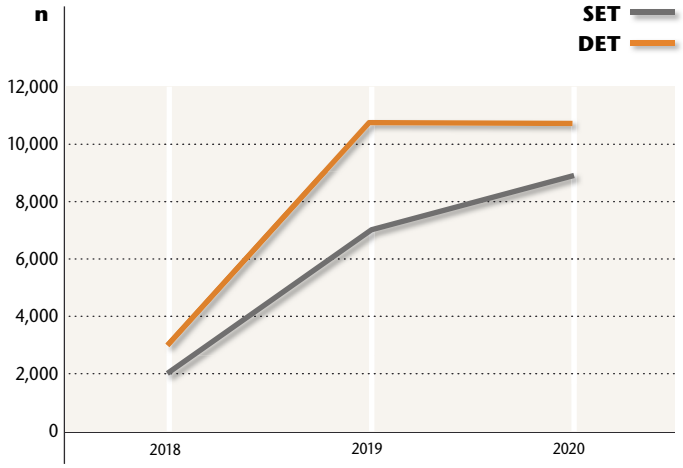
# Main Topic: Is "less" really always "more"? Therapy results after DET on day 2/3 vs. SET on day 5/6

Dear Colleagues

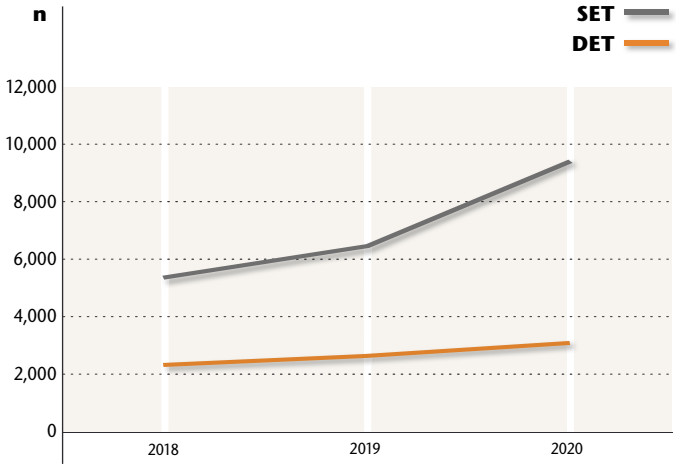
As in previous years, we are presenting a special evaluation on the topic of "less is more" in this D·I·R Yearbook. The fact that it makes more sense to reduce the number of embryos transferred in order to reduce the risk of multiple births and the associated burden for mothers and children than to transfer several embryos at the cost of an increased risk of multiple births, fortunately seems to be gaining more and more awareness among those working in reproductive medicine and is also having an influence on their daily work.

First of all, a look at the last three yearbooks shows that the number of treatments in which a transfer was carried out on day 4-6 has increased significantly: in the case of fresh transfers (Fig. 1a) by a factor of 4 and in the case of cryotransfers (Fig.1b) by a factor of 1.6. We interpret these increases as a sign of the more frequent implementation of the Deutschen Mittelweg[1] (DMW).

## Fig. 1a: Number of SET vs DET d4-6 Transfers Fresh Cycles




## Fig. 1b: Number of SET vs DET d4-6 Transfers Cryo Cycles




**Fresh Cycles**

| | 2018 | 2019 | 2020 |
|---|---|---|---|
| SET | 1,981 | 7,028 | 8,934 |
| DET | 2,961 | 10,771 | 10,742 |
| | **4,942** | **17,799** | **19,676** |

**Cryo Cycles**

| | 2018 | 2019 | 2020 |
|---|---|---|---|
| SET | 5,356 | 6,457 | 9,405 |
| DET | 2,319 | 2,632 | 3,085 |
| | **7,675** | **9,089** | **12,490** |

In this yearbook, we have again compared the treatment results after day 4-6 - transfer of one embryo with those after day 4-6 - transfer of two embryos.

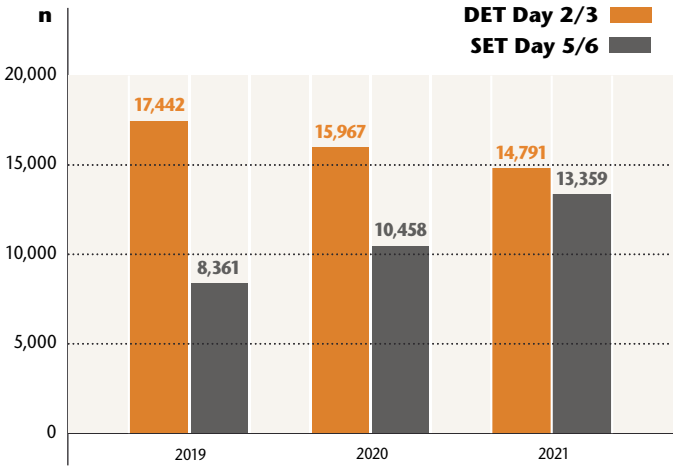
As already shown in the 2019 and 2020 yearbooks, we were again able to observe a comparatively small increase in the pregnancy rate (36.5% for SET vs 41.9% for DET) and birth rate (26.7% for SET vs 29.6% for DET), which, however, leads to an immense increase in multiple pregnancies (1.3% for SET vs 27.6% for DET). This is also true (although not quite as pronounced) when viable supernumerary embryos previously developed - usually as part of the use of the "Deutschen Mittelweg" – were cryopreserved at the blastocyst stage and thawed and transferred at a later date.

In this yearbook, we have also evaluated this discrepancy by looking at the age groups commonly used in the D-I-R yearbook.

On a page forward in this yearbook, the results are presented, and, when weighing the benefits and risks, no significant advantage is found for a DET compared to a SET in all age groups. In the case of fresh transfers on days 4-6, the proportion of SET has fortunately also increased significantly compared to the DET, in contrast to which the number of DETs has decreased slightly from 2019 to 2020 – this development is very welcome from our point of view!

So far, however, in our observations on the comparison of SET vs DET, we always compared the exact identical times of embryo transfer: either SET on day 2-3 vs DET on day 2-3 (cleavage-stage transfer) or SET on day 4-6 vs DET on day 5-6 (blastocyst transfer). The following question has now been put to us by D·I·R members:

## Fig. 2: Number of Cycles DET 2/3 and SET 5/6




So obviously, more and more centres are moving towards applying the DMW more consistently with the aim of SET 5/6.

The developmental capacity of a preimplantation embryo on days 2-3 is known to be predictable only to a limited extent: it is a fact that only a part of these embryos will reach the blastocyst stage, and another part will become atretic. There is the theoretical consideration that these proportions might differ in an in vitro culture from those in an in vivo culture, i.e. after an embryo transfer into the uterus on days 2-3. The basic theory expressed here is that although in-vitro culture conditions have become increasingly better in recent years, in-vivo culture still offers the best (physiological) conditions. However, this overlooks that the uterus also does not represent the physiological environment of a preimplantation embryo on days 2-3 since the embryo usually is not in utero at this time but in the fallopian tube. It is, therefore, interesting to investigate whether the SET of a blastocyst, which has demonstrably already developed to this stage, leads to better or worse birth rates than the transfer of two cleavage-stage embryos, which may have better culture conditions in utero. The results of this evaluation were precise (Fig. 3).

After SET at the blastocyst stage, the birth rates per transfer were higher than when two embryos were transferred on day 2/3. This can be interpreted to mean that the possible advantage of a "physiological", or "as natural as possible" in vivo culture is surpassed by the longer in vitro culture and the thus possible better assessment of the embryos' developmental capacity.

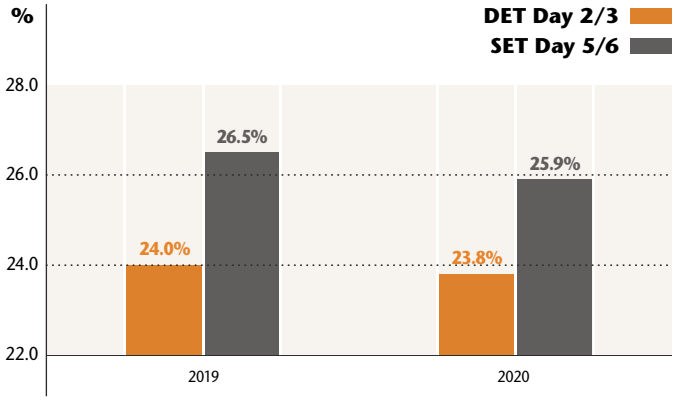
Furthermore, the overall consideration naturally also includes the proportion of multiple births resulting from these transfers (Fig. 4).

**Are there any differences in the risk-benefit ratio when comparing the transfer of 2 embryos on days 2-3 with the transfer of one embryo on days 5-6?**

This question seemed interesting to us for several reasons, so we analysed the data from the most recent three treatment years (2019-2021) on this. Comparing the characteristics of the patients, we see that there are no age differences. The only difference is in the number of oocytes retrieved. In the SET 5/6 group, an average of 10.5 oocytes were recovered, whereas in the DET 2/3 group, an average of 8.5 oocytes.

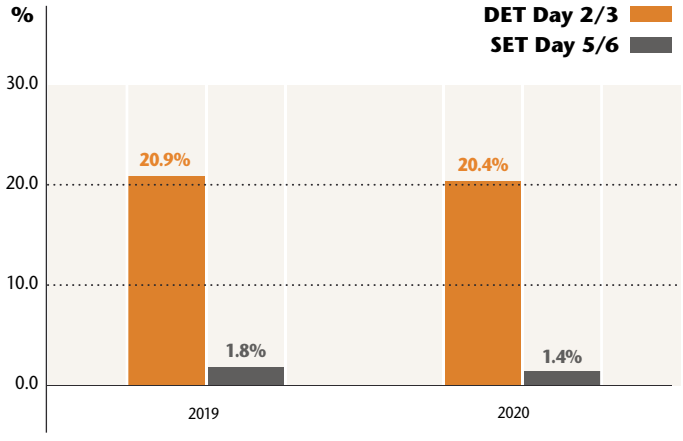
In purely descriptive terms, it could first be determined that the number of cycles of DET at day 2/3 was higher than the number of processes with SET at the blastocyst stage, with DETs showing a decreasing frequency and SETs an enormously increasing frequency (Fig. 2).

## Fig. 3: Birth Rate / ET after DET 2/3 and SET 5/6




Thus, as in the comparison of SET to DET at the blastocyst stage, the multiple birth rate after DET is many times higher, even if this is already performed on day 2/3 where it can be assumed that some of the preimplantation embryos will also become atretic in the in vivo culture and will not develop into the blastocyst stage at all.

## Fig. 4: Multiple Birth Rate / ET after DET 2/3 and SET 5/6



In summary, it can be concluded from the data that the transfer of two preimplantation embryos at the cleavage stage on day 2 or 3 leads to worse pregnancy and birth probabilities than the transfer of one embryo at the blastocyst stage. On the other hand, the likelihood of multiple pregnancies and birth is higher by a factor of 12-14 with DET.

If one considers the average degree of maturity of the retrieved oocytes and the average fertilisation rate, the recommendation for action could be derived that in the presence of several fertilised oocytes, the consistent application of the German Mean Path with resulting SET on day 5/6 represents an advantage for the couples concerned both for the probability of birth and the reduction of the risk of multiple pregnancies. Thus, this evaluation also shows that "less" is indeed "more".

## DET with Transfer on Day 2/3 versus SET with Transfer on Day 5/6

Data of this Special Evaluation

| | Fresh Cycles DET Transfers Day 2/3 | | | | Fresh Cycles SET Transfers Day 5/6 | | | |
|---|---|---|---|---|---|---|---|---|
| **Years** | **2018** | **2019** | **2020** | **2021** | **2018** | **2019** | **2020** | **2021** |
| Number of Centers | 131 | 132 | 137 | 136 | 124 | 120 | 129 | 133 |
| Cycles Documented | 19,056 | 18,191 | 16,919 | 15,568 | 6,922 | 8,654 | 10,917 | 13,861 |
| Cycles Plausible | 18,549 | 17,548 | 16,075 | 14,869 | 6,824 | 8,416 | 10,534 | 13,452 |
| Cycles Plausible % | 97.3 | 96.5 | 95.0 | 95.5 | 98.6 | 97.2 | 96.5 | 97.0 |
| Number of Patients | 16,408 | 15,567 | 14,262 | 13,178 | 6,336 | 7,809 | 9,708 | 12,361 |
| Mean Treatment / Patient | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| Mean Age Patient | 34.7 | 34.9 | 35.1 | 35.4 | 34.6 | 34.5 | 34.7 | 34.8 |
| Mean Oocytes Retrieved | 8.51 | 8.47 | 8.13 | 7.91 | 10.47 | 10.45 | 10.39 | 10.32 |
| Mean Days of Culture | 2.62 | 2.63 | 2.61 | 2.64 | 5.03 | 5.03 | 5.03 | 5.03 |
| Transfers | 18,423 | 17,442 | 15,967 | 14,791 | 6,765 | 8,361 | 10,458 | 13,359 |
| Clinical Pregnancies | 6,066 | 5,741 | 5,246 | 4,757 | 2,295 | 2,918 | 3,675 | 4,659 |
| Clinical Pregnancies / ET % | 33.1 | 33.0 | 33.0 | 32.4 | 34.0 | 35.0 | 35.3 | 35.1 |
| Misscarries / Clin. Pregnancies % | 18.7 | 20.2 | 21.6 | | 19.2 | 20.0 | 21.2 | |
| Births | 4,487 | 4,171 | 3,783 | | 1,728 | 2,207 | 2,703 | |
| Births / Clin. Pregnancies % | 74.0 | 72.7 | 72.1 | | 75.3 | 75.6 | 73.6 | |
| Births / Transfers % | 24.4 | 24.0 | 23.8 | | 25.6 | 26.5 | 25.9 | |
| Singletons | 3,510 | 3,301 | 3,011 | | 1,690 | 2,168 | 2,665 | |
| Singletons % | 78.2 | 79.1 | 79.6 | | 97.8 | 98.2 | 98.6 | |
| Multiple Births | 977 | 870 | 772 | | 38 | 39 | 38 | |
| Multiple Births % | 21.8 | 20.9 | 20.4 | | 2.2 | 1.8 | 1.4 | |
| Children | 5,478 | 5,049 | 4,565 | | 1,766 | 2,247 | 2,741 | |
| Shares in Cycles plausible % | 73.1 | 67.6 | 60.4 | 52.5 | 26.9 | 32.4 | 39.6 | 47.5 |
| Shares in Transfers % | 73.1 | 67.6 | 60.4 | 52.5 | 26.9 | 32.4 | 39.6 | 47.5 |
| Shares in CP % | 72.6 | 66.3 | 58.8 | 50.5 | 27.4 | 33.7 | 41.2 | 49.5 |
| Shares in Births % | 72.2 | 65.4 | 58.3 | | 27.8 | 34.6 | 41.7 | |
| Shares in Multiple Births % | 96.3 | 95.7 | 95.3 | | 3.7 | 4.3 | 4.7 | |

*1) Bals-Pratsch M, Dittrich R, Frommel M (2010) Wandel in der Implementation des Deutschen Embryonenschutzgesetzes. J. Reproduktionsmed. Endokrinol. 2010; 7 (2), 87-95*

**Prof. Dr. med. Jan-Steffen Krüssel, Düsseldorf (in charge)**
*Dr. med. Ute Czeromin, Gelsenkirchen*
*Dr. med. Andreas Tandler-Schneider, Berlin*

# D·I·R Annual 2021 – Tables

## Number of Treatments in 2021

Centers for IVF-, ICSI-, and Cryo Transfer Treatments

| Members of the German IVF-Registry 2021 | n=140 |
|---|---|
| Registry Participants 2021 | n=140 |
| Data Received by Deadline May 24th 2022 | n=140 |
| Documented Treatment Cycles | n=128,709 |
| Number of Women Treated* | n= 69,355 |
| **Mean Number of Treatment Cycles per Woman** | **1.9** |

## Type of plausible treatment 2017 – 2021

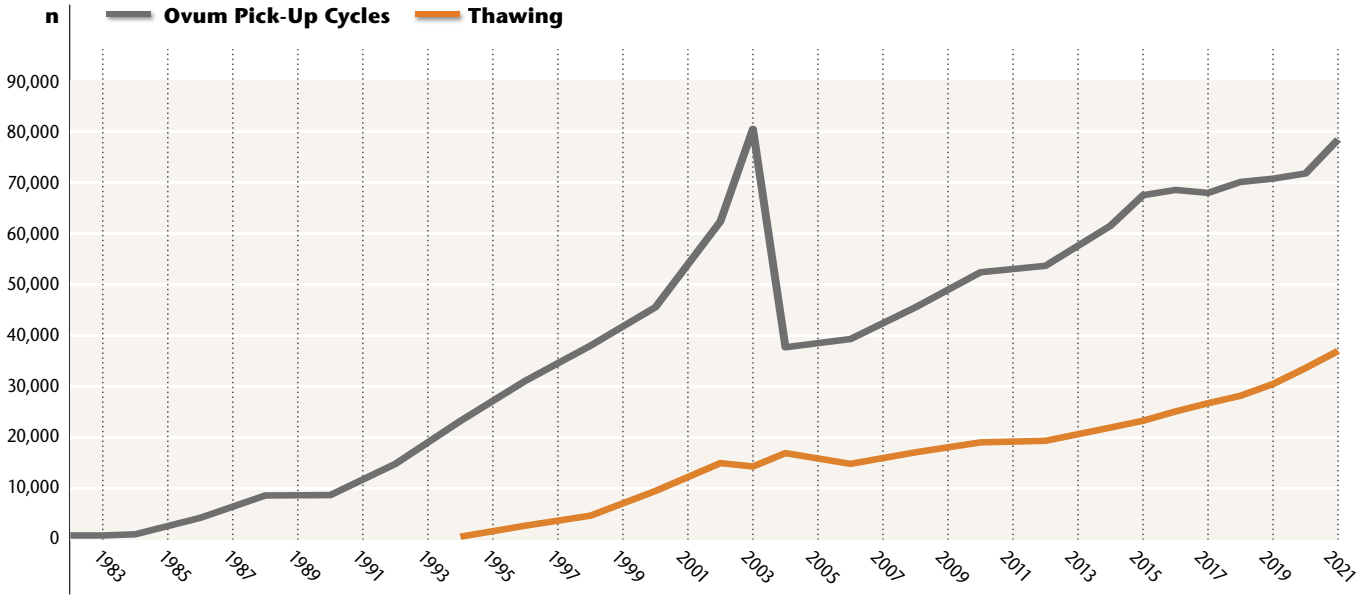
IVF, ICSI, IVF/ICSI, Cryo Transfer – Prospective and Retrospective Data

| | 2017 | | 2018 | | 2019 | | 2020 | | 2021 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| IVF | 15,896 | 15.8 | 17,339 | 16.6 | 18,218 | 16.9 | 19,117 | 16.8 | 21,066 | 16.8 |
| ICSI | 46,813 | 46.5 | 46,637 | 44.6 | 46,245 | 42.8 | 45,829 | 40.4 | 49,181 | 39.2 |
| IVF/ICSI | 1,171 | 1.2 | 1,436 | 1.4 | 1,342 | 1.2 | 1,501 | 1.3 | 1,355 | 1.1 |
| Freeze all - MII | 1,226 | 1.2 | 1,631 | 1.6 | 1,832 | 1.7 | 2,131 | 1.9 | 3,102 | 2.5 |
| Freeze All - PNs and Embryos | 3,934 | 3.9 | 4,725 | 4.5 | 5,223 | 4.8 | 5,794 | 5.1 | 6,660 | 5.3 |
| Cryo | 26,653 | 26.5 | 28,129 | 26.9 | 30,430 | 28.2 | 33,560 | 29.6 | 36,909 | 29.4 |
| Mixed Fresh and Cryo Cycles | 749 | 0.7 | 539 | 0.5 | 510 | 0.5 | 416 | 0.4 | 404 | 0.3 |
| None (= Break-off before oocyte treatment or thawing) | 4,288 | 4.3 | 4,135 | 4.0 | 4,193 | 3.9 | 5,136 | 4.5 | 6,865 | 5.5 |
| **Total Plausible Cycles** | **100,730** | | **104,571** | | **107,993** | | **113,484** | | **125,542** | |

**) Base quantity: Total number of women, including implausible treatment cycles.*

# Number of Oocyte Retrievals (Freshcycles) 1982 – 2021
# Number of Thawing Cycles 1994 – 2021
# Registry Participants 1982 – 2021

## IVF, ICSI* – Prospective and Retrospective Data




| | 1982 | 1986 | 1990 | [ ... ] | 2002 | 2003 | 2004 | [ ... ] | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| . | 742 | 4,201 | 8,653 | | 62,306 | 80,434 | 37,633 | | 67,888 | 70,035 | 70,679 | 71,708 | 78,363 |
| IVF | 742 | 3,806 | 7,343 | *For values from 1991 to 2001 see www.deutsches-ivf-register.de* | 23,936 | 28,058 | 11,848 | *For values from 2005 to 2016 see www.deutsches-ivf-register.de* | 15,896 | 17,339 | 18,218 | 19,117 | 21,066 |
| ICSI* | | | | | 37,692 | 51,389 | 25,339 | | 47,984 | 48,073 | 47,587 | 47,330 | 50,536 |
| Thawing | | | | | 14,923 | 14,265 | 16,883 | | 26,653 | 28,129 | 30,430 | 33,560 | 36,909 |
| **Registry Participants** | **5** | **28** | **53** | | **112** | **116** | **120** | | **130** | **131** | **133** | **140** | **140** |

Data for 1982 to 2010 are published and available. Separate presentation of GIFT, ZIFT, IVF/ICSI was abstained from.

**) Where IVF/ICSI is not explicitly mentioned, the treatments were added to ICSI.*

# Quality of Documentation 2020/2021

Plausible and Prospectively Documented Cycles, Cycle- and Pregnancy-Outcomes

*Any evaluation is only as good the raw data.*
*The yearbook team thanks the centers für their meticulous work!*

## Plausible Cycles 2021

**125,542** plausible cycles out of **128,709** documented cycles. **97.5%** of documented cycles are plausible. This does unfortunately not imply completeness of data required, thus impeding detaileed analyses.

## Prospectively Recorded Cycles 2021

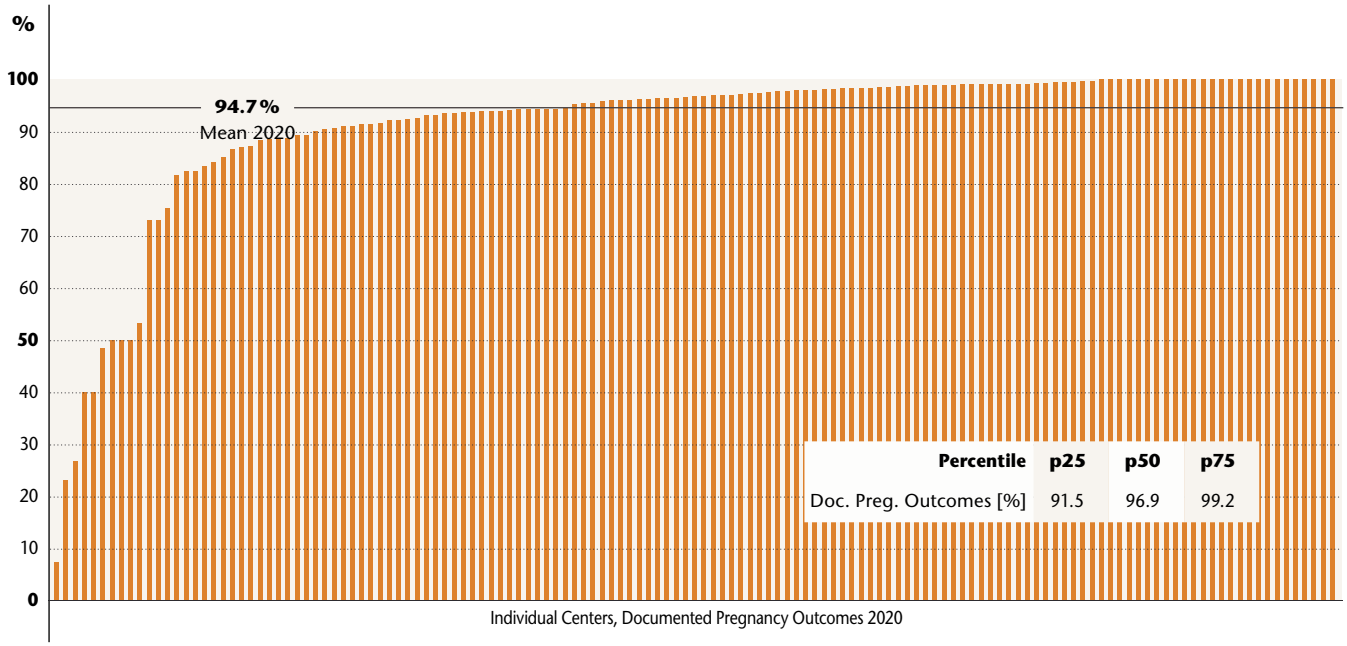
**113,703** prospectively recorded cycles out of **125,542** plausible cycles. **90.6%** of all plausible cycles were recorded prospectively. The German IVF Register is the only register worldwide that shows the number of prospectively recorded cycles. This is a quality feature in itself!

## Documented Cycle Outcomes 2021

The result of the cycle was recorded in **89,751** of **90,378** embryo transfers. **99.3%** of cycle outcomes were documented.

## Documented Pregnancy Outcomes 2020

The pregnancy outcome was recorded for **25,488** of **26,919** clinical pregnancies. **94.7%** of pregnancy outcomes were documented. With this, the D·I·R received from the centers again a quota very close to the D·I·R target of **95%**, and we would like to say a special thank you for this complex work!




We know: The work, especially on the documentation qualities mentioned here, is laborious, time-consuming and ties up resources.

With **94.7%** documented pregnancy outcomes, the D·I·R received a quote close to the **95.0%**-target of the D·I·R.

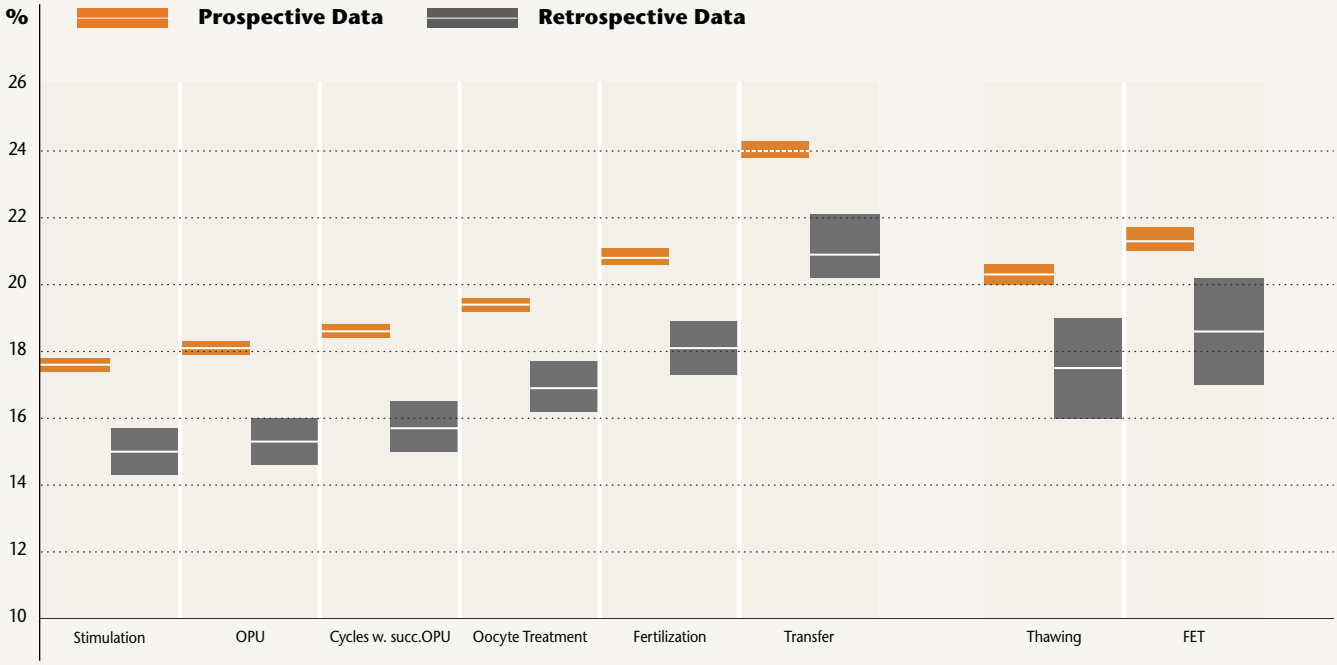
**43** centers had a quota of **over 99%**, **26** centers even a quota of **100%**.

The aim of the Executive Board and the Board of Trustees is to continue to motivate the centers to draw attention to the parameter of prospectivity.

We are also aiming for a documented pregnancy outcome rate of **more than 95%** for 2021.

# Birth Rate per Treatment Level in Fresh and Cryo Treatment Cycles 2019 and 2020

## Prospective and Retrospective Data

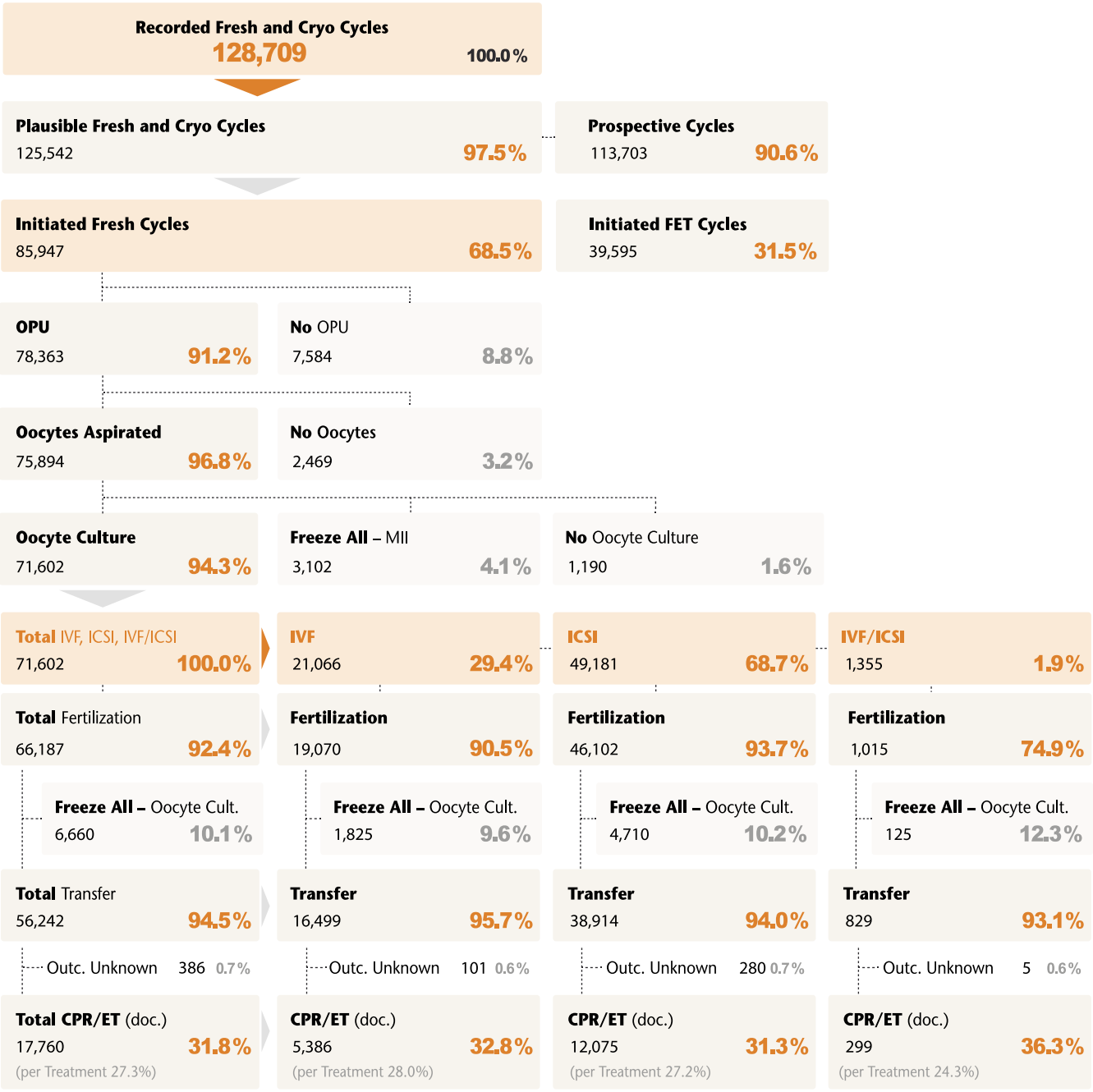



| | Stimulation | OPU | Cycles with Successful OPU | Oocyte Treatment | Fertilization | Transfer | Thawing | FET |
|---|---|---|---|---|---|---|---|---|
| **Prospective Numbers** | 135,942 | 132,253 | 128,346 | 123,118 | 114,638 | 99,700 | 61,505 | 58,517 |
| Birth | 23,894 | 23,894 | 23,894 | 23,894 | 23,894 | 23,894 | 12,477 | 12,477 |
| Upper Confid. Limit* | 17.8 | 18.3 | 18.8 | 19.6 | 21.1 | 24.3 | 20.6 | 21.7 |
| Birth/Treatm. % | 17.6 | 18.1 | 18.6 | 19.4 | 20.8 | 24.0 | 20.3 | 21.3 |
| Lower Confid. Limit* | 17.4 | 17.9 | 18.4 | 19.2 | 20.6 | 23.8 | 20.0 | 21.0 |
| **Retrospective Numbers** | 10,319 | 10,133 | 9,834 | 9,134 | 8,556 | 7,392 | 2,476 | 2,334 |
| Birth | 1,547 | 1,547 | 1,547 | 1,547 | 1,547 | 1,547 | 434 | 434 |
| Upper Confid. Limit* | 15.7 | 16.0 | 16.5 | 17.7 | 18.9 | 22.1 | 19.0 | 20.2 |
| Birth/Treatm. % | 15.0 | 15.3 | 15.7 | 16.9 | 18.1 | 20.9 | 17.5 | 18.6 |
| Lower Confid. Limit* | 14.3 | 14.6 | 15.0 | 16.2 | 17.3 | 20.2 | 16.0 | 17.0 |

** With a 95 %-probability, the true mean lies within the defined confidence interval.*

# D·I·R Statistics in Brief – Fresh Cycles 2021 (CoD May 24th 2022)

German IVF Registry – Prospective and Retrospective Data




*For Social Freezing, 2,258 cycles have been documented, resulting in 2,010 aspirations with an average of 10.8 oocyte retrieved. Freeze all oocytes: 1,809 cycles.*
*For PID, 411 cycles have been documented.*

*For pages 22 and 23:*
*Clinical pregnancy rates per transfer are adjusted by unknown outcomes.*
*Transfer rate, clinical pregnancy rates per treatment and birth rates per treatment are adjusted by freeze all oocytes cultured.*

# D·I·R Statistics in Brief – Fresh Cycles 2020 (CoD May 24th 2022)

German IVF Registry – Prospective and Retrospective Data

**Recorded Fresh and Cryo Cycles** 116,830 — 100.0%

**Plausible Fresh and Cryo Cycles** 113,484 — 97.1%

**Prospective Cycles** 102,970 — 90.7%

**Initiated Fresh Cycles** 77,633 — 68.4%

**Initiated FET Cycles** 35,851 — 31.6%

**OPU** 71,708 — 92.4%

**No** OPU 5,925 — 7.6%

**Oocytes Aspirated** 69,545 — 97.0%

**No** Oocytes 2,163 — 3.0%

**Oocyte Culture** 66,447 — 95.5%

**Freeze All** – MII 2,131 — 3.1%

**No** Oocyte Culture 967 — 1.4%

*For Fertil*PROTEKT *(medical freezing), 580 cycles have been documented. Among them 323 cycles freeze all oocytes and 96 cycles freeze all oocytes cultured.*

*For Social Freezing, 1,602 cycles have been documented, resulting in 1,442 aspirations with an average of 10.5 oocyte retrieved. Freeze all oocytes: 1,291 cycles.*

*For PID, 310 cycles have been documented.*

| | **Total** Fresh Cycles | **IVF** | **ICSI** | **IVF/ICSI** |
|---|---|---|---|---|
| | 66,447 — 100.0% | 19,117 — 28.8% | 45,829 — 69.0% | 1,501 — 2.3% |
| | **Total** Fertilization | **Fertilization** | **Fertilization** | **Fertilization** |
| | 61,807 — 93.0% | 17,495 — 91.5% | 43,153 — 94.2% | 1,159 — 77.2% |
| | **Freeze All –** Oocyte Cult. | **Freeze All –** Oocyte Cult. | **Freeze All –** Oocyte Cult. | **Freeze All –** Oocyte Cult. |
| | 5,794 — 9.4% | 1,600 — 9.1% | 3,987 — 9.2% | 207 — 17.9% |
| | **Total** Transfer | **Transfer** | **Transfer** | **Transfer** |
| | 53,343 — 95.2% | 15,320 — 96.4% | 37,136 — 94.8% | 887 — 93.2% |
| | Outc. Unknown 215 0.4% | Outc. Unknown 69 0.5% | Outc. Unknown 145 0.4% | Outc. Unknown 1 0.1% |
| | **Total CPR/ET** (doc.) | **CPR/ET** (doc.) | **CPR/ET** (doc.) | **CPR/ET** (doc.) |
| | 17,386 — 32.7% | 5,169 — 33.9% | 11,889 — 32.1% | 328 — 37.0% |
| | (per Treatment 28.7%) | (per IVF-Treatment 29.5%) | (per ICSI-Treatment 28.4%) | (per IVF/ICSI-Treatment , 25.3%) |
| | **Misc.** 3,761 21.6% | **Misc.** 1,122 21.7% | **Misc.** 2,562 21.5% | **Misc.** 77 23.5% |
| | **EP** 223 1.3% | **EP** 83 1.6% | **EP** 136 1.1% | **EP** 4 1.2% |
| | **Not yet Recorded** 899 5.2% | **Not yet Recorded** 251 4.9% | **Not yet Recorded** 633 5.3% | **Not yet Recorded** 15 4.6% |
| | **Birth** (doc.) 12,503 71.9% | **Birth** (doc.) 3,713 71.8% | **Birth** (doc.) 8,558 72.0% | **Birth** (doc.) 232 70.7% |
| | (per Transfer 23.5%, per Treatm. 20.6%) | (per Transfer 24.3%, per Treatm. 21.2%) | (per Transfer 23.1%, per Treatm. 20.5%) | (perTransfer 26.2%, per Treatm. 17.9%) |

| Births | n | % |
|---|---|---|
| Singletons | 10,426 | 83.4 |
| Twins | 2,037 | 16.3 |
| Triplets | 39 | 0.3 |
| Quadruplets | 1 | 0.0 |

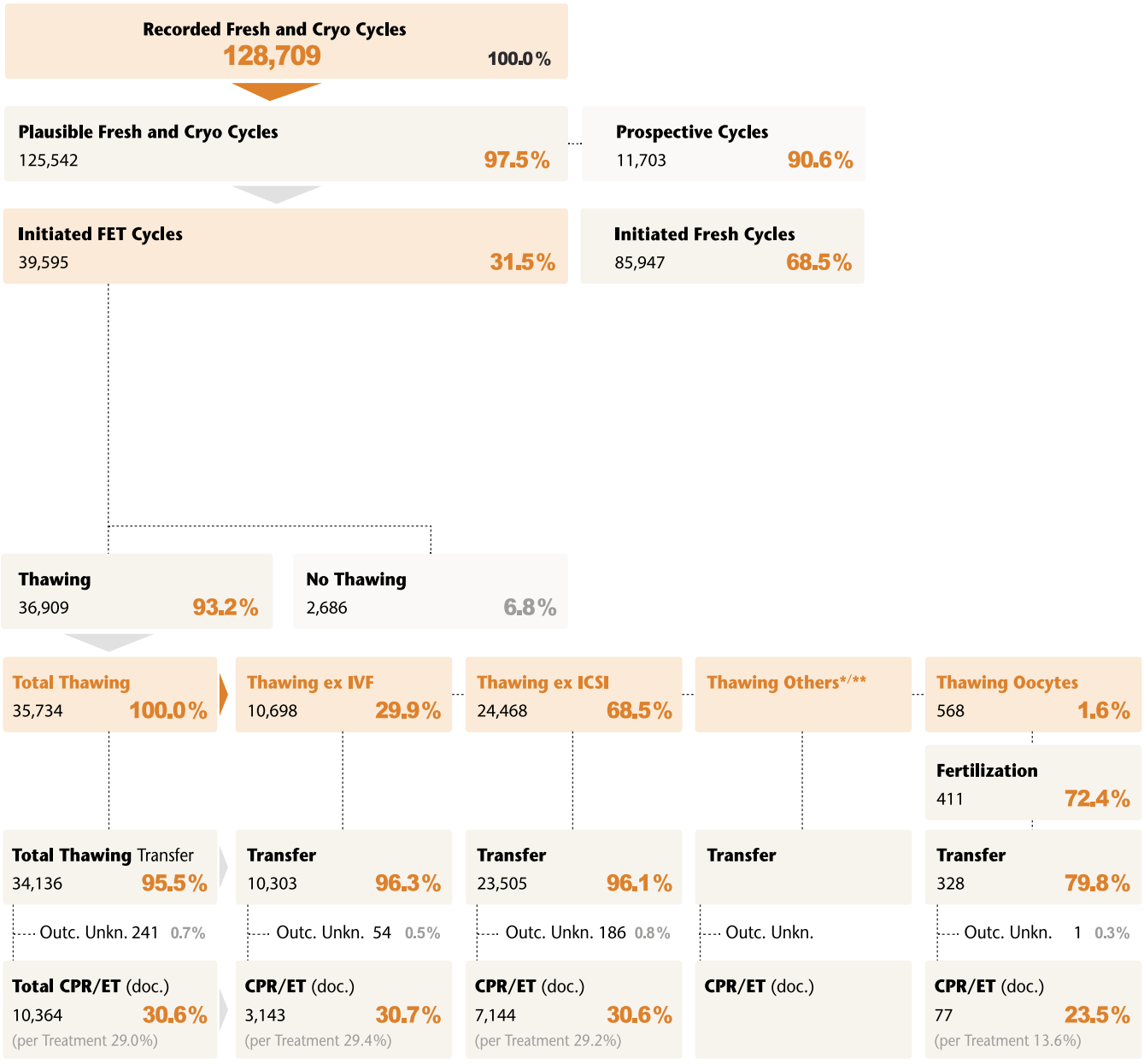
| Births | n | % |
|---|---|---|
| Singletons | 3,046 | 82.0 |
| Twins | 653 | 17.6 |
| Triplets | 14 | 0.4 |
| Quadruplets | 0 | 0.0 |

| Births | n | % |
|---|---|---|
| Singletons | 7,191 | 84.0 |
| Twins | 1,342 | 15.7 |
| Triplets | 24 | 0.3 |
| Quadruplets | 1 | 0.0 |

| Births | n | % |
|---|---|---|
| Singletons | 189 | 81.5 |
| Twins | 42 | 18.1 |
| Triplets | 1 | 0.4 |
| Quadruplets | 0 | 0.0 |

# D·I·R Statistics in Brief – Cryo Cycles 2021 (CoD May 24th 2022)

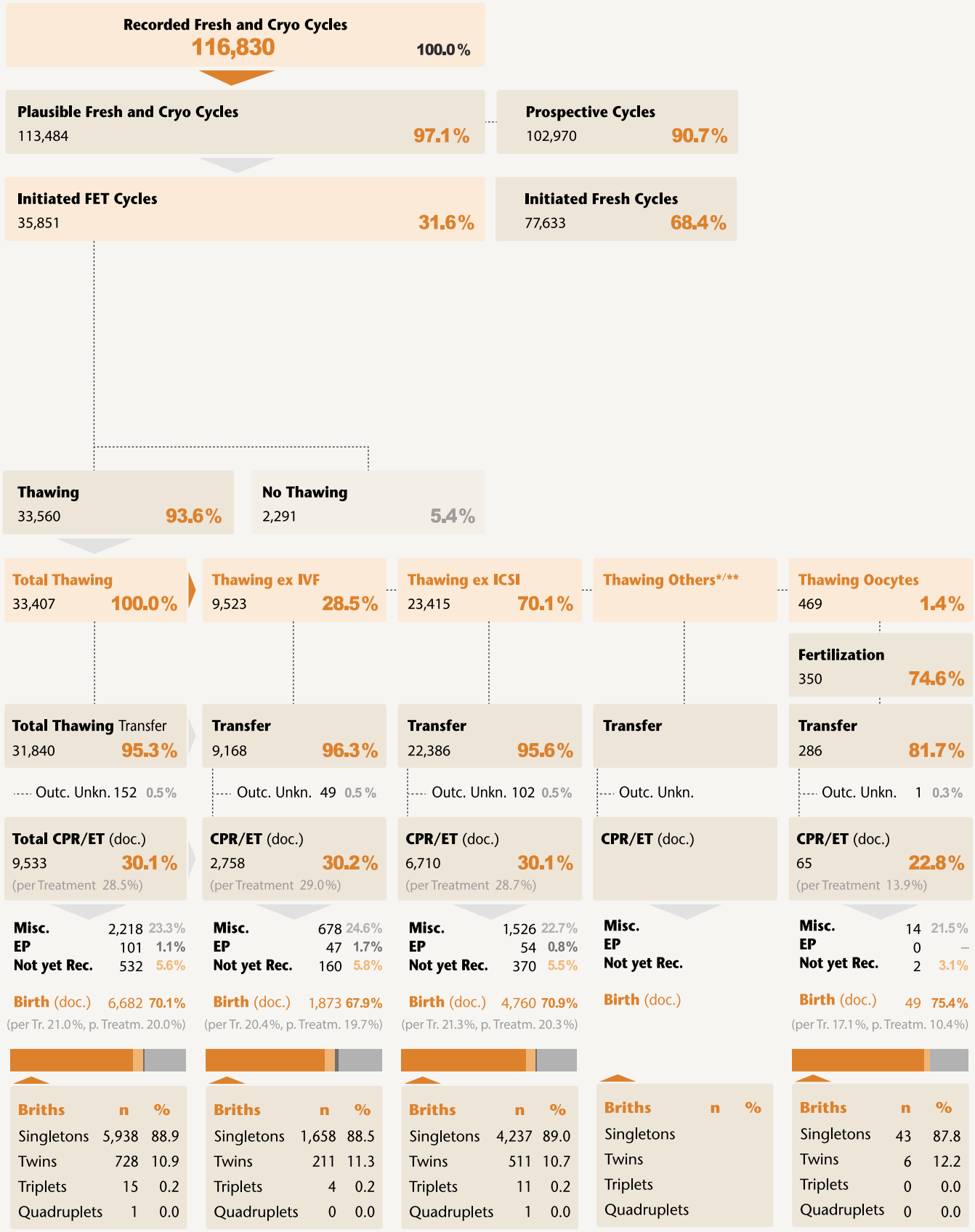
German IVF Registry – Prospective and Retrospective Data




*) Thawing others means cycles with unknown previous treatment, previous treatment not documented or previous treatment has partly been IVF and ICSI.
**) In one oft the IVF-Softwares, there had been inconsistencies at thawing others. Thus, these data cannot be published.

# D·I·R Statistics in Brief – Cryo Cycles 2020 (CoD May 24th 2022)

German IVF Registry – Prospective and Retrospective Data

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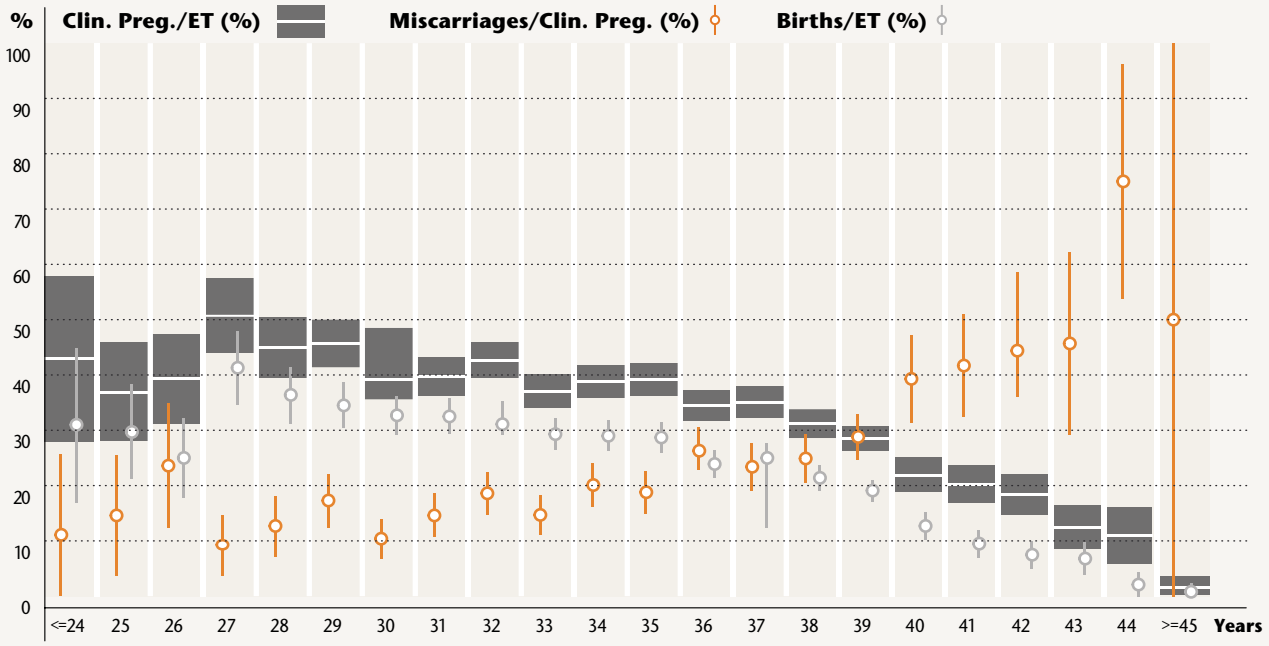
# Pregnancy Rate and Ongoing Pregnancy as a Function of Female Age 2020

Prospective Data

## IVF 2020




| | <=24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | >=45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n | 42 | 111 | 143 | 220 | 317 | 521 | 713 | 794 | 921 | 1,007 | 1,041 | 1,048 | 1,137 | 1,091 | 1,220 | 1,614 | 668 | 535 | 416 | 281 | 146 | 131 | ET |
| % | 42.9 | 36.9 | 39.3 | 50.7 | 44.9 | 45.7 | 39.2 | 39.7 | 42.7 | 37.1 | 38.8 | 39.1 | 34.5 | 35.1 | 31.2 | 28.5 | 21.9 | 20.2 | 18.4 | 12.5 | 11.0 | 1.5 | CP/ET |
| n | 13 | 33 | 35 | 88 | 115 | 179 | 233 | 257 | 295 | 294 | 302 | 300 | 271 | 272 | 259 | 307 | 84 | 51 | 31 | 19 | 3 | 1 | Birth |

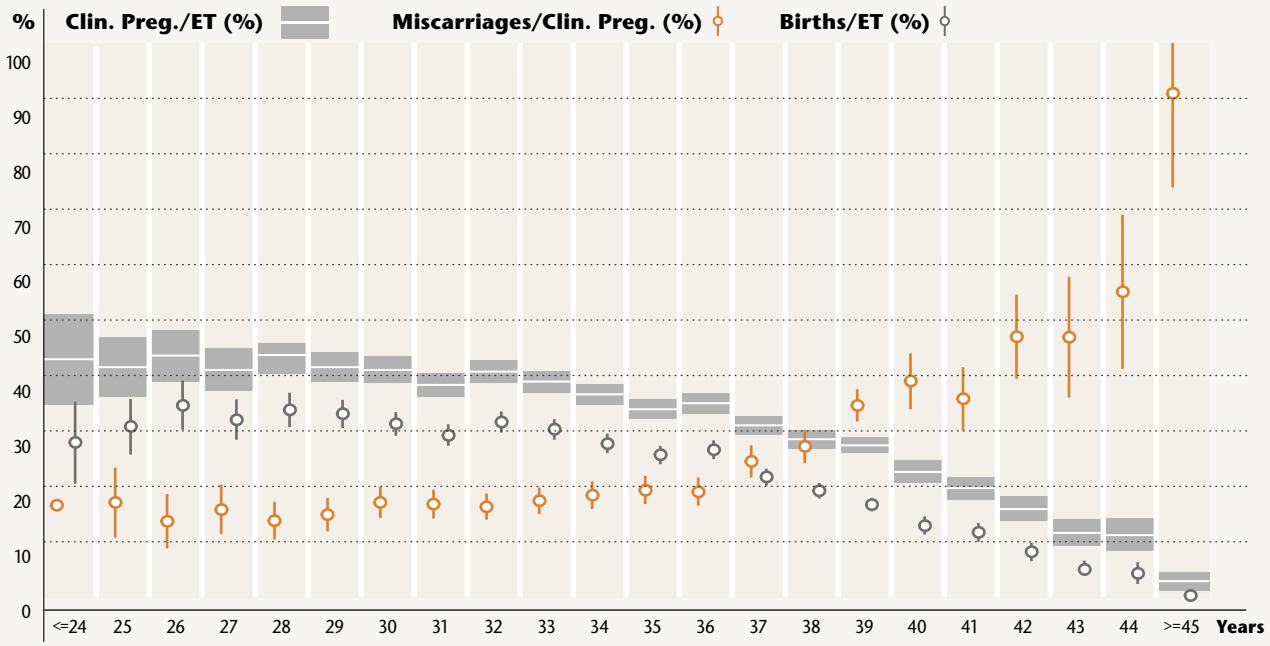
| Age in Years | <= 29 | 30 – 34 | 35 – 39 | 40 | 41 | 42 | 43 | 44 | >=45 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| OPU | 1,773 | 5,588 | 7,458 | 832 | 673 | 525 | 350 | 203 | 172 | **17,574** |
| Oocytes[1] | 11.5 | 10.5 | 8.3 | 6.7 | 6.5 | 5.7 | 5.0 | 5.0 | 3.9 | **8.9** |
| Insemination[1] | 11.3 | 10.4 | 8.1 | 6.6 | 6.4 | 5.6 | 4.9 | 5.0 | 3.9 | **8.8** |
| ET | 1,354 | 4,476 | 6,110 | 668 | 535 | 416 | 281 | 146 | 131 | **14,117** |
| ET/OPU % | 76.4 | 80.1 | 81.9 | 80.3 | 79.5 | 79.2 | 80.3 | 71.9 | 76.2 | **80.3** |
| Trans. Embr.[1] | 1.60 | 1.59 | 1.61 | 1.58 | 1.57 | 1.64 | 1.61 | 1.67 | 1.46 | **1.60** |
| CP | 601 | 1,761 | 2,017 | 145 | 108 | 76 | 35 | 16 | 2 | **4,761** |
| CP/OPU % | 33.9 | 31.5 | 27.0 | 17.4 | 16.0 | 14.5 | 10.0 | 7.9 | 1.2 | **27.1** |
| CP/ET Upper Conf. Limit* % | 47.5 | 40.9 | 34.3 | 25.1 | 23.6 | 22.1 | 16.4 | 16.1 | 3.6 | **34.7** |
| CP/ET % | **44.8** | **39.4** | **33.2** | **21.9** | **20.2** | **18.4** | **12.5** | **11.0** | **1.5** | **33.9** |
| CP/ET Lower Conf. Limit* % | 42.2 | 38.0 | 32.0 | 18.8 | 16.8 | 14.7 | 8.6 | 5.9 | 0.0 | **33.1** |
| CP/ET %: 2 Embr. Transf. + min. 2 2PN Surplus | 53.1 | 46.1 | 40.7 | 36.3 | 33.1 | 24.5 | 20.4 | 17.6 | 4.5 | **42.8** |
| CP/ET %: 1 Embr. Transf. + min. 3 2PN Surplus | 47.8 | 39.9 | 34.4 | 26.9 | 27.4 | 7.5 | 3.6 | 33.3 | 0.0 | **36.7** |
| Misc./CP Upper Conf. Limit* % | 17.8 | 17.8 | 26.4 | 47.3 | 51.0 | 58.6 | 62.2 | 96.2 | 100.0 | **22.9** |
| Misc./CP % | **15.0** | **16.1** | **24.5** | **39.3** | **41.7** | **47.4** | **45.7** | **75.0** | **50.0** | **21.8** |
| Misc./CP Lower Conf. Limit* % | 12.1 | 14.4 | 22.7 | 31.4 | 32.4 | 36.1 | 29.2 | 53.8 | 0.0 | **20.6** |
| Births/ET Upper Conf. Limit* % | 37.1 | 32.3 | 24.2 | 15.2 | 12.0 | 10.0 | 9.7 | 4.4 | 2.3 | **25.2** |
| Births/ET % | 34.5 | 30.9 | 23.2 | 12.7 | 9.5 | 7.5 | 6.8 | 2.1 | 0.8 | **24.5** |
| Births/ET Lower Conf. Limit* % | 32.0 | 29.6 | 22.1 | 10.2 | 7.0 | 5.0 | 3.8 | 0.0 | 0.0 | **23.8** |

*1) Mean*
** With a 95%-probability, the true mean lies within the defined confidence interval.*

# Pregnancy Rate and Ongoing Pregnancy as a Function of Female Age 2020

Prospective Data

## ICSI 2020




| | <=24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | >=45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n | 139 | 324 | 437 | 633 | 919 | 1,348 | 1,741 | 2,068 | 2,331 | 2,471 | 2,583 | 2,671 | 2,592 | 2,752 | 2,924 | 3,710 | 1,606 | 1,383 | 1,042 | 699 | 437 | 376 | ET |
| % | 43.2 | 41.5 | 43.6 | 41.0 | 43.7 | 41.5 | 41.0 | 38.3 | 40.7 | 38.9 | 36.6 | 33.9 | 35.0 | 31.0 | 28.5 | 27.4 | 22.6 | 19.7 | 15.9 | 11.6 | 11.2 | 2.9 | CP/ET |
| n | 39 | 100 | 151 | 202 | 309 | 444 | 543 | 602 | 733 | 745 | 715 | 682 | 687 | 594 | 560 | 617 | 207 | 161 | 85 | 35 | 19 | 1 | Birth |

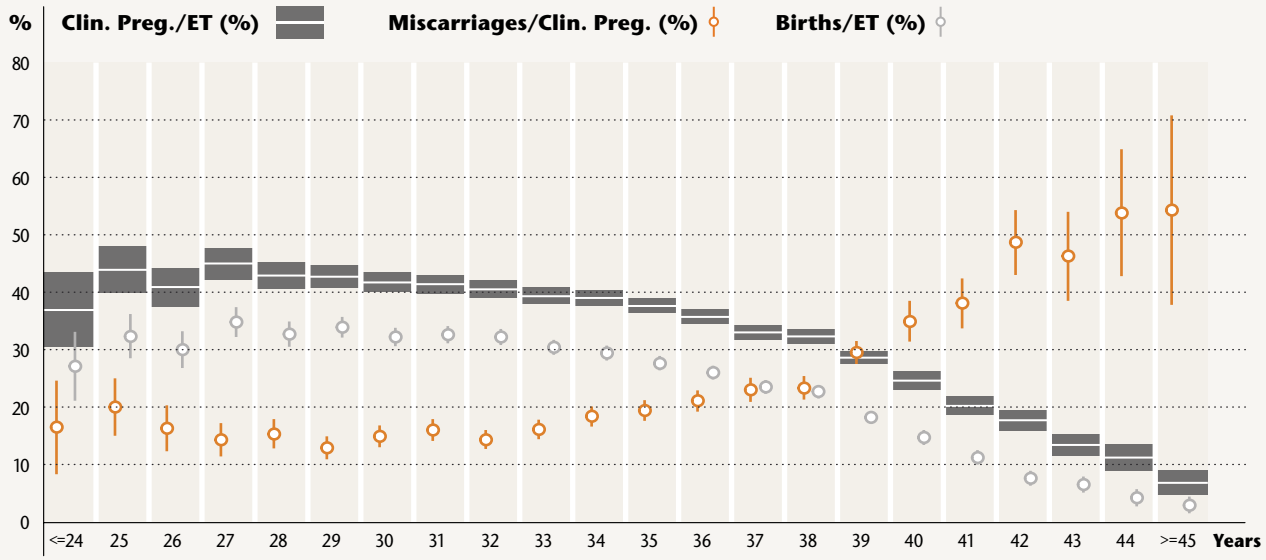
| Age in Years | <= 29 | 30 – 34 | 35 – 39 | 40 | 41 | 42 | 43 | 44 | >=45 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| OPU | 4,714 | 13,669 | 17,877 | 1,998 | 1,772 | 1,353 | 941 | 610 | 511 | **43,445** |
| Oocytes[1] | 12.3 | 11.1 | 8.8 | 7.3 | 6.6 | 6.1 | 5.3 | 4.5 | 3.9 | **9.5** |
| Injection[1] | 9.6 | 8.7 | 6.9 | 5.8 | 5.3 | 4.8 | 4.3 | 3.6 | 3.2 | **7.4** |
| ET | 3,800 | 11,194 | 14,649 | 1,606 | 1,383 | 1,042 | 699 | 437 | 376 | **35,186** |
| ET/OPU % | 80.6 | 81.9 | 81.9 | 80.4 | 78.0 | 77.0 | 74.3 | 71.6 | 73.6 | **81.0** |
| Trans. Embr.[1] | 1.65 | 1.63 | 1.62 | 1.65 | 1.61 | 1.62 | 1.63 | 1.63 | 1.59 | **1.63** |
| CP | 1,599 | 4,350 | 4,496 | 362 | 271 | 166 | 81 | 49 | 11 | **11,385** |
| CP/OPU % | 33.9 | 31.8 | 25.1 | 18.1 | 15.3 | 12.3 | 8.6 | 8.0 | 2.2 | **26.2** |
| CP/ET Upper Conf. Limit* % | 43.8 | 39.9 | 31.6 | 24.7 | 21.7 | 18.2 | 14.0 | 14.2 | 4.6 | **33.0** |
| CP/ET % | **42.2** | **39.0** | **30.8** | **22.6** | **19.7** | **15.9** | **11.6** | **11.2** | **2.9** | **32.5** |
| CP/ET Lower Conf. Limit* % | 40.7 | 38.1 | 30.1 | 20.6 | 17.6 | 13.7 | 9.2 | 8.3 | 1.2 | **32.0** |
| CP/ET %: 2 Embr. Transf. + min. 2 2PN Surplus | 48.2 | 45.9 | 37.1 | 28.8 | 26.7 | 24.4 | 17.8 | 25.8 | 4.8 | **40.6** |
| CP/ET %: 1 Embr. Transf. + min. 3 2PN Surplus | 41.1 | 39.6 | 33.8 | 26.4 | 27.7 | 26.7 | 13.5 | 14.3 | 20.0 | **36.4** |
| Misc./CP Upper Conf. Limit* % | 16.6 | 18.4 | 26.4 | 44.0 | 41.5 | 54.6 | 57.8 | 69.0 | 100.0 | **22.8** |
| Misc./CP % | **14.9** | **17.2** | **25.1** | **39.0** | **35.8** | **47.0** | **46.9** | **55.1** | **90.9** | **22.0** |
| Misc./CP Lower Conf. Limit* % | 13.1 | 16.1 | 23.9 | 33.9 | 30.1 | 39.4 | 36.0 | 41.2 | 73.9 | **21.3** |
| Births/ET Upper Conf. Limit* % | 34.4 | 30.8 | 22.2 | 14.6 | 13.4 | 9.8 | 6.6 | 6.3 | 0.8 | **23.9** |
| Births/ET % | 32.9 | 29.9 | 21.5 | 12.9 | 11.7 | 8.2 | 5.0 | 4.3 | 0.3 | **23.5** |
| Births/ET Lower Conf. Limit* % | 31.4 | 29.1 | 20.9 | 11.3 | 10.0 | 6.5 | 3.4 | 2.4 | 0.0 | **23.0** |

*1) Mean*
** With a 95%-probability, the true mean lies within the defined confidence interval.*

# Pregnancy Rate and Ongoing Pregnancy as a Function of Female Age 2016 – 2020

Prospective Data

## IVF 2016 – 2020




| | <=24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | >=45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **n** | 214 | 569 | 818 | 1,282 | 1,795 | 2,541 | 3,252 | 3,577 | 4,175 | 4,568 | 4,780 | 5,037 | 5,079 | 4,800 | 5,127 | 7,203 | 2,831 | 2,418 | 1,716 | 1,196 | 697 | 513 | **ET** |
| **%** | 36.9 | 43.9 | 40.9 | 45.0 | 42.9 | 42.7 | 41.7 | 41.4 | 40.5 | 39.3 | 39.0 | 37.6 | 35.7 | 33.0 | 32.3 | 28.6 | 24.6 | 20.2 | 17.7 | 13.4 | 11.2 | 6.8 | **CP/ET** |
| **n** | 58 | 184 | 243 | 443 | 586 | 858 | 1,045 | 1,162 | 1,342 | 1,386 | 1,402 | 1,388 | 1,318 | 1,122 | 1,156 | 1,302 | 413 | 271 | 130 | 78 | 29 | 15 | **Birth** |

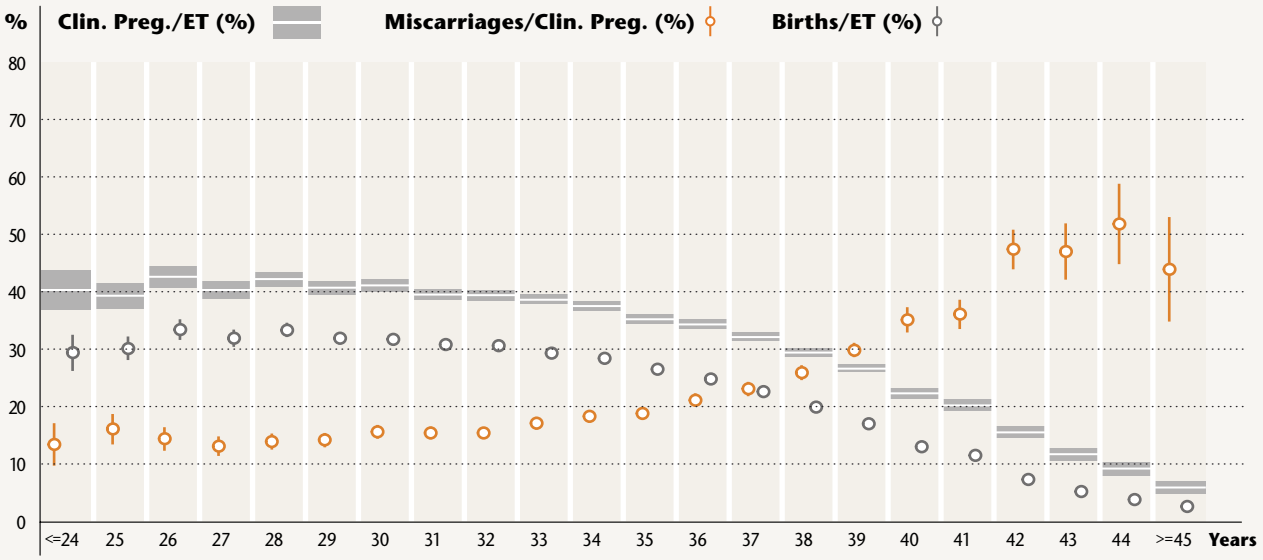
| **Alter in Jahren** | **<= 29** | **30 – 34** | **35 – 39** | **40** | **41** | **42** | **43** | **44** | **>=45** | **Gesamt** |
|---|---|---|---|---|---|---|---|---|---|---|
| OPU | 9,042 | 24,652 | 32,663 | 3,421 | 2,974 | 2,150 | 1,522 | 886 | 699 | **78,009** |
| Oocytes[1] | 11.8 | 10.6 | 8.5 | 6.9 | 6.7 | 6.0 | 5.3 | 5.2 | 4.2 | **9.2** |
| Insemination[1] | 11.3 | 10.2 | 8.1 | 6.6 | 6.3 | 5.8 | 5.2 | 5.1 | 4.2 | **8.9** |
| Transfer | 7,219 | 20,352 | 27,246 | 2,831 | 2,418 | 1,716 | 1,196 | 697 | 513 | **64,188** |
| ET/OPU % | 79.8 | 82.6 | 83.4 | 82.8 | 81.3 | 79.8 | 78.6 | 78.7 | 73.4 | **32.3** |
| Trans. Embr.[1] | 1.72 | 1.70 | 1.71 | 1.71 | 1.72 | 1.76 | 1.72 | 1.75 | 1.65 | **1.71** |
| CP | 3,082 | 8,166 | 8,978 | 693 | 486 | 302 | 160 | 78 | 35 | **21,980** |
| CP/OPU % | 34.1 | 33.1 | 27.5 | 20.3 | 16.3 | 14.0 | 10.5 | 8.8 | 5.0 | **28.2** |
| CP/ET Upper Confidence Limit* % | 44.0 | 40.9 | 33.6 | 26.2 | 21.8 | 19.5 | 15.3 | 13.6 | 9.0 | **34.7** |
| CP/ET % | **42.9** | **40.2** | **33.1** | **24.6** | **20.2** | **17.7** | **13.4** | **11.2** | **6.8** | **34.2** |
| CP/ET Lower Confidence Limit* % | 41.7 | 39.5 | 32.5 | 23.0 | 18.6 | 15.9 | 11.5 | 8.9 | 4.7 | **34.0** |
| CP/ET %: 2 Embr. Transf. + min. 2 2PN Surplus | 48.9 | 47.0 | 40.0 | 34.6 | 29.7 | 24.8 | 22.4 | 22.3 | 24.2 | **42.7** |
| CP/ET %: 1 Embr. Transf. + min. 3 2PN Surplus | 43.8 | 39.4 | 34.7 | 28.9 | 30.4 | 16.9 | 12.0 | 18.8 | 7.4 | **36.8** |
| Misc./CP Upper Confidence Limit* % | 16.0 | 16.8 | 24.3 | 38.5 | 42.4 | 54.3 | 54.0 | 64.9 | 70.8 | **21.3** |
| Misc./CP % | **14.8** | **16.0** | **23.4** | **34.9** | **38.1** | **48.7** | **46.3** | **53.8** | **54.3** | **20.8** |
| Misc./CP Lower Confidence Limit* % | 13.5 | 15.2 | 22.5 | 31.4 | 33.7 | 43.0 | 38.5 | 42.8 | 37.8 | **20.3** |
| Births/ET Upper Confidence Limit* % | 34.1 | 31.9 | 23.7 | 16.0 | 12.5 | 8.9 | 7.9 | 5.7 | 4.4 | **25.2** |
| Births/ET % | 33.0 | 31.2 | 23.2 | 14.7 | 11.2 | 7.6 | 6.5 | 4.2 | 2.9 | **24.8** |
| Births/ET Lower Confidence Limit* % | 31.9 | 30.6 | 22.7 | 13.4 | 10.0 | 6.3 | 5.1 | 2.7 | 1.5 | **24.6** |

*1) Mean*
** With a 95%-probability, the true mean lies within the defined confidence interval.*

# Pregnancy Rate and Ongoing Pregnancy as a Function of Female Age 2016 – 2020

Prospective Data

## ICSI 2016 – 2020




| | <=24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | >=45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n | 797 | 1,934 | 2,603 | 3,831 | 5,542 | 7,378 | 9,094 | 10,459 | 11,743 | 12,428 | 13,233 | 14,130 | 13,983 | 13,962 | 14,121 | 19,284 | 8,185 | 6,768 | 5,154 | 3,443 | 2,125 | 1,947 | ET |
| % | 40.3 | 39.3 | 42.6 | 40.3 | 42.2 | 40.7 | 41.1 | 39.5 | 39.4 | 38.6 | 37.5 | 35.2 | 34.3 | 32.1 | 29.4 | 26.6 | 22.3 | 20.2 | 15.5 | 11.7 | 9.2 | 5.9 | CP/ET |
| n | 234 | 582 | 868 | 1,218 | 1,843 | 2,347 | 2,874 | 3,216 | 3,583 | 3,627 | 3,744 | 3,729 | 3,456 | 3,150 | 2,805 | 3,267 | 1,057 | 774 | 378 | 177 | 81 | 50 | Birth |

| Alter in Jahren | <= 29 | 30 – 34 | 35 – 39 | 40 | 41 | 42 | 43 | 44 | >=45 | Gesamt |
|---|---|---|---|---|---|---|---|---|---|---|
| OPU | 26,307 | 66,952 | 88,990 | 9,978 | 8,353 | 6,479 | 4,513 | 2,775 | 2,691 | **217,038** |
| Oocytes[1] | 12.4 | 11.2 | 9.0 | 7.3 | 6.7 | 6.3 | 5.8 | 5.2 | 4.7 | **9.7** |
| Insemination[1] | 9.5 | 8.7 | 7.0 | 5.7 | 5.4 | 4.9 | 4.5 | 4.1 | 3.6 | **7.5** |
| Transfer | 22,085 | 56,957 | 75,480 | 8,185 | 6,768 | 5,154 | 3,443 | 2,125 | 1,947 | **182,144** |
| ET/OPU % | 84.0 | 85.1 | 84.8 | 82.0 | 81.0 | 79.5 | 76.3 | 76.6 | 72.4 | **83.9** |
| Trans. Embr.[1] | 1.76 | 1.74 | 1.74 | 1.75 | 1.75 | 1.72 | 1.74 | 1.72 | 1.70 | **1.74** |
| CP | 9,056 | 22,200 | 23,483 | 1,819 | 1,361 | 798 | 400 | 195 | 114 | **59,426** |
| CP/OPU % | 34.4 | 33.2 | 26.4 | 18.2 | 16.3 | 12.3 | 8.9 | 7.0 | 4.2 | **27.4** |
| CP/ET Upper Confidence Limit*% | 41.7 | 39.5 | 31.5 | 23.2 | 21.2 | 16.5 | 12.8 | 10.4 | 6.9 | **32.9** |
| CP/ET % | **41.1** | **39.1** | **31.2** | **22.3** | **20.2** | **15.5** | **11.7** | **9.2** | **5.9** | **32.6** |
| CP/ET Lower Confidence Limit*% | 40.4 | 38.7 | 30.9 | 21.4 | 19.2 | 14.5 | 10.6 | 8.0 | 4.8 | **32.5** |
| CP/ET %: 2 Embr. Transf. + min. 2 2PN Surplus | 45.7 | 44.5 | 38.4 | 29.1 | 28.1 | 23.1 | 16.7 | 18.7 | 16.2 | **40.6** |
| CP/ET %: 1 Embr. Transf. + min. 3 2PN Surplus | 39.8 | 39.9 | 32.7 | 27.5 | 25.2 | 22.0 | 17.8 | 25.3 | 24.5 | **35.9** |
| Misc./CP Upper Confidence Limit*% | 14.8 | 16.9 | 24.3 | 37.3 | 38.6 | 50.8 | 51.9 | 58.8 | 53.0 | **21.1** |
| Misc./CP % | **14.1** | **16.4** | **23.7** | **35.1** | **36.1** | **47.4** | **47.0** | **51.8** | **43.9** | **20.8** |
| Misc./CP Lower Confidence Limit*% | 13.3 | 15.9 | 23.2 | 32.9 | 33.5 | 43.9 | 42.1 | 44.8 | 34.8 | **20.4** |
| Births/ET Upper Confidence Limit*% | 32.8 | 30.4 | 22.1 | 13.7 | 12.2 | 8.1 | 5.9 | 4.6 | 3.3 | **23.9** |
| Births/ET % | 32.2 | 30.0 | 21.8 | 13.0 | 11.5 | 7.3 | 5.2 | 3.8 | 2.6 | **23.6** |
| Births/ET Lower Confidence Limit*% | 31.6 | 29.6 | 21.5 | 12.2 | 10.7 | 6.6 | 4.4 | 3.0 | 1.9 | **23.5** |

*1) Mean*
** With a 95%-probability, the true mean lies within the defined confidence interval.*

# Results IVF, ICSI (COHS) and IVF and ICSI in Natural Cycles 2020

Prospective Data

## IVF 2020

| | n | % | Fertilization % | Embryo % | Transfer % | Clin. Preg. % |
|---|---|---|---|---|---|---|
| Performed ICSI Treatm. | 17,650 | 100.0 | | | | |
| Successful Fertilization* | 16,153 | 91.5 | 100.0 | | | |
| Freeze All Oozyte Culture | 1,473 | 8.3 | 9.1 | | | |
| Minimum 1 Embryo** | 14,685 | 90.8 | 100.0 | 100.0 | | |
| ET Performed** | 14,161 | 80.2 | 87.7 | 96.4 | 100.0 | |
| Clin. Pregnancy | 4,780 | **27.1** | 29.6 | 32.6 | **33.8** | 100.0 |
| Birth | 3,452 | **19.6** | **21.4** | **23.5** | **24.4** | **72.2** |
| Miscarriage | 1,025 | | | | | 21.4 |
| Ectopic Pregnancy | 77 | | | | | 1.6 |
| Not Yet Recorded | 226 | | | | | 4.7 |

## ICSI 2020

| | n | % | Fertilisation % | Embryo vorh.% | Transfer % | Klin. SS % |
|---|---|---|---|---|---|---|
| Performed ICSI Treatm. | 43,783 | 100.0 | | | | |
| Successful Fertilization* | 40,955 | 93.5 | 100.0 | | | |
| Freeze All Oozyte Culture | 3,831 | 8.7 | 9.4 | | | |
| Minimum 1 Embryo** | 37,067 | 92.8 | 99.8 | 100.0 | | |
| ET Performed** | 35,175 | 80.3 | 85.9 | 94.9 | 100.0 | |
| Clin. Pregnancy | 11,376 | **26.0** | 27.8 | 30.7 | **32.3** | 100.0 |
| Birth | 8,224 | **18.8** | **20.1** | **22.2** | **23.4** | **72.3** |
| Miscarriage | 2,456 | | | | | 21.6 |
| Ectopic Pregnancy | 132 | | | | | 1.2 |
| Not Yet Recorded | 564 | | | | | 5.0 |

## IVF and ICSI in Natural Cycles 2020**

| | n | % | Behandlung % | Fertilisation % | Embryo vorh. % | Transfer % | Klin. SS % |
|---|---|---|---|---|---|---|---|
| Started Cycles | 2,530 | 100.0 | | | | | |
| No Oocyte Treatment | 799 | 31.6 | | | | | |
| Treatm. in Natural Cycles*** | 1,731 | 68.4 | 100.0 | | | | |
| ø Oocytes Retrieved | 2,32 | | | | | | |
| Successful Fertilization* | 1,376 | 54.4 | 79.5 | 100.0 | | | |
| Freeze All Oozyte Culture | 96 | 3.8 | 5.5 | 7.0 | | | |
| Minimum 1 Embryo** | 1,265 | 52.0 | 77.4 | 98.8 | 100.0 | | |
| ET Performed** | 1,223 | 50.2 | 74.8 | 95.5 | 96.7 | 100.0 | |
| Clin. Pregnancy | 269 | **10.6** | **15.5** | 19.5 | 21.3 | **22.0** | 100.0 |
| Birth | 183 | **7.2** | **10.6** | **13.3** | **14.5** | **15.0** | **68.0** |
| Miscarriage | 66 | | | | | | 24.5 |
| Ectopic Pregnancy | 4 | | | | | | 1.5 |
| Not Yet Recorded | 16 | | | | | | 5.9 |

**) Successful fertilization of at least one oocyte per cycle.*
***) %-rates adjusted by freeze all oocytes culture.*
****) Evaluation for "Treatment without COHS" if "Yes, without any ovarian stimulation" or "Yes, with mild ovarian stimulation (e.g. with CC, letrozole, low dose FSH/HMG)" was documented manually.*

# Results of Thawing-Cycles, TESE, IVF and ICSI with Donor Semen 2020

Prospective Data

## Cryo Transfer Cycles 2020

| | n | % | PN/Embryo % | Transfer % | Clin. Preg. % |
|---|---|---|---|---|---|
| Cryo Transfer Cycles | 32,365 | 100.0 | | | |
| Thawed PN/Embryo | 31,924 | 98.6 | 100.0 | | |
| ET Performed | 30,832 | 95.3 | 96.6 | 100.0 | |
| Clin. Pregnancy | 9,295 | 28.7 | 29.1 | **30.1** | 100.0 |
| Birth | 6,538 | **20.2** | **20.5** | **21.2** | **70.3** |
| Miscarriage | 2,171 | | | | 23.4 |
| Ectopic Pregnancy | 99 | | | | 1.1 |
| Not Yet Recorded | 487 | | | | 5.2 |

## TESE 2020

| | n | % | Fertilization % | Embryo % | Transfer % | Clin. Preg. % |
|---|---|---|---|---|---|---|
| Perf. ICSI/TESE Treatm. | 2,089 | 100.0 | | | | |
| Successful Fertilization* | 1,897 | 90.8 | 100.0 | | | |
| Freeze All Oozyte Culture | 211 | 10.1 | 11.1 | | | |
| Minimum 1 Embryo** | 1,653 | 88.0 | 98.0 | 100.0 | | |
| ET Performed** | 1,548 | 74.1 | 81.6 | 93.6 | 100.0 | |
| Clin. Pregnancy | 483 | 23.1 | 25.5 | 29.2 | **31.2** | 100.0 |
| Birth | 357 | **17.1** | **18.8** | **21.6** | **23.1** | **73.9** |
| Miscarriage | 99 | | | | | 20.5 |
| Ectopic Pregnancy | 7 | | | | | 1.4 |
| Not Yet Recorded | 20 | | | | | 4.1 |

## IVF and ICSI with Donor Semen 2020

| | n | % | Fertilization % | Embryo % | Transfer % | Clin. Preg. % |
|---|---|---|---|---|---|---|
| ART-Treatm. (donor sperm) | 1,861 | 100.0 | | | | |
| Successful Fertilization* | 1,788 | 96.1 | 100.0 | | | |
| Freeze All Oozyte Culture | 159 | 8.5 | 8.9 | | | |
| Minimum 1 Embryo** | 1,629 | 95.7 | 100.0 | 100.0 | | |
| ET Performed** | 1,556 | 83.6 | 87.0 | 95.5 | 100.0 | |
| Clin. Pregnancy | 547 | 29.4 | 30.6 | 33.6 | **35.2** | 100.0 |
| Birth | 405 | **21.8** | **22.7** | **24.9** | **26.0** | **74.0** |
| Miscarriage | 126 | | | | | 23.0 |
| Ectopic Pregnancy | 4 | | | | | 0.7 |
| Not Yet Recorded | 12 | | | | | 2.2 |

**) Successful fertilization of at least one oocyte per cycle.*
***) %-rates up to fertilization adjusted by freeze all oocytes culture.*

# Culture According to the "German Middle Way" and Impact on Therapy Outcome – Fresh Cycles 2020

## Prospective and Retrospective Data

Number of centers choosing >=3 x 2PN for extended culture: n=128

**Oocyte Treatment (All) - Culture >= 3 x 2PN**
28,139

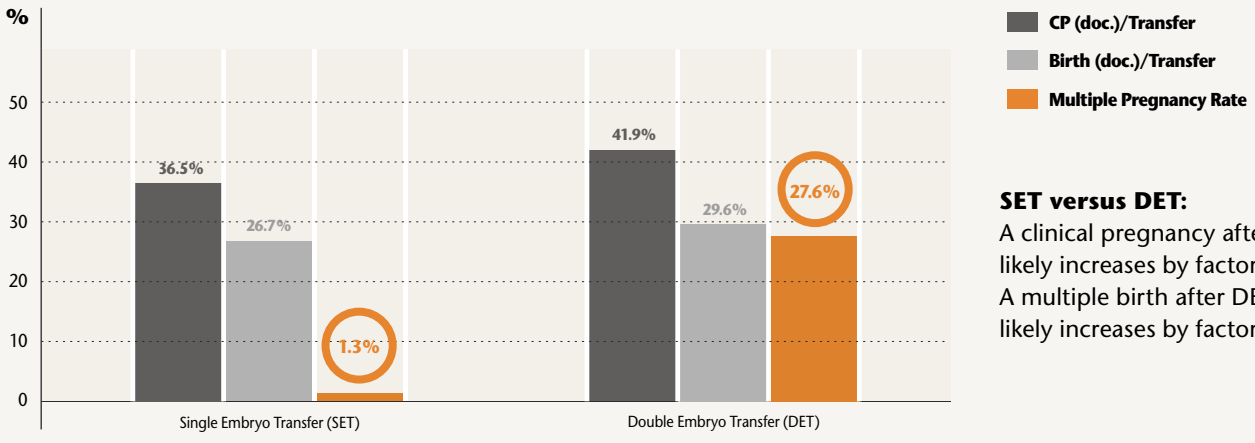
**Oocyte Treatment - Culture >= 3 x 2PN for Transfer on Day 4-6**
20,191

| | Number of Transfer Cycles with SET Day 4-6<br>8,934 Mean age woman: 34.5 | Number of Transfer Cycles with DET Day 4-6<br>10,742 Mean age woman: 35.2 |
|---|---|---|
| CP/ET (doc. and outcome known)* | 3,242 **36.5%** | 4,484 **41.9%** |
| Outcome unknown | 40 **0.4%** | 30 **0.3%** |
| Miscarriage | 685 21.1% | 956 21.3% |
| EP | 41 1.3% | 67 1.0% |
| Not yet Recorded | 135 4.2% | 276 4.2% |
| **Birth (doc.)** | **2,381** per Transfer **73.4%** 26.7% | **3,185** per Transfer **71.0%** 29.6% |

| Births | n | % | n | % |
|---|---|---|---|---|
| Singletons | 2,350 | 98.7 | 2,306 | 72.4 |
| Twins | 31 | 1.3 | 856 | 26.9 |
| Triplets | 0 | 0.0 | 22 | 0.7 |
| Quadruplets | 0 | 0.0 | 1 | 0.0 |
| **Multiple Pregnancy Rate** | **1.3%** | | **27.6%** | |

**) please note: documented clinical pregnancies (9,660) per transfer with outcome known (33,522) on other days than 4-6 (35,916): 28.8%*

# Comparison SET and DET "German Middle Way" Fresh Cycles 2020




**SET versus DET:**
A clinical pregnancy after DET likely increases by factor 1.15.
A multiple birth after DET likely increases by factor 21.2.

# Culture According to the "German Middle Way" and Impact on Therapy Outcome – Thawing Cycles Embryos 2020

## Prospective and Retrospective Data

Number of centers transfering previously cryopreserved embryos: n=129

**Thawing total**
33,560

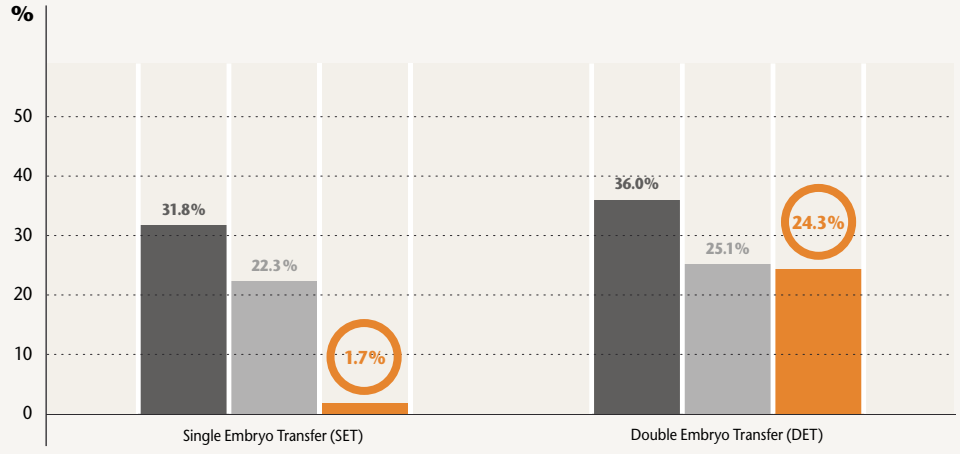
**Thawing Embryos**
12,897

| | Transfer Single ET | Transfer Double ET |
|---|---|---|
| | 9,405 | 3,085 |
| CP/ET (doc. and outcome known) | 2,982 (31.8%) | 1,106 (36.0%) |
| Outcome unknown | 32 (0.3%) | 13 (0.4%) |
| Miscarriage | 705 (23.6%) | 240 (21.7%) |
| EP | 20 (0.7%) | 11 (1.0%) |
| Not yet Recorded | 157 (5.3%) | 80 (7.2%) |
| Birth (doc.) | 2,100 (70.4%) | 775 (70.1%) |
| per Transfer | 22.3% | 25.1% |

| Births | n | % | n | % |
|---|---|---|---|---|
| Singletons | 2,064 | 98.3 | 535 | 73.2 |
| Twins | 36 | 1,7 | 192 | 26.3 |
| Triplets | 0 | 0.0 | 4 | 0.5 |
| Quadruplets | 0 | 0.0 | 0 | 0.0 |
| Multiple Pregnancy Rate | | 1.7% | | 24.3% |

*Compared to thawing 2PNs:*
*Documented clinical pregnancies (5,430) / transfers with outcome known (19,068): 28.4%*
*- thereof day of transfer 2/3: documented clinical pregnancies (2,247) / transfers with outcome known (9,922): 22.6%*
*- thereof day of transfer 5/6: documented clinical pregnancies (2,803) / transfers with outcome known (7,735): 36.2%*
*- 1,411 transfers with 380 clinical pregnancies could not be allocated clearly*

# Comparison SET and DET "German Middle Way" Thawing Cycles Embryos 2020




**SET versus DET:**
A clinical pregnance after DET likely increases by factor 1,13.
A multiple birth after DET likely increases by factor 14,2.

# Pregnancies Cumulative 2018 – 2020 as a Function of Female Age

## IVF, ICSI, Cryo Cycles – Prospective Data

| Age Groups <= 29 | Retrievals | CP (Fresh Cycles) | CP (Fresh Cycles) in % | Cryo Cycle w. Transfer | CP (Cryo Cycles) | CP/ET (Cryo Cycles) in % | Cum. CP | Cumulative Pregnancy Rate in % |
|---|---|---|---|---|---|---|---|---|
| 1. Transfer | 12,548 | 5,313 | 42.3 | 2,529 | 927 | 36.7 | 6,240 | **41.4** |
| 2. Transfer | 4,010 | 1,602 | 40.0 | 4,833 | 1,637 | 33.9 | 9,479 | **62.9** |
| 3. Transfer | 1,846 | 682 | 36.9 | 2,699 | 879 | 32.6 | 11,040 | **73.2** |
| 4. Transfer | 873 | 322 | 36.9 | 1,372 | 461 | 33.6 | 11,823 | **78.4** |
| >4 Transfers | 507 | 241 | 47.5 | 841 | 387 | 46.0 | 12,451 | **82.6** |

| Age Groups 30-34 | Retrievals | CP (Fresh Cycles) | CP (Fresh Cycles) in % | Cryo Cycle w. Transfer | CP (Cryo Cycles) | CP/ET (Cryo Cycles) in % | Cum. CP | Cumulative Pregnancy Rate in % |
|---|---|---|---|---|---|---|---|---|
| 1. Transfer | 30,848 | 12,434 | 40.3 | 6,704 | 2,530 | 37.7 | 14,964 | **39.8** |
| 2. Transfer | 10,245 | 3,836 | 37.4 | 12,032 | 3,999 | 33.2 | 22,799 | **60.7** |
| 3. Transfer | 5,367 | 1,933 | 36.0 | 6,956 | 2,147 | 30.9 | 26,879 | **71.6** |
| 4. Transfer | 2,628 | 917 | 34.9 | 3,718 | 1,093 | 29.4 | 28,889 | **76.9** |
| >4 Transfers | 1,756 | 730 | 41.6 | 2,467 | 1,135 | 46.0 | 30,754 | **81.9** |

| Age Groups 35-39 | Retrievals | CP (Fresh Cycles) | CP (Fresh Cycles) in % | Cryo Cycle w. Transfer | CP (Cryo Cycles) | CP/ET (Cryo Cycles) in % | Cum. CP | Cumulative Pregnancy Rate in % |
|---|---|---|---|---|---|---|---|---|
| 1. Transfer | 35,822 | 11,611 | 32.4 | 6,776 | 2,222 | 32.8 | 13,833 | **32.5** |
| 2. Transfer | 14,147 | 4,112 | 29.1 | 11,199 | 3,275 | 29.2 | 21,220 | **49.8** |
| 3. Transfer | 7,735 | 2,194 | 28.4 | 6,455 | 1,736 | 26.9 | 25,150 | **59.0** |
| 4. Transfer | 3,612 | 980 | 27.1 | 3,709 | 962 | 25.9 | 27,092 | **63.6** |
| >4 Transfers | 2,344 | 911 | 38.9 | 2,603 | 1,044 | 40.1 | 29,047 | **68.2** |

| Age Groups >= 40 | Retrievals | CP (Fresh Cycles) | CP (Fresh Cycles) in % | Cryo Cycle w. Transfer | CP (Cryo Cycles) | CP/ET (Cryo Cycles) in % | Cum. CP | Cumulative Pregnancy Rate in % |
|---|---|---|---|---|---|---|---|---|
| 1. Transfer | 11,018 | 1,873 | 17.0 | 2,575 | 596 | 23.1 | 2,469 | **18.2** |
| 2. Transfer | 4,402 | 691 | 15.7 | 2,583 | 474 | 18.4 | 3,634 | **26.7** |
| 3. Transfer | 2,276 | 376 | 16.5 | 1,435 | 229 | 16.0 | 4,239 | **31.2** |
| 4. Transfer | 1,152 | 175 | 15.2 | 732 | 113 | 15.4 | 4,527 | **33.3** |
| >4 Transfers | 702 | 156 | 22.2 | 540 | 138 | 25.6 | 4,821 | **35.5** |

As we did for the first time last year, we present cumulative chances after several cycles depending on age. Patients under 34 years of age have over an 80 % chance of becoming pregnant after five transfers.

In patients between 35 and 39 years of age, 7 out of 10 patients achieve pregnancy after five cycles.

In patients aged 40 and over, the chances increase to "only" a good 35 %. So even in a cumulative view, the age of our patients plays a decisive role.

These figures can help assess the chances during counselling.

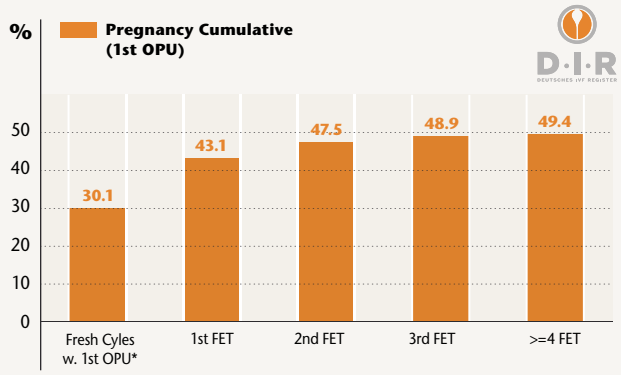
# Live Births Cumulative 2018 – 2020 Based on First OPU

## IVF, ICSI, Cryo Cycles – Prospective Data

This evaluation presents cumulative probability of having a child per puncture for the first time. In previous years, this was only calculated on pregnancies.

After first puncture, the chance of birth in Germany is just over 30%. Subsequent thawing transfers can increase birth rate to 50%.

And this is after only one puncture for oocyte retrieval!




| 2017 – 2019 (Total) | 1st OPU* | Cryo Cycles Based on 1st OPU | Live Births | Live Births/OPU / Live Births/FET (%) | Live Births Cumulative | Live Births/OPU Cumulative (%) |
|---|---|---|---|---|---|---|
| Fresh Cyles with 1st OPU* | 30,779 | | 9,271 | 30.1 | 9,271 | **30.1** |
| 1st Transfer (FET) | | 19,940 | 3,988 | 20.0 | 13,259 | **43.1** |
| 2nd Transfer (FET) | | 7,947 | 1,365 | 17.2 | 14,624 | **47.5** |
| 3rd Transfer (FET) | | 2,780 | 417 | 15.0 | 15,041 | **48.9** |
| >= 4 Transfers (FET) | | 970 | 174 | 17.9 | 15,215 | **49.4** |

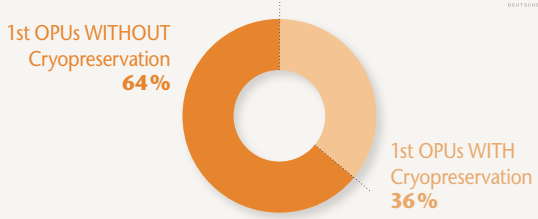
| 1st OPU 2017 | 1st OPU* | Cryo Cycles Based on 1st OPU | Live Births | Live Births/OPU / Live Births/FET (%) | Live Births Cumulative | Live Births/OPU Cumulative (%) |
|---|---|---|---|---|---|---|
| Fresh Cyles with 1st OPU* | 10,234 | | 3,068 | 30.0 | 3,068 | **30.0** |
| 1st Transfer (FET) | | 6,925 | 1,467 | 21.2 | 4,535 | **44.3** |
| 2nd Transfer (FET) | | 2,805 | 513 | 18.3 | 5,048 | **49.3** |
| 3rd Transfer (FET) | | 1,010 | 158 | 15.6 | 5,206 | **50.9** |
| >= 4 Transfers (FET) | | 383 | 86 | 22.5 | 5,292 | **51.7** |

| 1st OPU 2018 | 1st OPU* | Cryo Cycles Based on 1st OPU | Live Births | Live Births/OPU / Live Births/FET (%) | Live Births Cumulative | Live Births/OPU Cumulative (%) |
|---|---|---|---|---|---|---|
| Fresh Cyles with 1st OPU* | 10,339 | | 3,167 | 30.6 | 3,167 | **30.6** |
| 1st Transfer (FET) | | 6,672 | 1,332 | 20.0 | 4,499 | **43.5** |
| 2nd Transfer (FET) | | 2,629 | 463 | 17.6 | 4,962 | **48.0** |
| 3rd Transfer (FET) | | 909 | 143 | 15.7 | 5,105 | **49.4** |
| >= 4 Transfers (FET) | | 300 | 58 | 19.3 | 5,163 | **49.9** |

| 1st OPU 2019 | 1st OPU* | Cryo Cycles Based on 1st OPU | Live Births | Live Births/OPU / Live Births/FET (%) | Live Births Cumulative | Live Births/OPU Cumulative (%) |
|---|---|---|---|---|---|---|
| Fresh Cyles with 1st OPU* | 10,206 | | 3,036 | 29.7 | 3,036 | **29.7** |
| 1st Transfer (FET) | | 6,343 | 1,189 | 18.7 | 4,225 | **41.4** |
| 2nd Transfer (FET) | | 2,513 | 389 | 15.5 | 4,614 | **45.2** |
| 3rd Transfer (FET) | | 861 | 116 | 13.5 | 4,730 | **46.3** |
| >= 4 Transfers (FET) | | 287 | 30 | 10.5 | 4,760 | **46.6** |

**) Cycles without fresh transfer (freeze all) and cycles without cryopreservation were excluded. Sample sizes: 1st OPU = 97,137; 1st OPU without freeze all = 86,168; Cycles without cryopreservation = 55,389; Cycles with Cryopreservation = 30,779.*

## 1st OPU without Freeze All: Ratio Cycles with and without Cryopreservation




Only about 1/3 of all first follicle punctures are frozen at all. This is undoubtedly partly because the statutory health insurance funds do not cover the costs.

It would therefore be desirable if more patients took advantage of this option. Then, patients could benefit even more from additional opportunities offered by freezing and thawing. We assume that single embryo transfer will also lead to increased freezing in the future. According to the motto: 1 plus 1 is better than 2 plus 0!

# Positive Pregnancy Outcomes 2020

IVF, ICSI – Prospective and Retrospective Data

| | Fresh Cycles | | Cryo Cycles | |
|---|---|---|---|---|
| | n | % | n | % |
| Clinical Pregnancies | 17,386 | 100.0 | 9,614 | 100.0 |
| Outcome documented | 17,171 | 98.8 | 9,462 | 98.4 |
| Transfer | 53,343 | | 31,974 | |
| Births | 12,503 | | 6,748 | |
| Life-Birth-Rate/Birth | 12,476 | 99.8 | 6,736 | 99.8 |
| Life-Birth-Rate/ET | 12,476 | 23.4 | 6,736 | 21.1 |
| **SET Good Prognosis Patient*** | | | | |
| Number of Transfers | 2,030 | | | |
| Life-Birth-Rate/ET | 630 | 31.0 | | |
| Multiple Pregnancies | 6 | 1.0 | | |
| **DET Good Prognosis Patient*** | | | | |
| Number of Transfers | 3,056 | | | |
| Life-Birth-Rate/ET | 1,119 | 36.6 | | |
| Number of Multiple Births | 339 | 30.3 | | |

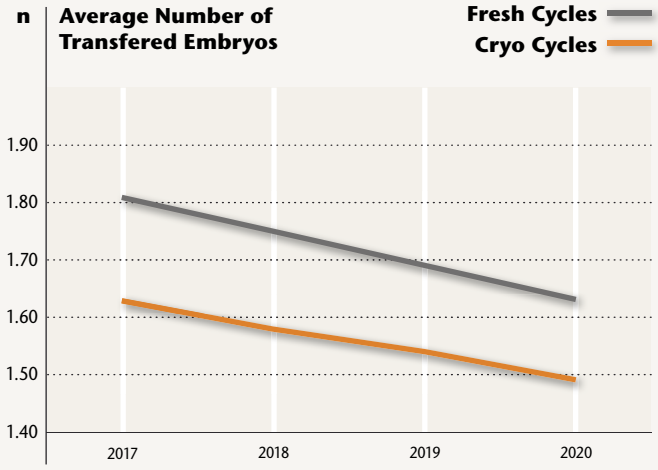
# Loss of Pregnancy 2020

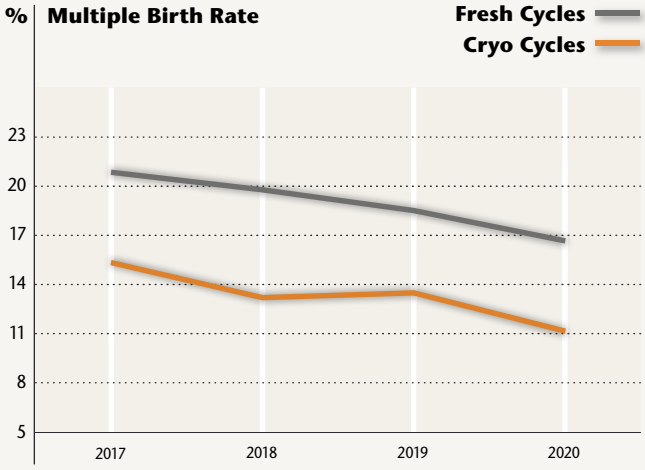
Prospective and Retrospective Data

| | Fresh Cycles | | Cryo Cycles | |
|---|---|---|---|---|
| | n | % | n | % |
| Clinical Pregnancies | 17,386 | 100.0 | 9,614 | 100.0 |
| Treatments with Known Cycle Outcome | 17,171 | 98.8 | 9,462 | 98.4 |
| Miscarriages | 3,761 | 21.8 | 2,226 | 23.2 |
| Among those: Induced Abortions | 247 | 6.6 | 111 | 5.0 |
| Stillbirths | 27 | 0.2 | 12 | 0.1 |

# Embryos per Transfer[1] and Multiple Birth Rate 1997 – 2020

IVF, ICSI, Cryo – Prospective and Retrospective Data




| | | 1997 | [ ... ] | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|
| **Fresh Cycles** | ø Number of Transf. Embryos | 2.56 | *For values from 1998 to 2016 see www.deutsches-ivf-register.de* | 1.81 | 1.75 | 1.69 | 1.63 |
| | Multiple Birth Rate | 25.2 | | 20.9 | 19.8 | 18.5 | 16.6 |
| **Cryo Cycles** | ø Number of Transf. Embryos | 2.34 | | 1.63 | 1.58 | 1.54 | 1.49 |
| | Multiple Birth Rate | 11.6 | | 15.4 | 13.2 | 13.5 | 11.1 |

In recent years there has been a significant reduction in the multiple birth rate. This is thanks to the fact that many centers have successively reduced the number of embryos per transfer. The single embryo transfer has become increasingly widespread in Germany.

*) Good prognosis patient in D·I·R: age <=35, fresh cycle, 1st cycle, oocytes retrieved >=8, 2PNs >=5, sperm collection anterograde
1) Mean

# Oocyte Maturity Depending on Stimulation Protocol 2021

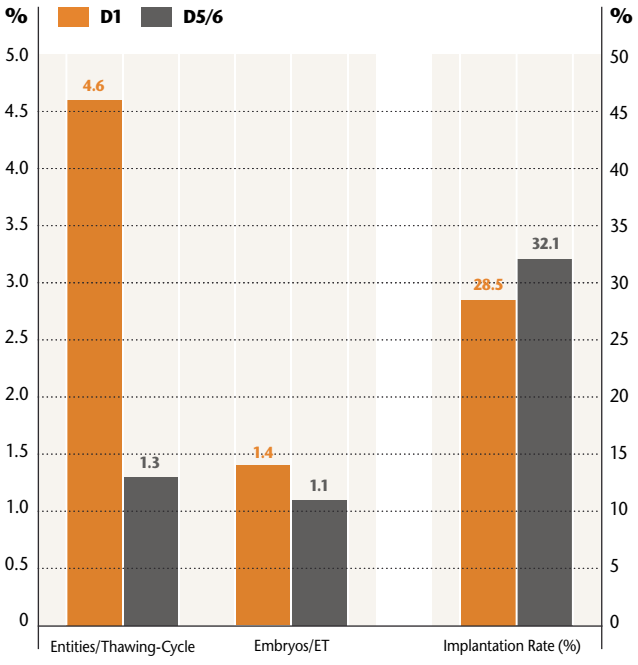
ICSI – Prospective and Retrospective Data

| | OPU with Oocytes Maturity known | Mean Age | Oocytes Retrieved | Ooc. per Retrieval | Mature Oocytes | Mature Ooc. per Retrieval | 2PN | 2PN/ Oocyte Retrieval | Embryos for ET | Gestational Sacs | Implant. Rate (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Agonist | 7,355 | 36.0 | 65,527 | **8.9** | 47,902 | **6.5** | 31,653 | **4.3** | 9,713 | 2,152 | **22.2** |
| Antagonist | 34,272 | 35.2 | 331,325 | **9.7** | 243,393 | **7.1** | 163,962 | **4.8** | 41,281 | 9,599 | **23.3** |

# Cycles and Implantation-Rates with Transfer of Day 5/6 Embryos after Cryopreservation either on Culture Day 1 or Day 5/6 2021

Thawing – Prospective and Retrospective Data

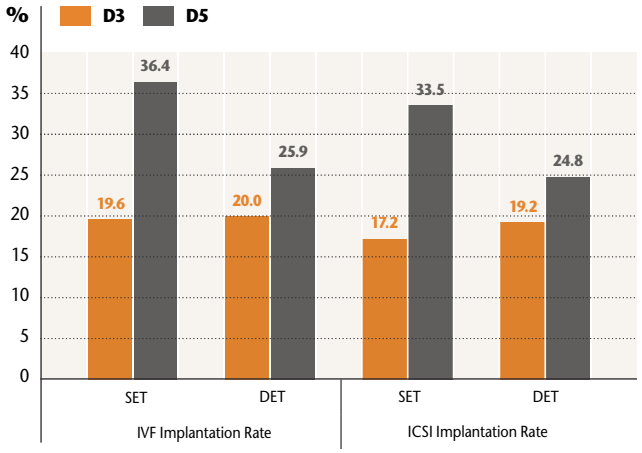
| | Freezing on Culture D1 | Freezing on Culture D5/6 |
|---|---|---|
| Thawing-Cycles resulting in ET | 8,545 | 12,538 |
| PN/Embryos Thawed | 38,963 | 15,820 |
| **Entities/Thawing-Cycle** | **4.6** | **1.3** |
| Re-Cryo of Embryos | 3,025 | 24 |
| Embryos Available for Transfer | 12,331 | 13,794 |
| Re-Cryo/Cycle | 0.4 | 0.0 |
| Transfer | 8,545 | 12,538 |
| Gestational Sacs (Intrauterine) | 3,516 | 4,421 |
| **Embryos/ET** | **1.4** | **1.1** |
| **Implantation Rate (%)** | **28.5** | **32.1** |



# Implantation Rates of D3- and D5-Embryos on Number of Embryos per Transfer 2021

IVF, ICSI – Prospective and Retrospective Data

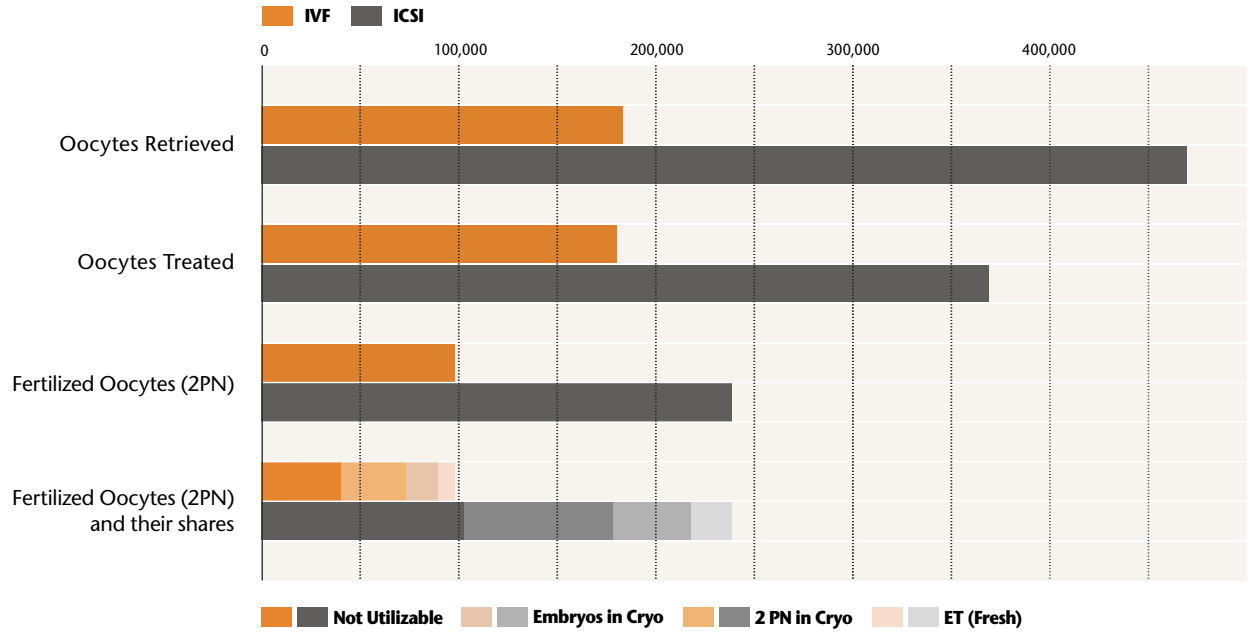
| | | D3 | D5 |
|---|---|---|---|
| IVF | **SET ImplRate %** | 19.6 | 36.4 |
| | SET ø Age Woman | 36.0 | 34.9 |
| | **DET ImplRate %** | 20.0 | 25.9 |
| | DET ø Age Woman | 35.5 | 35.8 |
| ICSI | **SET ImplRate %** | 17.2 | 33.5 |
| | SET ø Age Woman | 36.3 | 34.7 |
| | **DET ImplRate %** | 19.2 | 24.8 |
| | DET ø Age Woman | 35.3 | 35.4 |




# Evolution of Retrieved Oocytes (IVF or ICSI) 2021

IVF, ICSI – Prospective and Retrospective Data

| | IVF | % | | ICSI | % | |
|---|---|---|---|---|---|---|
| Oocytes Retrieved | 183,130 | 100.0 | | 469,415 | 100.0 | |
| Oocytes Treated | 180,313 | 98.5 | 100.0 | 368,986 | 78.6 | 100.0 |
| Fertilized Oocytes (2PN) | 98,159 | 53.6 | 54.4 | 238,532 | 50.8 | 64.6 |
| 2PN Cryopreserved | 33,180 | | 33.8 | 75,516 | | 31.7 |
| ET (Fresh) | 16,499 | | 16.8 | 39,743 | | 16.7 |
| Embryos Cryopreserved | 8,252 | | 8.4 | 20,591 | | 8.6 |



# Clinical Pregnancies (CP)/Fresh Transfer as a Function of Embryo Quality 2021

IVF, ICSI, IVF/ICSI – Prospective Data

| Quality | | <= 29 Years | | 30 – 34 Years | | 35 – 39 Years | | >= 40 Years | | Total* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ideal | Not Ideal | ET | CP/ET % | ET | CP/ET % | ET | CP/ET % | ET | CP/ET % | ET | CP/ET % |
| 0 | 1 | 331 | 17.5 | 1,190 | 15.5 | 1,748 | 11.5 | 827 | 6.2 | 4,096 | 12.1 |
| 0 | 2 | 295 | 27.6 | 912 | 23.7 | 1,365 | 19.0 | 539 | 12.3 | 3,111 | 20.0 |
| 0 | 3 | 1 | 0.0 | 13 | 23.1 | 23 | 13.0 | 23 | 4.3 | 60 | 11.7 |
| 1 | 0 | 2,147 | 38.8 | 6,456 | 37.8 | 8,514 | 29.2 | 3,405 | 15.3 | 20,522 | 30.6 |
| 1 | 1 | 366 | 40.2 | 1,262 | 37.8 | 1,751 | 28.9 | 746 | 17.8 | 4,125 | 30.6 |
| 1 | 2 | 2 | 50.0 | 11 | 27.3 | 31 | 22.6 | 37 | 5.6 | 81 | 16.3 |
| 2 | 0 | 2,032 | 48.9 | 6,123 | 46.3 | 8,409 | 39.2 | 3,183 | 23.0 | 19,747 | 39.8 |
| 2 | 1 | 4 | 25.0 | 21 | 30.0 | 61 | 33.8 | 59 | 16.9 | 145 | 26.9 |
| 3 | 0 | 9 | 25.0 | 66 | 33.8 | 164 | 29.3 | 228 | 20.5 | 467 | 25.6 |
| **Total*** | | **5,190** | **40.8** | **16,058** | **38.6** | **22,086** | **30.9** | **9,059** | **17.3** | **52,393** | **31.9** |

**) 39 transfers could not be allocated.*

# Clinical Pregnancies (CP)/Frozen Transfer as a Function of Embryo Quality 2021

Cryo Transfer – Prospective Data

| Quality | | IVF | | ICSI | |
|---|---|---|---|---|---|
| ideal | Not Ideal | ET | CP/ET % | ET | CP/ET % |
| 0 | 1 | 569 | 15.8 | 1,334 | 14.7 |
| 0 | 2 | 430 | 18.1 | 1,125 | 19.2 |
| 0 | 3 | 18 | 5.6 | 38 | 18.4 |
| 1 | 0 | 5,449 | 30.7 | 11,986 | 32.4 |
| 1 | 1 | 626 | 29.7 | 1,515 | 28.6 |
| 1 | 2 | 14 | 7.1 | 42 | 29.3 |
| 2 | 0 | 2,905 | 36.3 | 6,584 | 34.1 |
| 2 | 1 | 20 | 15.8 | 60 | 13.3 |
| 3 | 0 | 76 | 28.9 | 164 | 35.6 |
| **Total**** | | **10,137** | **30.7** | **22,958** | **30.8** |

***) 140 transfers could not be allocated.*

# Children as a Function of Week of Gestation (WoG) and Birth Weight (BW) 2020

Prospective and Retrospective Data

## IVF, ICSI, IVF/ICSI

| Current WoG | 20 - 26 | | 27 - 31 | | 32 - 37 | | 38 - 41 | | >= 42 | | Total | % of total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Singletons** (n and %) | 46 | 0.5 | 124 | 1.3 | 1,539 | 16.2 | 7,669 | 80.6 | 136 | 1.4 | **9,514** | **73.2** |
| Average Birth Weight (g) | 673 | | 1,346 | | 2,765 | | 3,416 | | 3,567 | | **3,273** | |
| **Twins** (n and %) | 82 | 2.3 | 338 | 9.3 | 2,582 | 71.4 | 618 | 17.1 | 4 | 0.1 | **3,618** | **27.8** |
| Average Birth Weight (g) | 704 | | 1,372 | | 2,395 | | 2,805 | | 2,910 | | **2,333** | |
| **Triplets** (n and %) | 18 | 17.1 | 24 | 22.9 | 63 | 60.0 | - | - | - | - | **105** | **0.8** |
| Average Birth Weight (g) | 778 | | 1,424 | | 1,832 | | - | | - | | **1,556** | |

Percentage of preterm deliveries in singleton pregnancies is 18.0%.
Percentage of preterm deliveries in twin pregnancies is 83.0%.
Percentage of preterm deliveries in triplets pregnancies is 100.0%.

## Cryo Transfer

| Current WoG | 20 - 26 | | 27 - 31 | | 32 - 37 | | 38 - 41 | | >= 42 | | Total | % of total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Singletons** (n and %) | 28 | 0.5 | 50 | 0.9 | 756 | 13.9 | 4,448 | 81.8 | 156 | 2.9 | **5,438** | **90.3** |
| Average Birth Weight (g) | 654 | | 1,242 | | 2,866 | | 3,555 | | 3,694 | | **3,427** | |
| **Twins** (n and %) | 30 | 2.3 | 60 | 4.6 | 928 | 71.6 | 274 | 21.1 | 4 | 0.3 | **1,296** | **21.5** |
| Average Birth Weight (g) | 698 | | 1,364 | | 2,487 | | 2,899 | | 3,173 | | **2,486** | |
| **Triplets** (n and %) | - | - | 15 | 35.7 | 24 | 57.1 | 3 | 7.1 | - | - | **42** | **0.7** |
| Average Birth Weight (g) | - | | 1,407 | | 2,072 | | 3,473 | | - | | **1,931** | |

Percentage of preterm deliveries in singleton pregnancies is 15.3%.
Percentage of preterm deliveries in twin pregnancies is 78.5%.
Percentage of preterm deliveries in triplets pregnancies is 92.9%.

# Children Born 1997 – 2020

Prospective and Retrospective Data

## Total (IVF, ICSI, IVF/ICSI, Cryo Transfer)

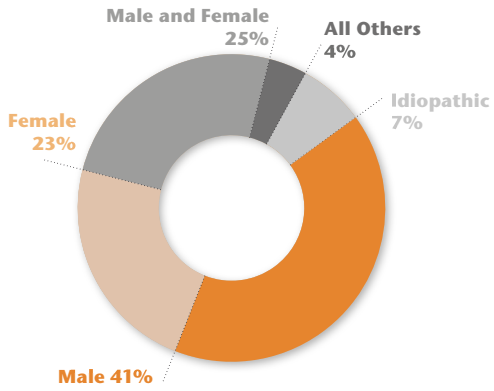
| | Singletons | | Twins | | Triplets | | Quadruplets | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n |
| **1997** | 4,175 | 58.7 | 1,902 | 32.8 | 492 | 8.4 | 8 | 0.1 | 6,577 |
| **1998** | 5,357 | 58.2 | 3,152 | 34.2 | 702 | 7.6 | 0 | - | 9,211 |
| **1999** | 6,116 | 60.5 | 3,396 | 33.6 | 600 | 5.9 | 4 | 0.0 | 10,116 |
| **2000** | 6,143 | 60.5 | 3,504 | 34.5 | 507 | 5.0 | 4 | 0.0 | 10,158 |
| **2001** | 7,726 | 62.2 | 4,252 | 34.3 | 435 | 3.5 | 0 | - | 12,413 |
| **2002** | 8,930 | 63.8 | 4,662 | 33.3 | 387 | 2.8 | 8 | 0.1 | 13,987 |
| **2003** | 11,922 | 63.1 | 6,334 | 33.6 | 597 | 3.2 | 24 | 0.1 | 18,877 |
| **2004** | 6,891 | 65.6 | 3,336 | 31.8 | 273 | 2.6 | 0 | - | 10,500 |
| **2005** | 7,038 | 65.8 | 3,440 | 32.1 | 213 | 2.0 | 12 | 0.1 | 10,703 |
| **2006** | 7,419 | 66.9 | 3,450 | 31.1 | 222 | 2.0 | 4 | 0.0 | 11,095 |
| **2007** | 8,407 | 66.4 | 4,076 | 32.2 | 183 | 1.4 | 4 | 0.0 | 12,670 |
| **2008** | 8,444 | 65.7 | 4,142 | 32.3 | 240 | 1.9 | 8 | 0.1 | 12,834 |
| **2009** | 9,016 | 67.3 | 4,152 | 31.0 | 216 | 1.6 | 8 | 0.1 | 13,392 |
| **2010** | 8,619 | 66.2 | 4,156 | 31.9 | 249 | 1.9 | 0 | - | 13,024 |
| **2011** | 9,388 | 63.3 | 5,131 | 34.7 | 300 | 2.0 | 0 | - | 14,819 |
| **2012** | 10,188 | 66.4 | 4,906 | 32.0 | 249 | 1.6 | 0 | - | 15,343 |
| **2013** | 11,713 | 64.9 | 6,003 | 33.3 | 327 | 1.8 | 8 | 0.0 | 18,051 |
| **2014** | 13,092 | 65.5 | 6,566 | 32.9 | 309 | 1.5 | 12 | 0.1 | 19,979 |
| **2015** | 13,702 | 65.4 | 6,942 | 33.2 | 297 | 1.4 | 8 | 0.0 | 20,949 |
| **2016** | 13,692 | 66.0 | 6,800 | 32.8 | 258 | 1.2 | 4 | 0.0 | 20,754 |
| **2017** | 14,580 | 67.2 | 6,800 | 31.3 | 321 | 1,5 | 8 | 0.0 | 21,709 |
| **2018** | 15,434 | 70.0 | 6,408 | 29.0 | 222 | 1,0 | 0 | - | 22,064 |
| **2019** | 15,935 | 70.8 | 6,310 | 28.0 | 261 | 1,2 | 0 | - | 22,506 |
| **2020** | 16,487 | 74.2 | 5,552 | 25.0 | 162 | 0,7 | 8 | 0.0 | 22,209 |
| **Total** | **240,414** | **66.1** | **115,372** | **31.7** | **8,022** | **2,2** | **132** | **0.0** | **363,940** |

# Distribution of Indications 2021

## IVF and ICSI – Prospective Data

| | Treatments | Transfers | | Clin. Preg. | |
|---|---|---|---|---|---|
| | n | n | % | n | % |
| No Information | 849 | 743 | 87.5 | 250 | 34.8 |
| Idiopathic | 4,526 | 3,486 | 77.0 | 1,098 | 31.7 |
| Male | 27,432 | 22,174 | 80.8 | 7,306 | 33.1 |
| Female | 15,292 | 11,752 | 76.9 | 3,690 | 31.6 |
| Male and Female | 16,936 | 12,922 | 76.3 | 3,825 | 29.8 |
| Missing Male Partner | 1,115 | 908 | 81.4 | 261 | 29.1 |
| Homosexuality | 503 | 408 | 81.2 | 160 | 39.3 |
| **Total** | **66,653** | **52,393** | **78.6** | **16,590** | **31.7** |

**Shares of Indications (Cycles) 2021**




## IVF

| Male Factor | Normal | | Red. Semen Quality | | Unknown | | Other** | | Total*** | |
|---|---|---|---|---|---|---|---|---|---|---|
| Female Factor | n | % | n | % | n | % | n | % | n | % |
| Normal | 3,279 | 12.8 | 773 | 3.0 | 146 | 0.6 | 581 | 2.3 | 4,779 | 18.7 |
| Tubal Pathology | 3,011 | 11.8 | 487 | 1.9 | 81 | 0.3 | 516 | 2.0 | 4,095 | 16.0 |
| Endometriosis | 2,500 | 9.8 | 449 | 1.8 | 91 | 0.4 | 441 | 1.7 | 3,481 | 13.6 |
| Hyperandrog./PCO | 778 | 3.0 | 137 | 0.5 | 22 | 0.1 | 182 | 0.7 | 1,119 | 4.4 |
| Ovulatory Dysf. | 1,192 | 4.7 | 383 | 1.5 | 61 | 0.2 | 302 | 1.2 | 1,938 | 7.6 |
| Psychogen. Factors | 44 | 0.2 | 10 | 0.0 | 5 | 0.0 | 9 | 0.0 | 68 | 0.3 |
| Age | 1,312 | 5.1 | 318 | 1.2 | 57 | 0.2 | 274 | 1.1 | 1,961 | 7.7 |
| Other* | 4,952 | 19.4 | 1,166 | 4.6 | 176 | 0.7 | 1,215 | 4.7 | 7,509 | 29.3 |
| No Information | 493 | 1.9 | 92 | 0.4 | 5 | 0.0 | 49 | 0.2 | 639 | 2.5 |
| **Total*** ** | **17,561** | **68.6** | **3,815** | **14.9** | **644** | **2.5** | **3,569** | **13.9** | **25,589** | **100.0** |

## ICSI

| Male Factor | Normal | | Red. Semen Quality | | Azoospermia | | Unknown | | Other** | | Total*** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Female Factor | n | % | n | % | n | % | n | % | n | % | n | % |
| Normal | 4,143 | 6.9 | 9,443 | 15.8 | 1,259 | 2.1 | 264 | 0.4 | 2,552 | 4.3 | 17,661 | 29.5 |
| Tubal Pathology | 1,253 | 2.1 | 2,007 | 3.4 | 92 | 0.2 | 47 | 0.1 | 837 | 1.4 | 4,236 | 7.1 |
| Endometriosis | 1,548 | 2.6 | 2,505 | 4.2 | 163 | 0.3 | 90 | 0.2 | 1,081 | 1.8 | 5,387 | 9.0 |
| Hyperandrog./PCO | 492 | 0.8 | 1,151 | 1.9 | 121 | 0.2 | 21 | 0.0 | 438 | 0.7 | 2,223 | 3.7 |
| Ovulatory Dysf. | 781 | 1.3 | 2,321 | 3.9 | 211 | 0.4 | 76 | 0.1 | 1,066 | 1.8 | 4,455 | 7.5 |
| Psychogen. Factors | 37 | 0.1 | 47 | 0.1 | 6 | 0.0 | 0 | 0.0 | 27 | 0.0 | 117 | 0.2 |
| Age | 1,289 | 2.2 | 2,262 | 3.8 | 246 | 0.4 | 100 | 0.2 | 948 | 1.6 | 4,845 | 8.1 |
| Other* | 6,772 | 11.3 | 7,714 | 12.9 | 770 | 1.3 | 264 | 0.4 | 3,697 | 6.2 | 19,217 | 32.1 |
| No Information | 842 | 1.4 | 555 | 0.9 | 78 | 0.1 | 13 | 0.0 | 146 | 0.2 | 1,634 | 2.7 |
| **Total*** ** | **17,157** | **28.7** | **28,005** | **46.9** | **2,946** | **4.9** | **875** | **1.5** | **10,792** | **18.1** | **59,775** | **100.0** |

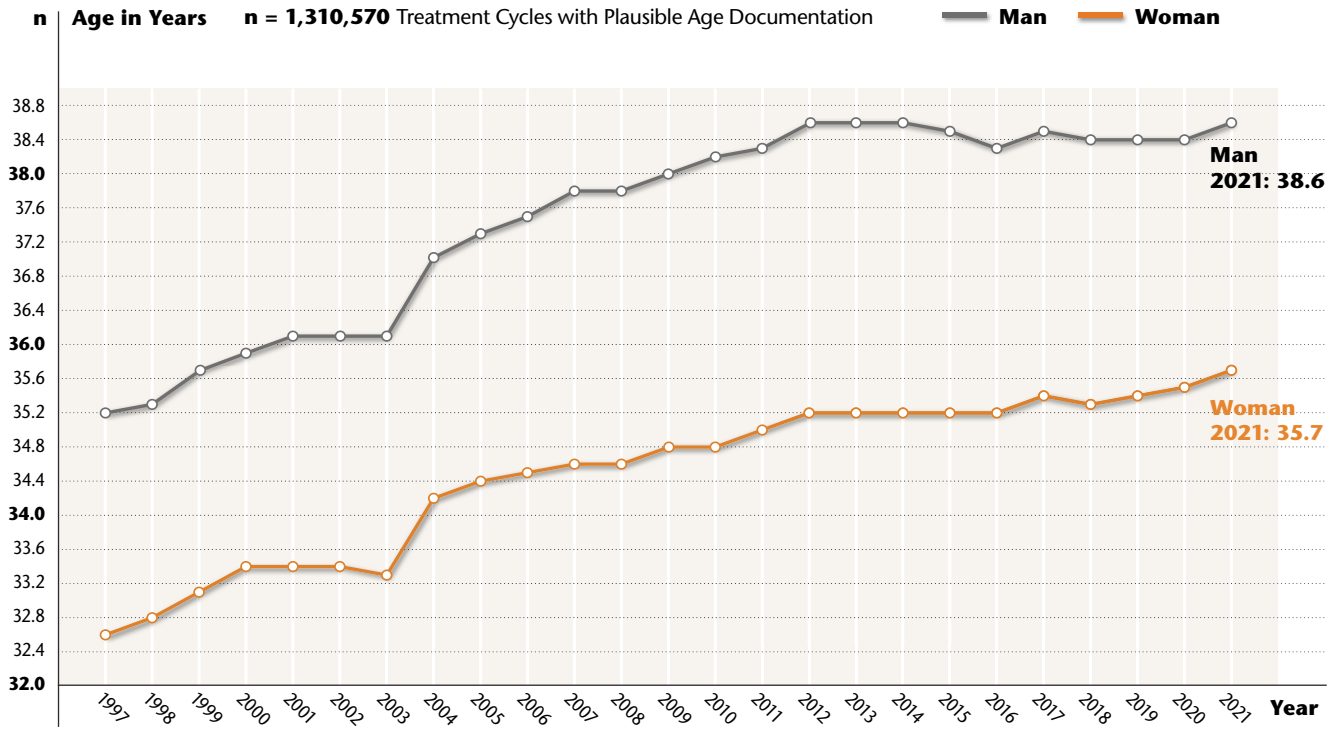
**) This includes the following indications: medical freezing, genetic testing (polar body analysis, trophectoderm biopsy for PGT-A, PGT-SR, PGT-M), homosexuality, diminished ovarian reserve, social freezing, uterine or cervical factor, single women, others).*

***) This includes following indications: anejaculation, azoospermia, medical freezing, preimplantation genetic testing, psychogenic disturbances, failed or bad fertilization rate in conventional ivf-procedure, CBAVD, retrograde ejaculation, urogenital malformation, condition after genital cancer, condition after severe genital infection, condition after vasectomy, others.*

****) Multiple answers per cycle permitted.*

# Mean Age for Women and Men 1997 – 2021

## IVF, ICSI, IVF/ICSI – Prospective and Retrospective Data




# Social Freezing 2018 – 2021

## Fresh Cycles – Prospective and Retrospective Data

| | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|
| No. of Centers | 86 | 90 | 104 | 113 |
| Recorded Cycles | 969 | 1,182 | 1,602 | 2,258 |
| Plausible Cycles | 963 | 1,172 | 1,555 | 2,170 |
| Plausible Cycles % | 99.4 | 99.2 | 97.1 | 96.1 |
| Ø-Age of Patients | 35.5 | 35.6 | 35.6 | 35.7 |
| OPU | 903 | 1,088 | 1,442 | 2,010 |
| Oocytes Aspirated | 878 | 1,054 | 1,401 | 1,954 |
| Avg. Oocytes Aspirated / Cycle | 10.3 | 10.6 | 10.6 | 10.8 |
| Freeze All MII | 791 | 969 | 1,291 | 1,809 |
| Share (%) of Cycles with Cryo-preserved from Retrieved Oocyts | 73.7 | 76.6 | 76.4 | 76.7 |

Either therapy or patient are marked as social freezing.
Follow up social freezings: up to now, only a few preganancies and births out of former social freezing cycles are recorded.

# Clinical Pregnancy Rate as a Function of Stimulation 2020

## Prospective Data

| Total | recFSH | hMG | recFSH a. recLH | recFSH a. hMG | Long-Acting recFSH | hrFSH | Antiestrogen +/- Gonadotropin | Other* | No Inform. | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Stimulations (n) | 27,064 | 8,733 | 19,645 | 6,858 | 2,547 | 857 | 4,267 | 3,526 | 1,974 | 75,471 |
| Transfers (n) | 19,420 | 5,557 | 13,840 | 4,617 | 1,656 | 567 | 2,061 | 2,724 | 1,164 | 51,606 |
| Transfer (%) | 71.8 | 63.6 | 70.5 | 67.3 | 65.0 | 66.2 | 48.3 | 77.3 | 59.0 | 68.4 |
| CP (n) | 6,837 | 1,507 | 4,460 | 1,235 | 446 | 222 | 423 | 924 | 356 | 16,410 |
| CP/ET (%) | 35.2 | 27.1 | 32.2 | 26.7 | 26.9 | 39.2 | 20.5 | 33.9 | 30.6 | 31.8 |
| CP/Stim. (%) | 25.3 | 17.3 | 22.7 | 18.0 | 17.5 | 25.9 | 9.9 | 26.2 | 18.0 | 21.7 |
| Ø-Age of Patients | 34.0 | 37.7 | 35.7 | 36.6 | 37.0 | 34.2 | 38.8 | 35.7 | 36.2 | 35.6 |

| Short GnRHa | recFSH | hMG | recFSH a, recLH | recFSH a. hMG | Long-Acting recFSH | hrFSH | Antiestrogen +/- Gonadotropin | Other* | No Inform. | Total | Share (%) from total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stimulations (n) | 278 | 456 | 670 | 561 | 16 | 15 | 119 | 53 | 59 | 2,227 | 3.0 |
| Transfers (n) | 182 | 274 | 444 | 329 | 9 | 9 | 33 | 36 | 45 | 1,361 | 2.6 |
| Transfer (%) | 65.5 | 60.1 | 66.3 | 58.6 | 56.3 | 60.0 | 27.7 | 67.9 | 76.3 | 61.1 | |
| CP (n) | 44 | 66 | 112 | 75 | 3 | 4 | 4 | 11 | 17 | 336 | 2.0 |
| CP/ET (%) | 24.2 | 24.1 | 25.2 | 22.8 | 33.3 | 44.4 | 12.1 | 30.6 | 37.8 | 24.7 | |
| CP/Stim. (%) | 15.8 | 14.5 | 16.7 | 13.4 | 18.8 | 26.7 | 3.4 | 20.8 | 28.8 | 15.1 | |
| Ø-Age of Patients | 35.9 | 38.4 | 36.9 | 37.8 | 37.9 | 34.0 | 38.9 | 39.0 | 34.6 | 37.4 | |

| Long GnRHa | recFSH | hMG | recFSH a, recLH | recFSH a. hMG | Long-Acting recFSH | hrFSH | Antiestrogen +/- Gonadotropin | Other* | No Inform. | Total | Share (%) from total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stimulations (n) | 2,479 | 1,659 | 3,132 | 1,407 | 263 | 35 | 34 | 501 | 395 | 9,905 | 13.1 |
| Transfers (n) | 1,965 | 1,231 | 2,373 | 1,069 | 172 | 26 | 14 | 395 | 254 | 7,499 | 14.5 |
| Transfer (%) | 79.3 | 74.2 | 75.8 | 76.0 | 65.4 | 74.3 | 41.2 | 78.8 | 64.3 | 75.7 | |
| CP (n) | 694 | 369 | 767 | 310 | 52 | 8 | 3 | 125 | 75 | 2,403 | 14.6 |
| CP/ET (%) | 35.3 | 30.0 | 32.3 | 29.0 | 30.2 | 30.8 | 21.4 | 31.6 | 29.5 | 32.0 | |
| CP/Stim. (%) | 28.0 | 22.2 | 24.5 | 22.0 | 19.8 | 22.9 | 8.8 | 25.0 | 19.0 | 24.3 | |
| Ø-Age of Patients | 34.4 | 37.3 | 35.7 | 36.4 | 38.1 | 36.6 | 38.5 | 36.5 | 37.5 | 35.9 | |

| GnRH-Antagonists | recFSH | hMG | recFSH a, recLH | recFSH a. hMG | Long-Acting recFSH | hrFSH | Antiestrogen +/- Gonadotropin | Other* | No Inform. | Total | Share (%) from total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stimulations (n) | 22,681 | 5,805 | 14,773 | 4,546 | 2,092 | 699 | 2,801 | 2,667 | 1,236 | 57,300 | 75.9 |
| Transfers (n) | 16,505 | 3,646 | 10,471 | 3,062 | 1,394 | 464 | 1,544 | 2,066 | 713 | 39,865 | 77.2 |
| Transfer (%) | 72.8 | 62.8 | 70.9 | 67.4 | 66.6 | 66.4 | 55.1 | 77.5 | 57.7 | 69.6 | |
| CP (n) | 5,864 | 976 | 3,415 | 816 | 366 | 182 | 324 | 711 | 230 | 12,884 | 78.5 |
| CP/ET (%) | 35.5 | 26.8 | 32.6 | 26.6 | 26.3 | 39.2 | 21.0 | 34.4 | 32.3 | 32.3 | |
| CP/Stim. (%) | 25.9 | 16.8 | 23.1 | 17.9 | 17.5 | 26.0 | 11.6 | 26.7 | 18.6 | 22.5 | |
| Ø-Age of Patients | 33.9 | 37.8 | 35.6 | 36.5 | 36.9 | 34.0 | 39.0 | 35.6 | 35.8 | 35.4 | |

4,991 stimulations (6.6 %) have been realized without Analoga or Antagonists, resulting in 2,115 transfers (42.4 %) and 582 clinical pregnancies (27.5 % CP/ET).

1,048 stimulations (1.4 %) could not been allocated to a specific protocol, resulting in 766 transfers (73.1 %) and 205 clinical pregnancies (26.8 % CP/ET).

*) *e.g. uFSH, uFSH and hMG etc.*

# Ovarian Hyperstimulation Syndrome (OHSS) as a Function of Stimulation Protocol and Age Cohort 2021

IVF, ICSI, IVF/ICSI – Prospective Data

| | Stimulations Started | % | Oocytes Retrieved | OHSS III (WHO) | OHSS III/Cycles % |
|---|---|---|---|---|---|
| **Short GnRHa** | **2,227** | **3.0** | **6.8** | **2** | **0.1** |
| < = 29 Years | 114 | | 10.4 | 0 | 0.0 |
| 30 – 34 Years | 403 | | 8.2 | 0 | 0.0 |
| 35 – 39 Years | 1,026 | | 7.0 | 2 | 0.2 |
| > = 40 Years | 684 | | 4.9 | 0 | 0.0 |
| **Long GnRHa** | **9,905** | **13.3** | **9.0** | **64** | **0.6** |
| < = 29 Years | 756 | | 11.4 | 14 | 1.9 |
| 30 – 34 Years | 2,747 | | 10.5 | 31 | 1.1 |
| 35 – 39 Years | 4,534 | | 8.5 | 18 | 0.4 |
| > = 40 Years | 1,868 | | 6.9 | 1 | 0.1 |
| **GnRHa-Antagonists** | **57,300** | **77.0** | **9.4** | **261** | **0.5** |
| < = 29 Years | 6,062 | | 12.2 | 47 | 0.8 |
| 30 – 34 Years | 17,609 | | 11.0 | 107 | 0.6 |
| 35 – 39 Years | 23,621 | | 8.9 | 87 | 0.4 |
| > = 40 Years | 10,008 | | 6.1 | 20 | 0.2 |
| **No Analoga / no Antagonists** | **4,991** | **6.7** | **6.4** | **11** | **0.2** |
| < = 29 Years | 421 | | 11.5 | 0 | 0.0 |
| 30 – 34 Years | 1,210 | | 8.9 | 3 | 0.2 |
| 35 – 39 Years | 2,014 | | 6.3 | 6 | 0.3 |
| > = 40 Years | 1,346 | | 3.2 | 2 | 0.1 |
| **Total*** | **74,423** | **100** | **9.1** | **338** | **0.5** |

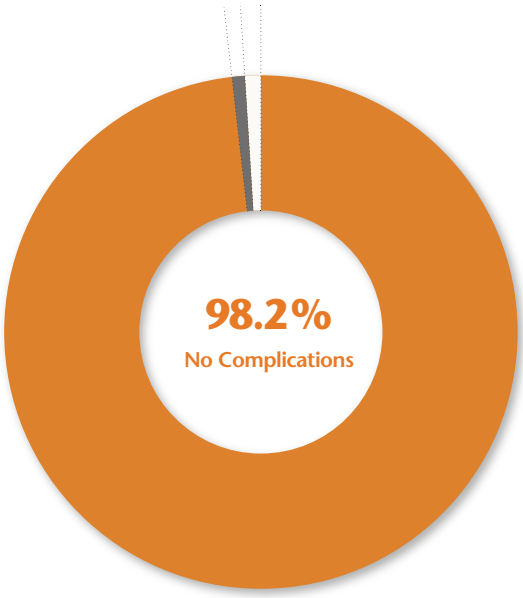
*) in 1,048 cycles, the protocol could not be reliably determinated

# Complications as a Function of Ovum Pick-up (OPU) 2021

IVF, ICSI, IVF/ICSI, Prospective Data

| | | |
|---|---|---|
| **Total OPU´s** | **70,545** | **100.0%** |
| No Information | 725 | 1.0% |
| No Complications | 69,292 | 98.2% |
| **Complications** | **528** | **0.8%** |

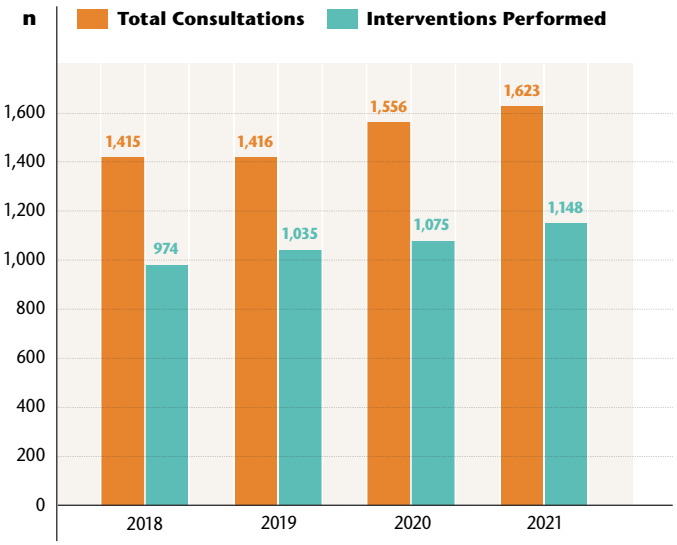
| Complications | n | % |
|---|---|---|
| Vaginal Bleeding | 346 | 65.5 |
| Intraabdom. Bleeding | 92 | 17.4 |
| Intestinal Tract Injury | 3 | 0.6 |
| Peritonitis | 23 | 4.4 |
| Other | 64 | 12.1 |
| **Total** | **528** | **100.0** |



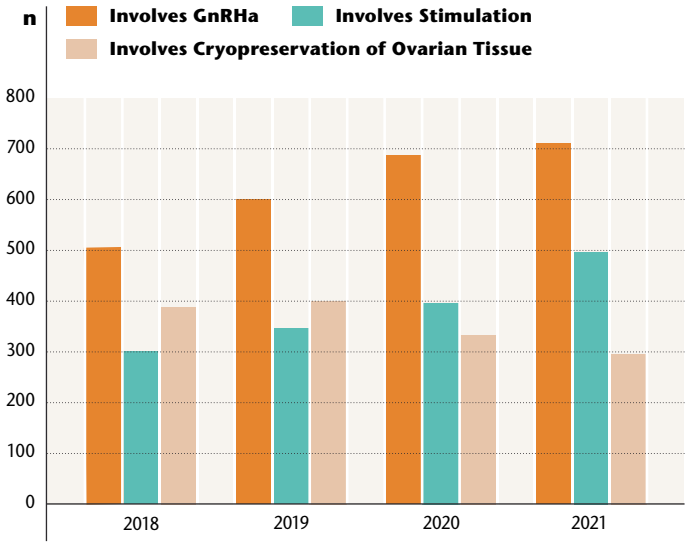
FertiPROTEKT
Netzwerk für fertilitätsprotektive Maßnahmen

Once again this year, we are pleased to present the consultations and therapies for medically indicated fertility preservation documented in the *Ferti*PROTEKT Network e.V. in comparison to previous years. The listing of the individual entities and therapies performed gives you a good impression of the activity of the network and also shows the increasing awareness of this intervention among those affected and the treating physicians. The implementation of the Fertility Protection Coverage Act continues to be part of a larger debate between patients, physicians and insurance interests. It remains to be seen whether the partial reimbursement of costs to date will also have an impact on the number of procedures performed. On the positive side, this debate is also increasing the visibility of the topic in the media, so that patients and physicians may request or offer counseling more frequently.

## Consultations and Interventions – *Ferti*PROTEKT Netzwerk e.V.

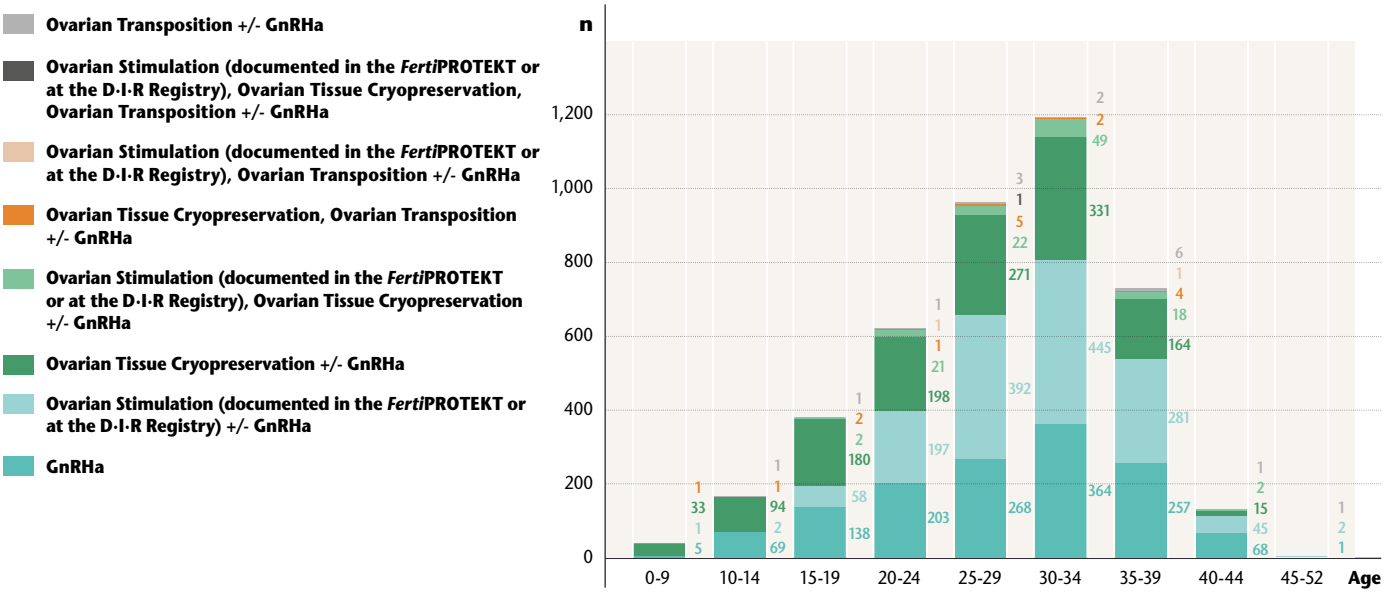



## Distribution of Fertility-Protective Interventions




The number of consultations and interventions documented in *Ferti*PROTEKT Netzwerk e.V. continued to increase in 2021 compared to previous years. While the number of ovarian stimulations performed and the use of GnRH agonists increased, we continue to see a slight downward trend in the cryopreservation of ovarian tissue. This could be related to the lack of reimbursement for this measure in the context of simultaneously subsidized costs of stimulations.

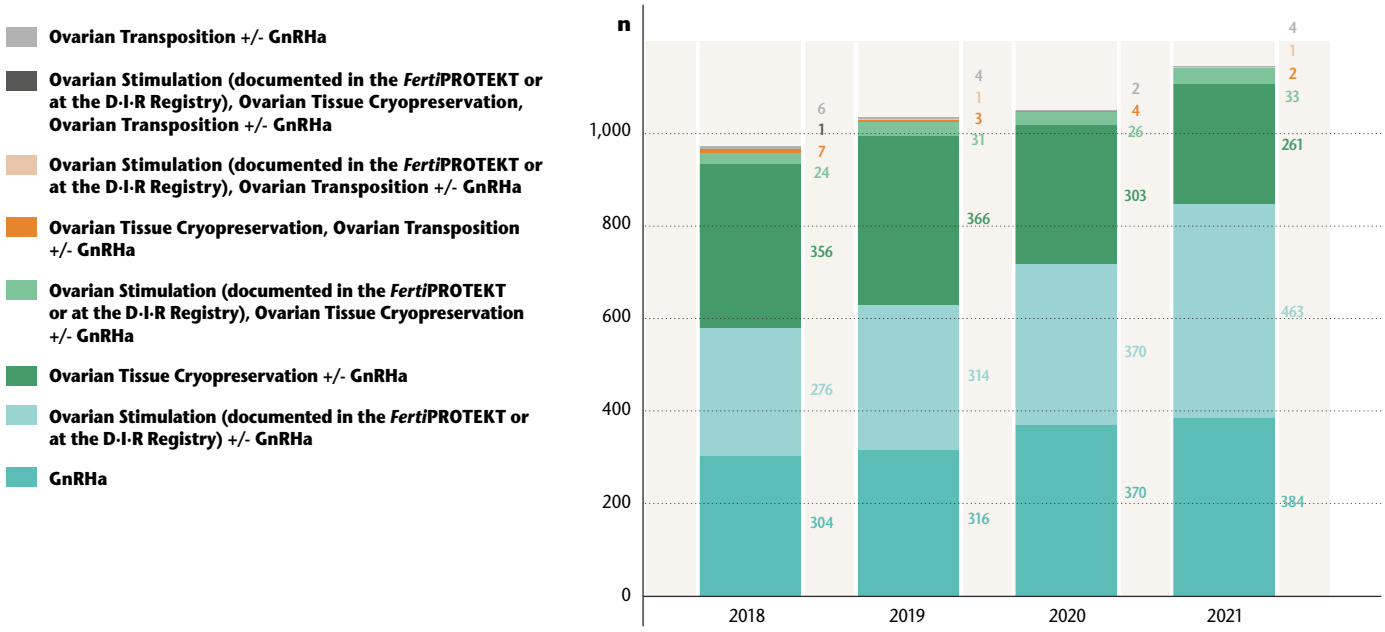
## Interventions Carried out by Age Group 2018 – 2021



The age distribution of the patients according to the type of intervention in the last three years shows, as expected, a therapy maximum up to the age of 40, the more probable end of the fertile phase and the desire to have children. The most commonly performed interventions here remain ovarian stimulation, followed by GnRH agonist administration and ovarian tissue cryopreservation. The combination of cryopreservation and stimulation is significantly less common than the addition of a GnRH agonist to another procedure.

## Interventions by year

FertiPROTEKT Netzwerk für fertilitätsprotektive Maßnahmen

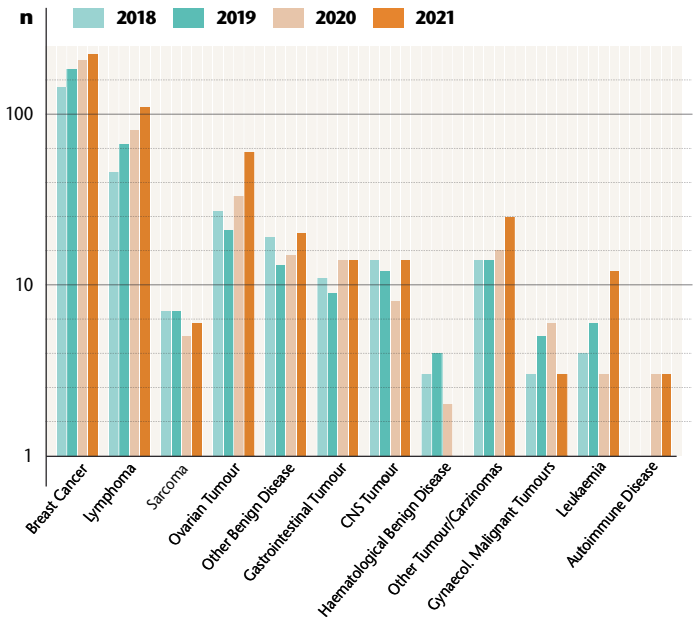



When looking at the therapies performed depending on the underlying disease, there is an overall lower rate of cryopreservation of ovarian tissue in oncological diseases, while this has slightly increased in benign hematological diseases, with a simultaneous decrease in stimulation treatments. This is partly due to the increasing proportion of women with aplastic anemia.

## Underlying Disease at Time of Ovarian Stimulation

Logarithmic Scale

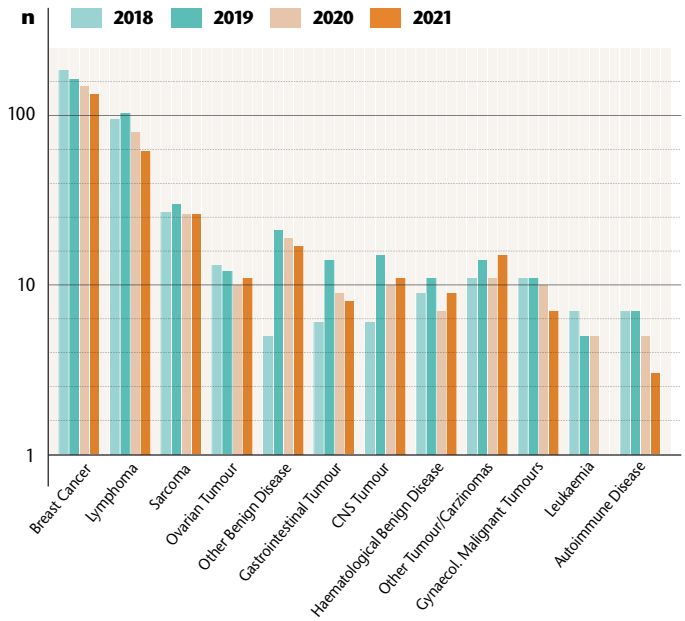
FertiPROTEKT Netzwerk für fertilitätsprotektive Maßnahmen




## Underlying Disease at Time of Ovarian Tissue Cryopreservation

Logarithmic Scale

FertiPROTEKT Netzwerk für fertilitätsprotektive Maßnahmen



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