EXECUTIVE SUMMARY for 2017

IARTR
THE ITALIAN ASSISTED REPRODUCTIVE TECHNOLOGY REGISTER

MONITORING THE ACTIVITY AND OUTCOMES OF ITALIAN ASSISTED REPRODUCTIVE TECHNOLOGY CENTERS 2017

MONITORING THE ACTIVITY AND OUTCOMES OF ITALIAN ART CENTERS IN 2017

AUTHORS

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SUMMARY OF OUTPUTS GENERATED FROM IARTR, 2017

	Non-donor Procedures			Gametes donation		
	Fresh cycles (IVF and ICSI)	**FET**	**FO**	**sperm donation**	**oocyte donation**	**double donation**
n° of patients	44.279	14.441	1.281	1.131	4.515	295
n° initiated cycles	53.014	-	-	1.262	5.163	346
n° aspirations/thawings	47.911	17.281	1.391	-	-	-
n° transfers	33.832	16.673	1.146	1.005	4.864	331
with 1 embryo	*11.530*	*11.126*	*402*	*400*	*2.225*	*146*
with 2 embryos	*16.530*	*5.039*	*599*	*530*	*2.499*	*171*
with 3 embryos	*5.402*	*480*	*144*	*75*	*140*	*14*
with 4 o + embryos	*370*	*28*	*1*	-	-	-
n° clinical pregnancies*	9.310	5.059	235	393	1.667	129
pregnancies per initiated cycles (%)	17,6	-	-	31,1	32,3	37,3
pregnancies per initiated cycles without freeze-all cycles (%)	20,0	-	-	-	-	-
pregnancies per aspirations/thawings (%)	19,4	29,3	16,9	-	-	-
pregnancies per aspirations/thawings without freeze-all cycles (%)	22,4	-	-	-	-	-
pregnancies per transfers (%)	27,5	30,3	20,5	39,1	34,3	39,0
pregnancies lost to follow-up (%)	13,4	7,9	4,7	15,0	16,1	8,5
n° pregnancy losses	2.030	1.173	59	75	335	26
pregnancies loss per monitored pregnancy (%)	25,2	25,2	26,3	22,5	24,0	22,0
n° deliveries	6.029	3.486	165	259	1.063	92
deliveries per aspirations/thawings (%)	12,6	20,2	11,9	20,5	20,6	26,6
estimated deliveries per aspirations/thawings (%)	14,5	21,9	12,4	24,2	24,6	29,2
estimated deliveries per aspiration without freeze-all cycles (%)	16,8	-	-			
twin deliveries (%)	15,2	6,6	13,9	12,7	14,7	10,9
triplets or more deliveries (%)	0,4	0,1	0,6	0,8	0,1	0
n° live born babies	6.951	3.703	190	91	1.215	104

*Clinical pregnancy: A pregnancy diagnosed by ultrasonographic visualization of one or more gestational sacs or definitive clinical signs of pregnancy. In addition to intra-uterine pregnancy, it includes a clinically documented ectopic pregnancy[1].

THE ITALIAN ASSISTED REPRODUCTION TECHNOLOGY REGISTER (IARTR)

IARTR has been established at the *Istituto Superiore di Sanità* (Italian National Institute of Health), *National Centre for Epidemiology Surveillance and Health Promotion*, by a Decree of the Ministry of Health issued on the 7th of October 2005 (G.U. n. 282 del 3rd December 2005) in implementation of article n° 11 paragraph 1 of Law 40/2004 (G.U. n. 45 del 24th February 2004).

The Register collects descriptive, technical, structural and organizational information of ART centers authorized by their regional health authority, to conduct assisted reproductive technology, and anonymous, aggregate data sets on all the ART treatments, plus information on the infertile couples, on embryos created and on children born after ART.

The main objectives of the Register are:

- ASSESS and REGISTER all the centres performing ART treatments and IUI procedures in the country and the number of embryos created and cryopreserved;
- COLLECT and EVALUATE data regarding centres characteristics and addresses, type of service offered (public, private or private covered by the National Health service), the different techniques performed, activity, availability, efficacy and safety of techniques application;
- PROMOTE research and study on couple infertility causes, long-term evaluation of well-being of the children born after ART procedures; REASEARCH on gametes characteristics new cryopreservation protocols; MONITORING time trends in ART applications in order to compare different attitudes with other countries.

The Register prepares an annual epidemiological/statistical report on the ART centres' activity for the Minister of Health in order to illustrate to the Parliament the situation in the ART field with a particular epidemiological overview.

The IARTR is linked to the European IVF Monitoring (EIM) Consortium which collects data on ART from about 39 European countries. In turn, the EIM sends data to the World Register ICMART (International Committee Monitoring Assisted Reproductive Technologies). The activity of IARTR was audited since 2018 by Professor Jacques de Mouzon, Secretary of the ART World Register (ICMART).

HOW DOES IARTR WORK?

The staff is coordinated by Dr Giulia Scaravelli, MD-Gynaecologist and PhD-Obstetrics and Gynaecology. In the staff there are a variety of skills: statistics, epidemiology, gynaecology, biology, psychology and informatics.

Data on efficacy, safety and outcomes of reproductive techniques including IUI are collected on a website on a reserved area with a username and a password. Data collection is based on summary data sent from each centre according to a national law on privacy protection (Dlg. 196/2003).

The data collection is organized in two different time frames:

- The first phase of the collection is related to the activity conducted and the results obtained in 2017 and it was carried out from May to June 2018;
- The second phase of the collection is related to the outcomes of pregnancies obtained from ART treatments started in 2017 and it was carried out from October to December 2018.

Data collection is made on number of cycles performed for each technique, number of patients treated, kind of infertility diagnosed, embryos created and eventually transferred, pregnancies outcomes, babies born and complications during treatments.

THE IARTR WEBSITE WWW.ISS.IT/RPMA

The Register website has the goal to collect and disseminate data and information related to IUI and ART procedures.

There are different levels of interest in the website, that gives:

- a service to the citizens: they can consult the list of all the authorized centres by different regions and can have information about the techniques they perform, and the availability of the service. They can find on the home page all the information regarding ART and -IUI techniques and their application in Italy. They can find also the links to patient associations, scientific reproductive societies, government institutions, national health service, European and international registries on ART. Moreover there is a lot of information to better understand problems related to infertility reasons, news on reproductive and infertility issues, and a steady overview on Italian and European legislation on the reproductive field.
- a service for all centres: they can fill the forms on their activity each year and they have access to their local authority and to the national Register staff.
- a service for all 20 Italian Regions: They can see all the data relating the centres operating on their territory and they can monitor and elaborate data on their specific activity.

The Registry's website, last year, was visited by approximately 140.000 users, with a daily average of about 380 hits, and is the second most visited site in the National Institute of Health Portal.

1. ACCESS AND UTILIZATION OF ART SERVICES IN ITALY, 2017

1.1. Access to ART service

Figure 1 shows the regional distribution of the 204 ART authorized centers in 2017, but only 190 performed at least 1 ART cycle.

The largest number of ART centers is concentrated in Northern Italy (81 centers the 39,7% of the total) and in the Southern area (75 centers the 36,8% of the total), irrespective of the amount of their activity.

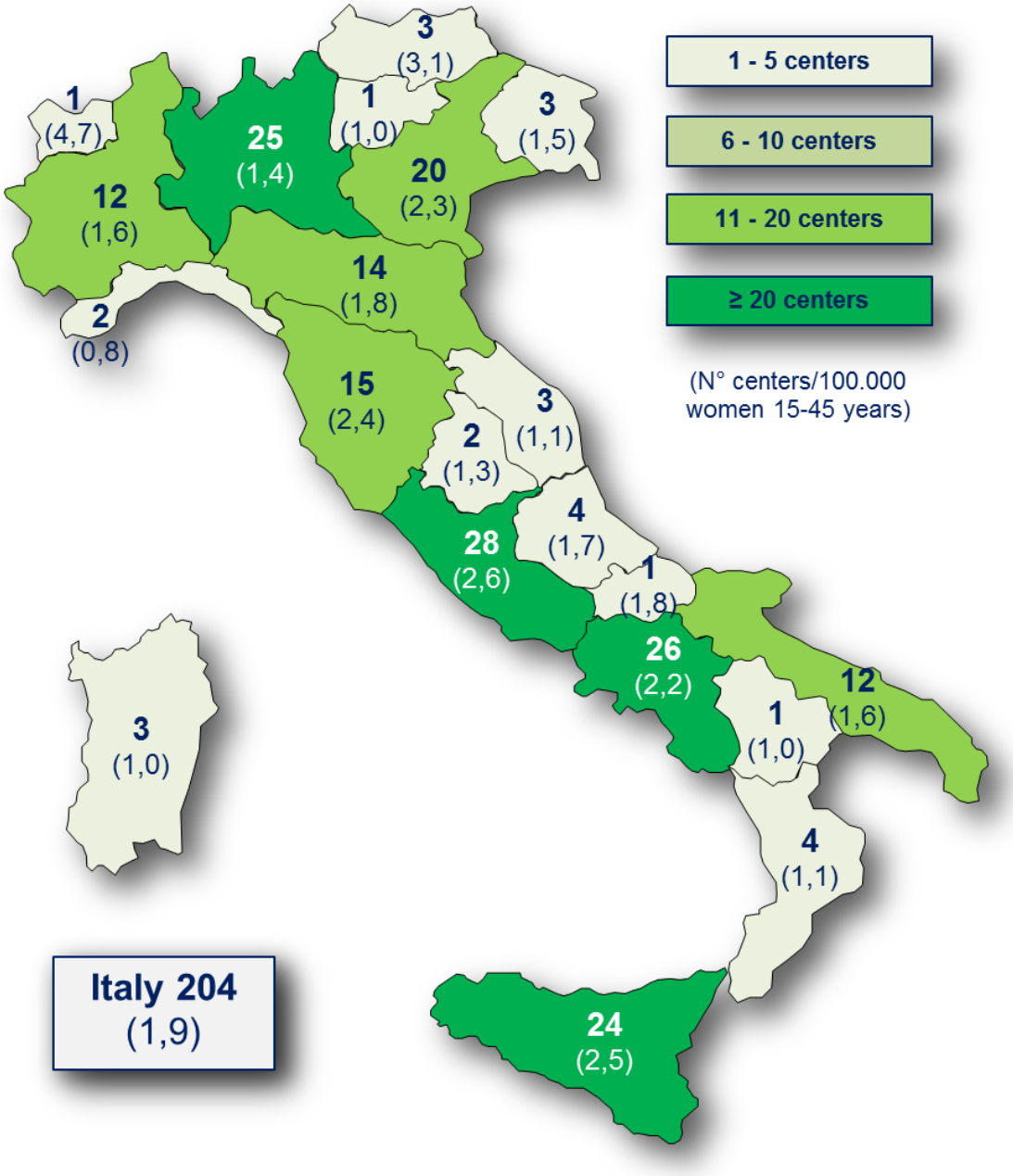

Figure 1. Regional distribution of the ART authorized centers and in brackets the number of centers per 100.000 women of reproductive age (15-45 years)*, 2017

*Average resident population in Italy in 2017: source ISTAT.

Table 1 shows the geographical distribution of ART centers according to the type of services offered. Overall, the number of centers active in 2017 was 204, 93 of which (45,6%) operating within the National Health Service (public and private), and 111 (54,4%) which provided only private service. The majority of ART centers providing public service was concentrated in the North of Italy, i.e. in the North West 77,5%, while in the Centre and in the South of Italy there were mainly private facilities (58,3% and 69,3%, respectively).

Table 1. ART authorized centers distribution by region and type of service, 2017

Region and Geographical Area	ART centers	Art centers by type of Service					
		Public		Private covered by NHS		Private	
		N	%	N	%	N	%
Piemonte	12	4	33,3	1	8,3	7	58,3
Valle d'Aosta	1	1	100	0	0	0	0
Lombardia	25	13	52,0	10	40,0	2	8,0
Liguria	2	2	100	0	0	0	0,0
North-West	**40**	**20**	**50,0**	**11**	**27,5**	**9**	**22,5**
A.P. Bolzano	3	1	33,3	0	0	2	66,7
A.P. Trento	1	1	100	0	0	0	0
Veneto	20	8	40,0	0	0,0	12	60,0
Friuli Venezia Giulia	3	2	66,7	1	33,3	0	0
Emilia Romagna	14	6	42,9	0	0	8	57,1
North-East	***41***	***18***	***43,9***	***1***	***2,4***	***22***	***53,7***
Toscana	15	5	33,3	5	33,3	5	33,3
Umbria	2	1	50,0	0	0	1	50,0
Marche	3	2	66,7	0	0	1	33,3
Lazio	28	6	21,4	1	3,6	21	75,0
Central	***48***	***14***	***29,2***	***6***	***12,5***	***28***	***58,3***
Abruzzo	4	2	50,0	0	0	2	50,0
Molise	1	0	0	0	0	1	100
Campania	26	7	26,9	0	0	19	73,1
Puglia	12	3	25,0	0	0	9	75,0
Basilicata	1	1	100	0	0	0	0
Calabria	4	0	0,0	0	0	4	100
Sicilia	24	7	29,2	0	0	17	70,8
Sardegna	3	3	100	0	0	0	0
South and Islands	***75***	***23***	***30,7***	***0***	***0***	***52***	***69,3***
Italy	**204**	***75***	**36,8**	***18***	**8,8**	***111***	**54,4**

1.2. Utilization of ART services

Table 2 shows the time-trends of ART initiated cycles per million inhabitants and per million women of reproductive age (between 15 and 45 years), in comparison with the same indicators for Europe. In Italy, both the indicators were constantly growing, with an increase of 639 cycles (+100,4%) and of 4.423 cycles (+ 164,9%), respectively. The latest European data available refers to the activity of year 2014[1].

The number of started cycles per million inhabitants (calculated only for the 14 countries that have reported data of 100% of the centers) was 1.399 cycles vs. 1.102 in Italy, under the proposed optimal level of demand calculated as 1.500 of ART services per million inhabitants per year[2].

Table 2. Number of initiated ART cycle per million inhabitants and per million women of reproductive age (15-45 years) annually in Italy (2005-2017) and in Europe (2005-2014)

Years	ART Cycles/million population		ART cycles/million women (15 - 45 years)	
	Italy	Europe [a]	Italy	Europe [a]
2005	636	1.115	2.683 [b]	4.008 [b]
2006	692	850	3.328	3.503
2007	736	886	3.569	4.320
2008	800	947	3.905	4.661
2009	865	1.067	4.265	5.455
2010	973	1.221	4.863	6.258
2011	1.063	1.269	5.392	6.556
2012	1.078	1.252	5.562	6.519
2013	1.070	1.175	5.601	6.210
2014	1.102	1.399	5.855	7.608
2015	1.175	-	6.341	-
2016	1.237	-	6.781	-
2017	1.275	-	7.106	-

a: data for Europe refers only to those country where data coverage was 100% in every year.
b: in 2005 ART cycles are related to the number of women aged between 15 and 49 years.

Figure 2 shows the distribution of initiated cycles per million women of childbearing age per geographical region. There is a great difference in the number of cycles performed among regions. If we select regions with more than five hundred thousand women in reproductive age, the distribution of cycles range from 3.375 cycles offered in Puglia region to 13.887 cycles provided in Toscana region. More in general, only 7 regions in Northern and Central area have numbers above the national average (7.106 cycles), while all the Southern regions have numbers below the average.

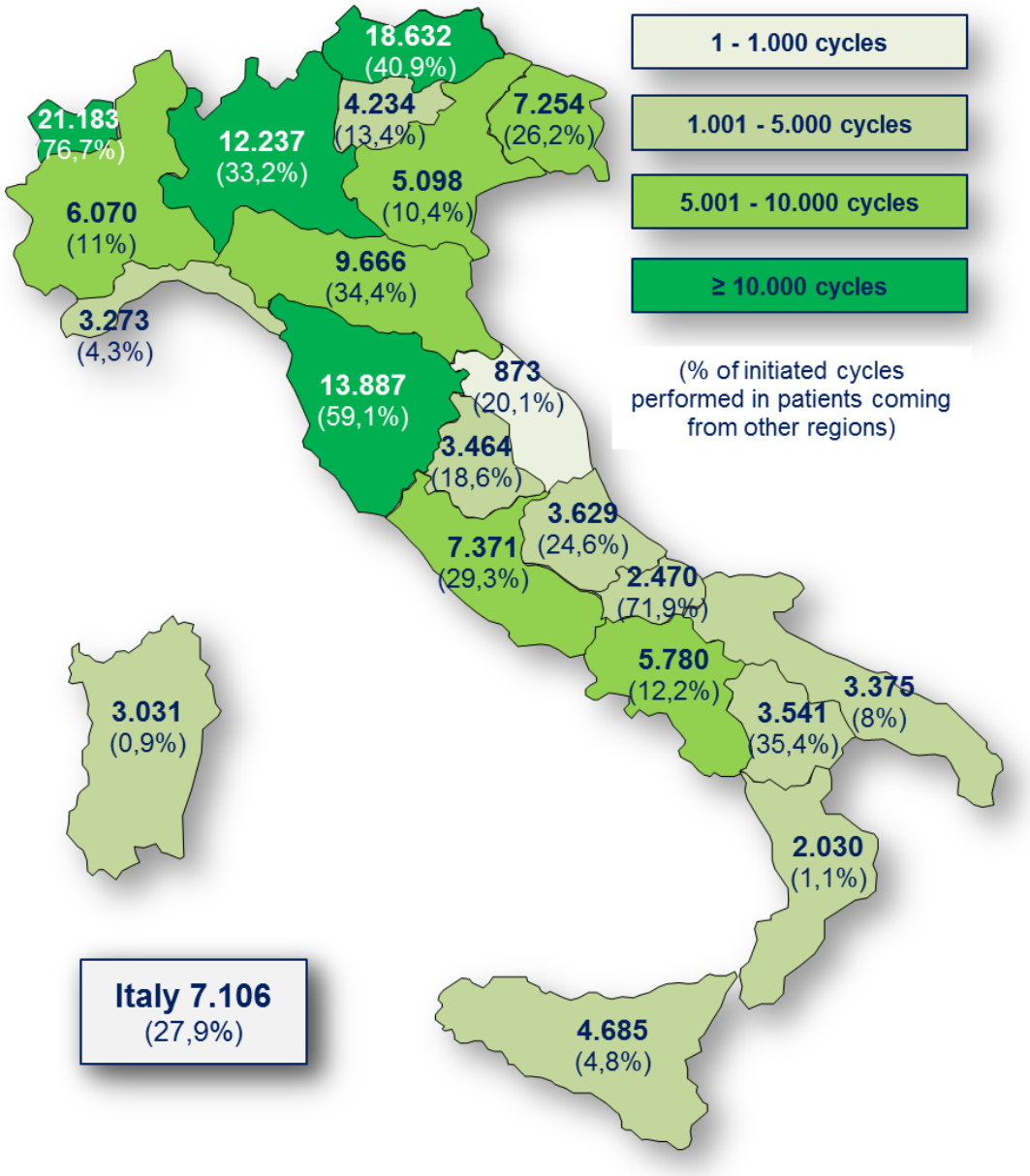

Figure 2. Regional distribution of the number of initiated ART cycles per million women of reproductive age (15-45 years)* and in brackets the percentage of initiated cycles performed in patients coming from other regions, 2017

*Average resident population in Italy in 2017: source ISTAT.

Since its establishment, IARTR collected data on 144.326 infants, of which 118.315 born from ART and 26.011 born from IUI cycles. These data have to be considered with caution due to the proportion of pregnancies lost to follow-up, that however changed to the better: from 21,5% in 2006 to 11,4% in 2017. In particular, in 2017, a number of 12.454 babies are born alive from ART techniques in Italy, that represent the 2,7% of the national babies born in the country in the same year. These values are an expression of the application of the ART techniques in the different regions, but they do not faithfully reflect the number of births because the cycles carried out also include the techniques performed on patients coming from outside the region (for example in Toscana region, 59% of cycles are performed on patients coming from other regions).

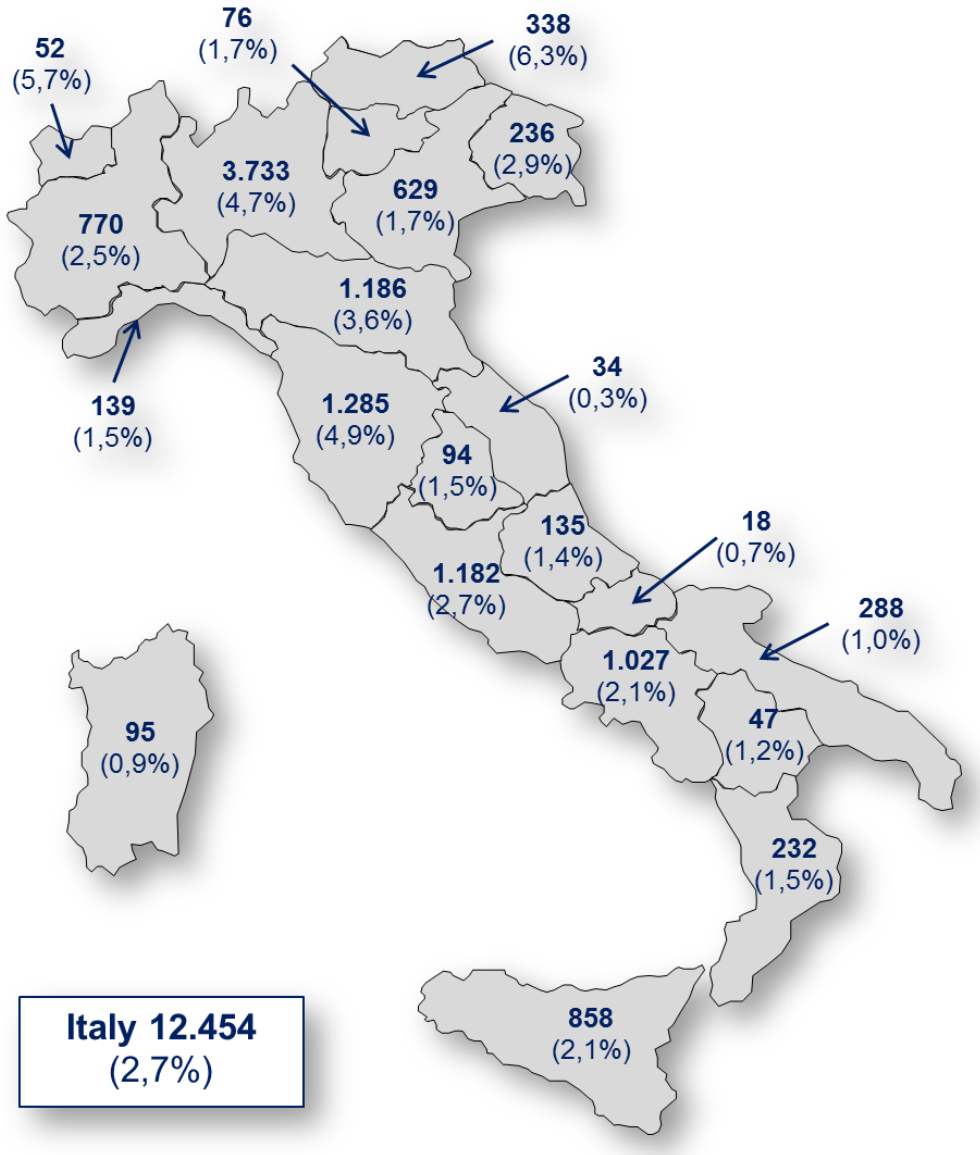

Figure 3. Regional distribution of the babies born in 2017 from ART cycles, also with donation, and the percentages in relation to the annual number of children born*

*Number of live babies born in Italy in 2017: source ISTAT.

Figure 4 shows the percentages of live-born babies conceived by ART compared with the national total number of children born in Italy. From 2005 to 2017 the percentage of infants born with ART procedures increased more than 3 times.

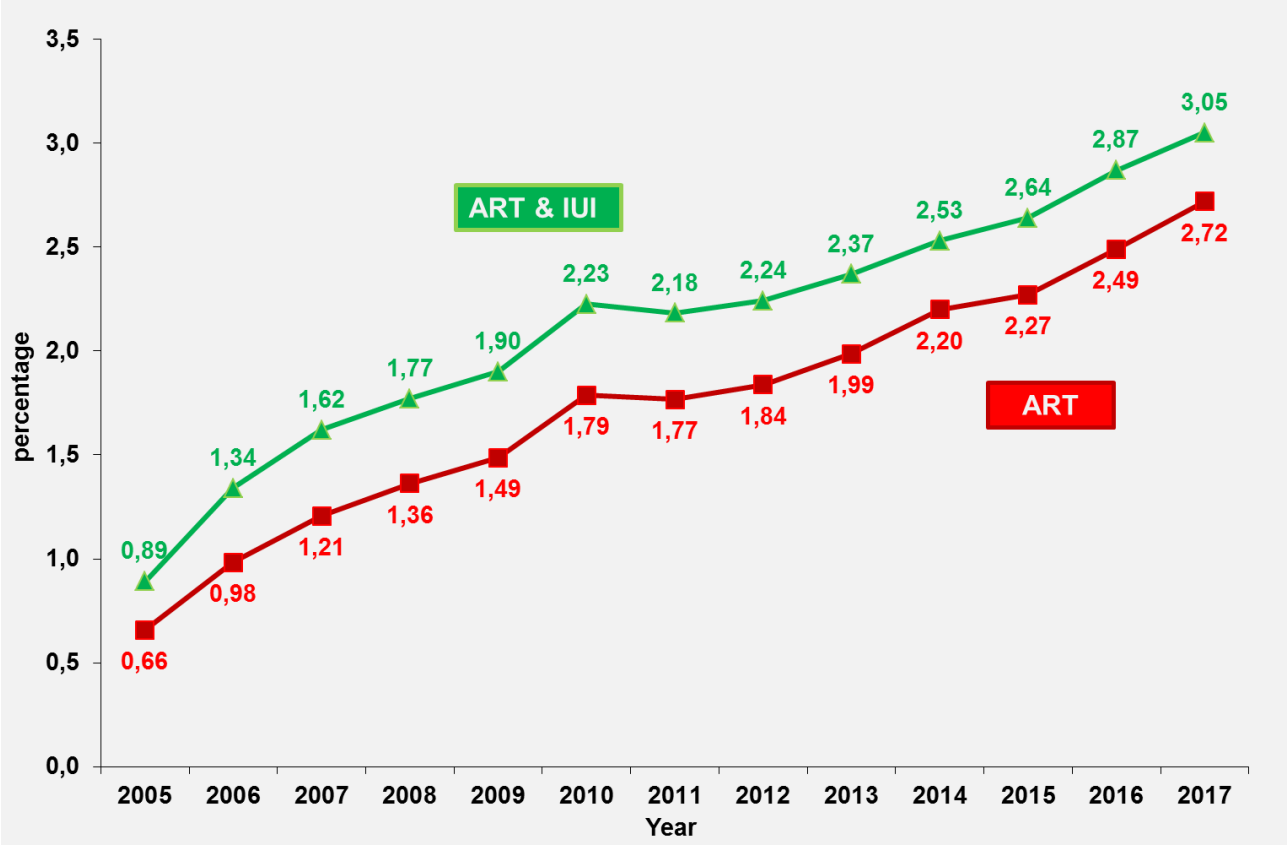

Figure 4. Time-trends of the percentage of live babies born live after ART also with donation and after ART & IUI also with donation in relation to the annual national number of children born in Italy, 2005-2017

2. EFFICACY OF ART 2017 AND TIME TRENDS 2005-2017

2.1. Overview of ART

2.1.1. What types of ART cycles were performed?

When an ART treatment is applied not using cryopreserved oocytes or embryos, is defined as a **"fresh cycle"**, and it includes:

- **In Vitro Fertilization with embryo transfer (IVF)**: an ART procedure that involves extracorporeal fertilization of gametes[3];
- **Intra Cytoplasmic Sperm Injection (ICSI):** a procedure in which a single spermatozoon is injected into the oocyte cytoplasm[3].

An ART treatment in which cryopreserved oocytes or embryos are utilized is defined as a **"frozen/thawing cycle",** and it includes:

- **Frozen/thawed Embryo Transfer (FET) cycle**: ART procedure in which cycle monitoring is carried out with the intention of transferring to a woman a frozen/thawed or vitrified/warmed embryo(s)/blastocyst(s)[3];
- **Frozen/thawed Oocyte (FO) cycle**: ART procedure in which cycle monitoring is carried out with the intention of fertilizing thawed/warmed oocytes and performing embryo transfer[3].

An ART treatment in which are used gametes that did not originate from the female recipient and/or her male partner is defined as a **"donation cycle"**, and it includes:

- **Oocyte donation (OD) cycle**: an ART cycle in which a woman receives oocytes from a donor to be used for reproductive purpose[3];
- **sperm donation**: a cycle in which a woman receives spermatozoa from a person who is not her sexually intimate partner[3];
- **double donation:** an ART cycle in which oocytes and spermatozoa both originating from donors are used.

The major part of the 78.457 Art cycle performed in Italy in 2017 were made with a fresh procedure (67,6%), then 22% of the cycles were performed with a FET, the 1,8% with a FO and the remaining 8,6% (6.771 cycles) with a gamete donation (see **Figure 5**).

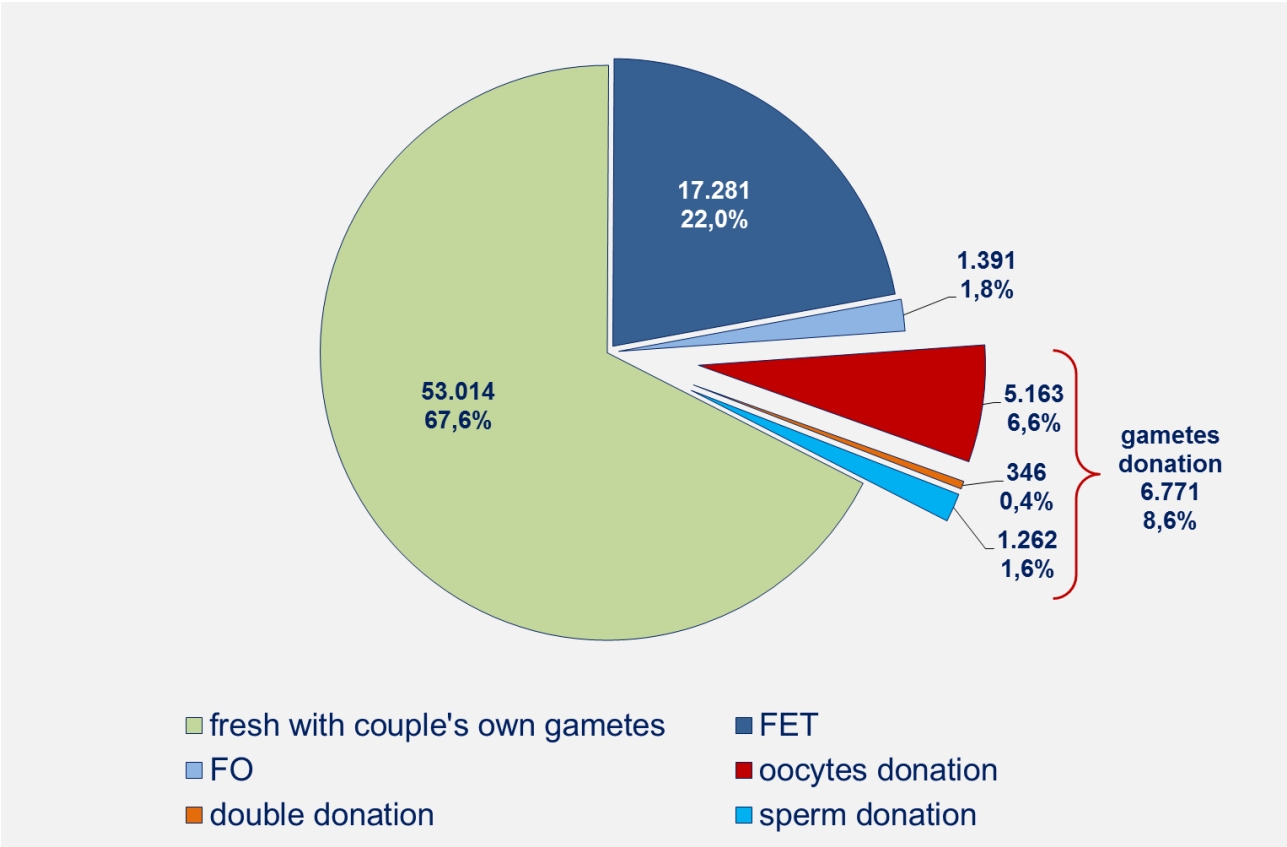

Figure 5. ART cycles performed in 2017.

2.1.2. How did the types of ART techniques change according to transfers among women of different ages?

The patient's age is the variable that influences at the most the success of assisted reproduction techniques, and therefore the probability of obtaining a pregnancy. **Figure 6** shows the percentage of ART transfers performed in 2017 according to women's age. As expected, ART treatment with their own oocytes are the most applied techniques in women from ≤34 years till 40-42 years of age, while after 42 years of age donation cycles reach 47,7% of application.

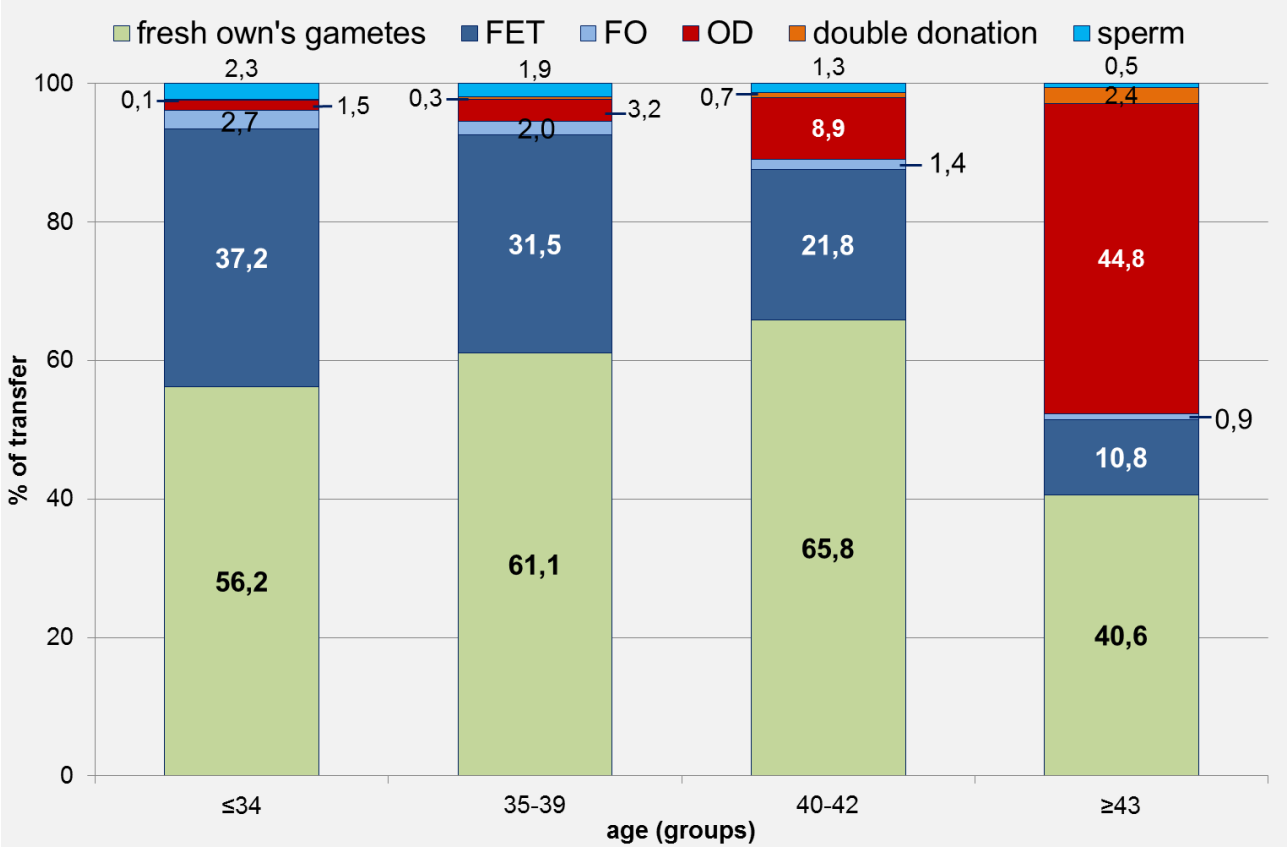

Figure 6. Types of ART procedure performed by female patients age groups, 2017.

2.2. ART, non-donor cycles

2.2.1. What are the causes of infertility of couples in ART treatment using fresh cycles in 2017?

- Female factor:

- **tubal factor** - fallopian tubes are blocked or damaged, could prevent sperm from getting to the egg and eggs from getting to the uterus[3];
- **ovulatory dysfunction** - ovaries are not producing eggs normally. The ovaries develop many small cysts instead of ripening and maturing one egg in each cycle.
- **endometriosis –** a disease characterized by the presence of endometrium-like epithelium and stroma outside the endometrium and myometrium. This condition can affect both fertilization of the egg and embryo implantation[3].
- **diminished ovarian reserve –** indicate a reduced number and/or reduced quality of oocytes, such that the ability to reproduce is decreased[3];
- **multiple abortions**-when there were two or more miscarriages without any full-term pregnancy.
- **multiple factor, female** - more than one female's cause of infertility.

- Male factor – abnormal semen parameters or function; anatomical, endocrine, genetic, functional or immunological abnormalities of the reproductive system; chronic illness; and sexual conditions incompatible with the ability to deposit semen in the vagina[3].

- Male and female factors - one or more female's and male's causes of infertility.

- **Genetic factor -** Due to chromosomal abnormalities (numerical and/or structural) or to genetic alterations. They can be both male and female factors

- Unexplained infertility - no cause of infertility is found in either woman or man[3].

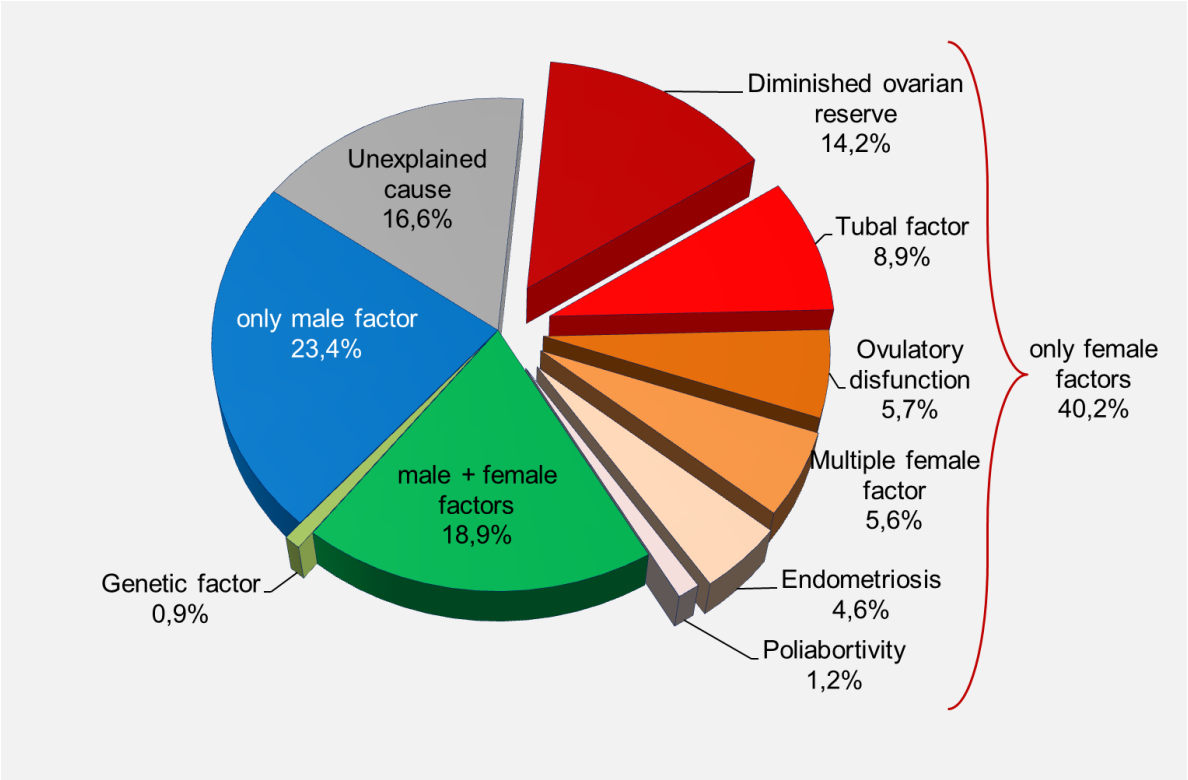

Figure 7. Causes of infertility of couples in ART treatment using fresh cycle, 2017

2.2.2. What are the steps for an ART treatment using fresh cycles?

An ART cycle using fresh gametes:

- it is started when a woman begins taking fertility drugs to stimulate the ovaries to produce eggs or having her ovaries monitored for follicle production, if no drugs are given **(initiated cycle**)
- It continues, if the egg follicles are produced, by an ovarian follicular aspiration performed with the aim of retrieving oocytes **(retrieval)**
- After eggs collection, a process initiated by entry of a spermatozoa into a mature oocyte followed by formation of the pronuclei. **(fertilization)**
- If fertilization occurs, the embryo(s) are cultured from day 1 to day 7, and then embryo(s) (generally 1 or 2) is(are) transferred to the woman's womb either at day 2 to 3 (cleavage stage) or at day 5 to 7 (blastocyst stage) **(transfer)**
- The attachment and subsequent penetration by a zona-free blastocyst into the endometrium **(implantation)**
- If implantation is successful, a pregnancy diagnosed by ultrasonographic visualization of one or more gestational sacs or definitive clinical sign of pregnancy occurs **(clinical pregnancy)**
- Generally in 75-80% of cases a **live birth delivery** occurs. A birth of twins, triplets or more are counted as one live birth.

Figure 8 shows outcomes resulting from various steps of fresh cycles performed in 2017. Of the 53.014 fresh cycles, 90,4% resulted in an egg retrieval, 63,8% in an embryo transfer, and 12% in freeze-all cycles. The "freeze-all" strategy could be decided for different reasons: either to avoid the risk of OHSS or to perform PGT, or for other reason. Because of the freeze-all cycles we decided to compute the pregnancy rate per cycle removing them from the results of the fresh cycles. They will be included only when we computed the cumulative pregnancy rate (see Figure 11 and 20). Among the outcomes we must also consider the 13,4% of pregnancies lost to follow-up and the 25,2% of monitored pregnancies that do not reach the delivery due to miscarriages or ectopic pregnancies (see **Figure 12**).

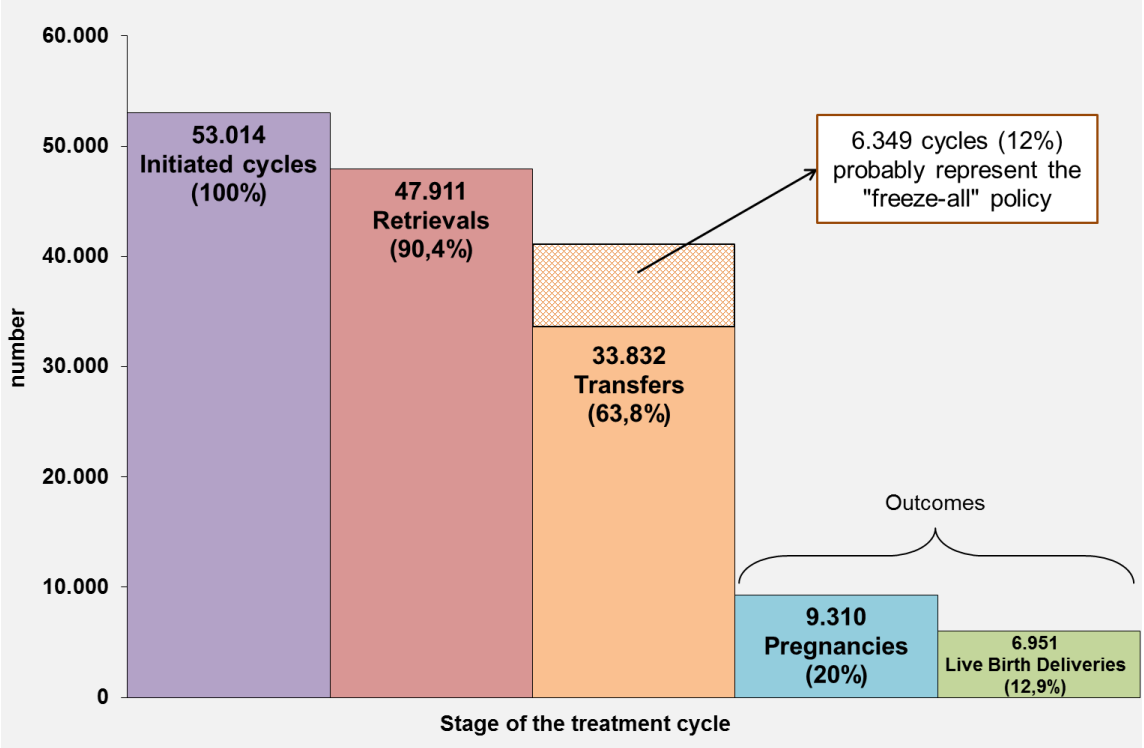

Figure 8. Outcomes of ART using fresh cycles by stage of the treatment cycle, 2017

2.2.3. Did the number of embryos transferred differ among women of different age groups?

Figure 9 shows the distribution of the ART-non donor transfers divided by the number of embryo(s) transferred according to women's age (due to the aggregate data collection we cannot have this information for each ART techniques). The number of transfers with three embryos increased with women's age when they use their own oocytes, while the number of transfers performed with one or two embryos declined with women's age. Only the 50% of transfers in women under 35 and the 40% in women older than 42 are made with one embryo.

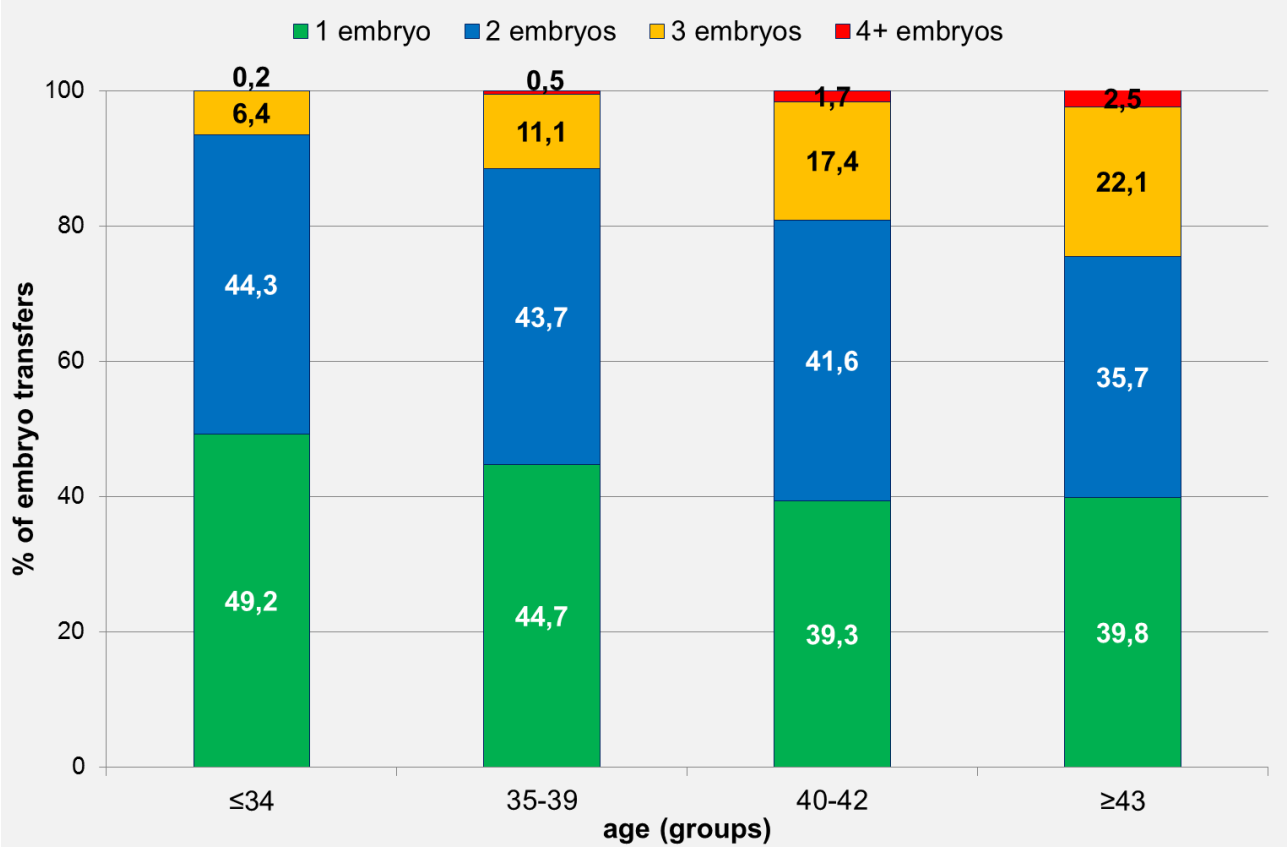

Figure 9. Distribution of embryo transfers according to the number of embryos transferred (ART total) by female patients age groups, 2017

2.2.4. What are the percentages of initiated cycles or thawings, and transfers that result in pregnancies for ART cycles?

Figure 10 shows the pregnancy rates per aspiration/thawing and per transfer for the ART techniques. Overall, the rates after FET were higher than others techniques, while the FO ones were the lowest. The better results obtained with frozen embryos could be partially due to the selection of "good prognosis" patients (freeze-all strategy and/or more efficient single embryo transfer) in cryopreservation techniques. These results are observed also at the European level[1].

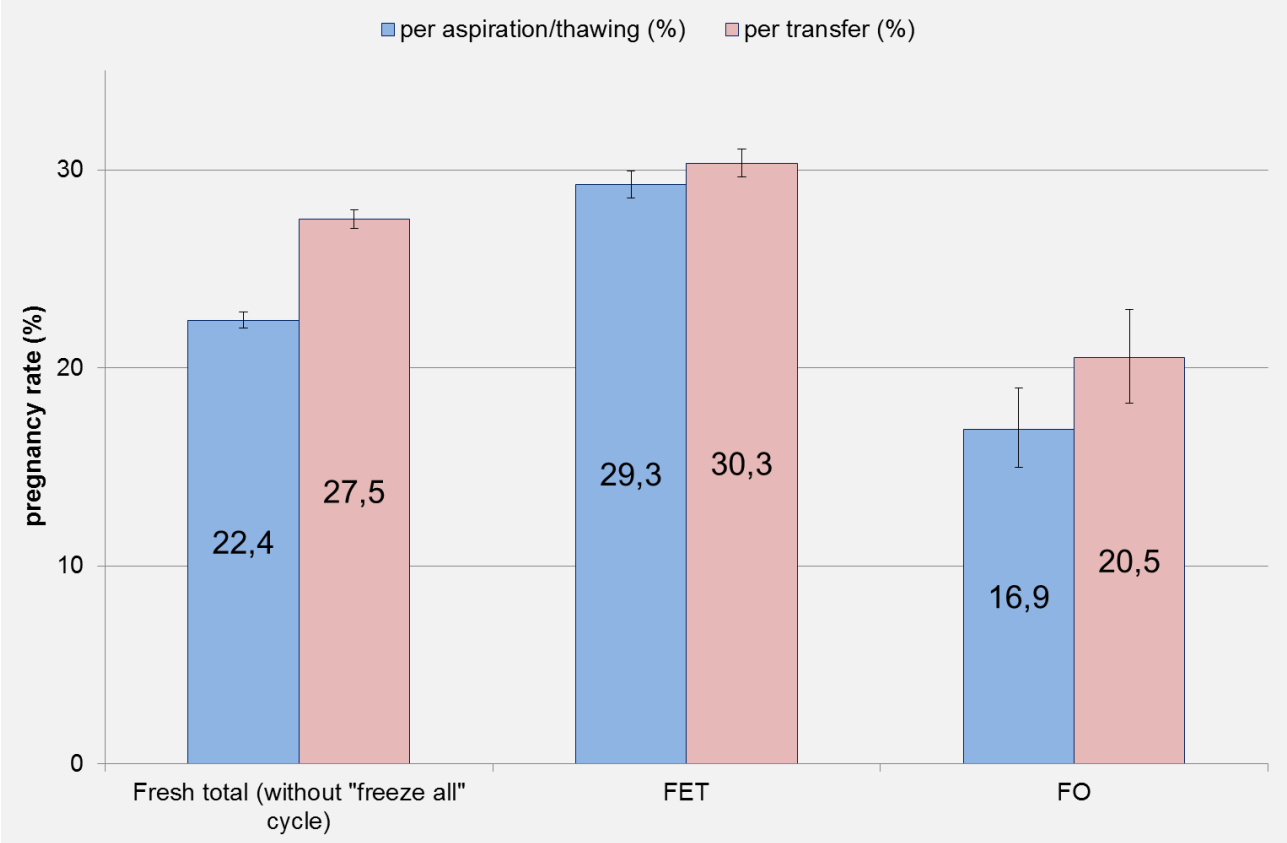

Figure 10. Pregnancy rates per aspiration/thawing and per transfer according to different ART procedures, 2017

2.2.5. What is the “Cumulative Pregnancy Rate”?

The cumulative pregnancy rate (CPR) is the overall chance of obtain a pregnancy from all fresh and frozen embryo transfers coming from one egg retrieval. To precisely calculate the CPR, individual data instead of summary data collection would be needed. Unfortunately, IARTR as well as other Registries around the world collects information only in aggregated form. To overcome these limitations and calculate CPR using aggregated data like EIM and ICMART, we sum the number of pregnancies obtained from fresh and frozen cycles divided by the number of aspirations, per year. CPR may provide a broader view of pregnancies that are achieved in Italy, in a year of activity. Moreover, the comparison of pregnancy rates from fresh cycles vs. cumulative pregnancy rates may show the estimated added value of embryo and oocyte cryopreservation.

Figure 11 shows pregnancy rate per fresh cycle and cumulative pregnancy rate by women age groups. Overall, embryo and oocyte cryopreservation increased by 57% the chances of achieving a pregnancy per aspiration. It should be emphasized that as we cannot take into account the weight of the "freeze-all" policy in every age group of female patients (data not collected by the Registry), so the pregnancy rates per aspiration for each age groups could be underestimated.

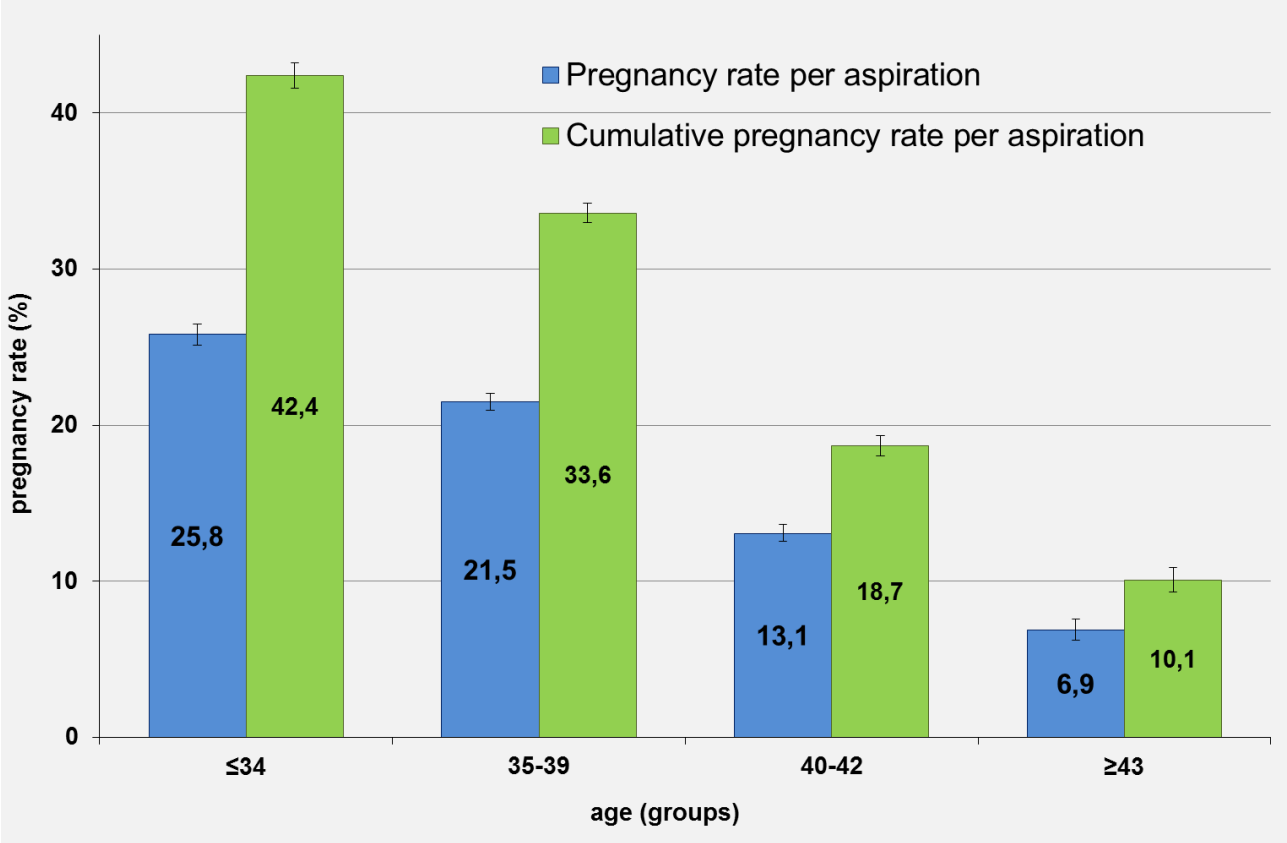

Figure 11. Pregnancy rates per aspiration and cumulative pregnancy rates per aspiration, by female patients age groups, 2017

2.2.6. What percentage of ART pregnancies resulted in a delivery?

Figure 12 shows the outcomes of the monitored clinical pregnancies obtained from the application of ART non donor procedures in Italy in 2017. Of the 8.059 monitored pregnancies issued from fresh cycles 74,8% resulted in a delivery, the 11,6% in multiple deliveries and the 23,7% in a miscarriage. In FET and FO procedures the 74,8 % and 73,6% respectively, resulted in a delivery. The percentages of multiple deliveries in FET and FO are lower (5% and 10,7% repectively) then in fresh cycles, while the percentage of miscarriages were no signifacantly different.

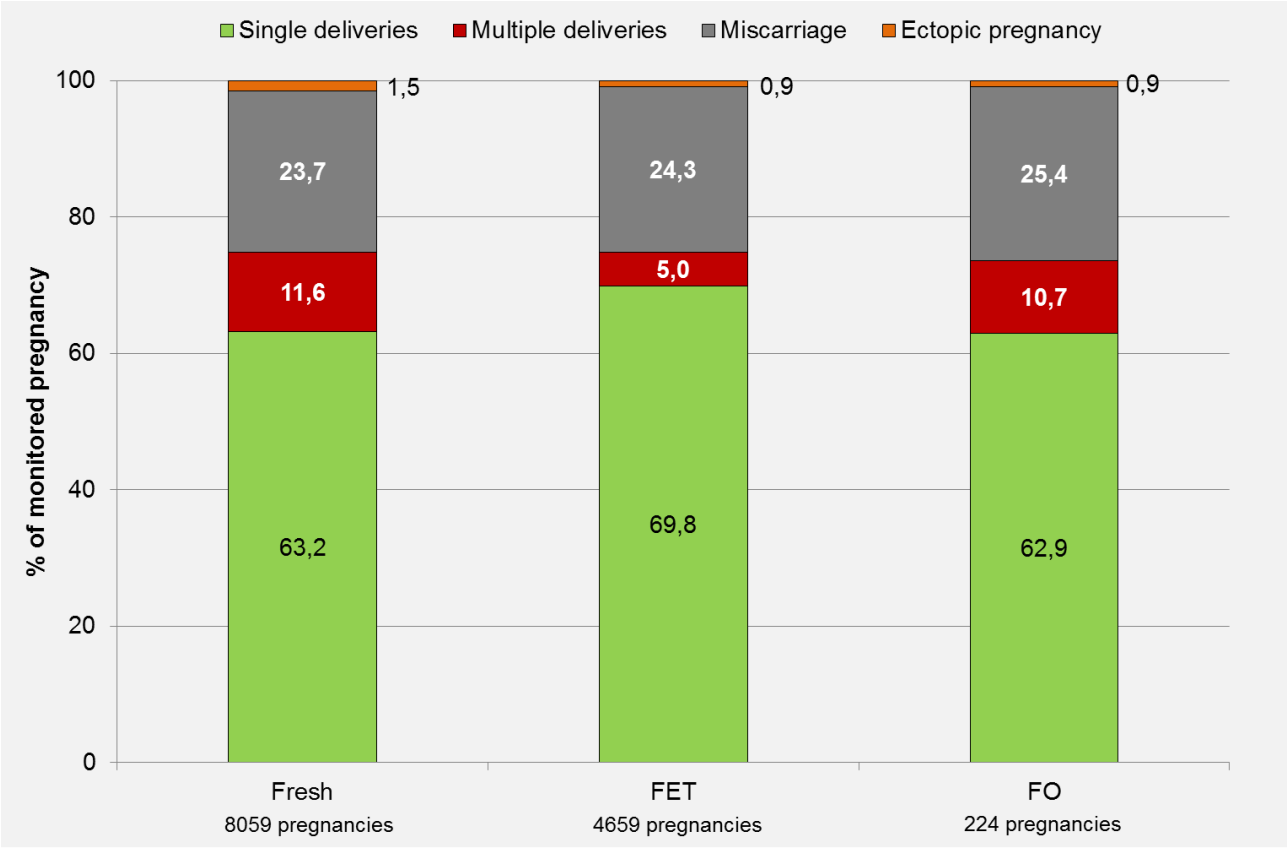

Figure 12. Comparison of the outcomes of monitored clinical pregnancies that resulted from ART non donor procedures, 2017

2.2.7. What is the gender distribution of infertility factors among ART users?

Figure 13 shows major causes of infertility among patients who had ART using fresh cycles in 2017. Diagnoses range from one infertility factor in the patient or partner to multiple infertility factors in either one or both members of the couple. The male factors are decreasing since 2009, while the female ones are now stable after rising rapidly from 2009 to 2013. Overall, considering also the causes of infertility present in both members of the couples, female factors were diagnosed in more than 50% of couples in each year of data collection.

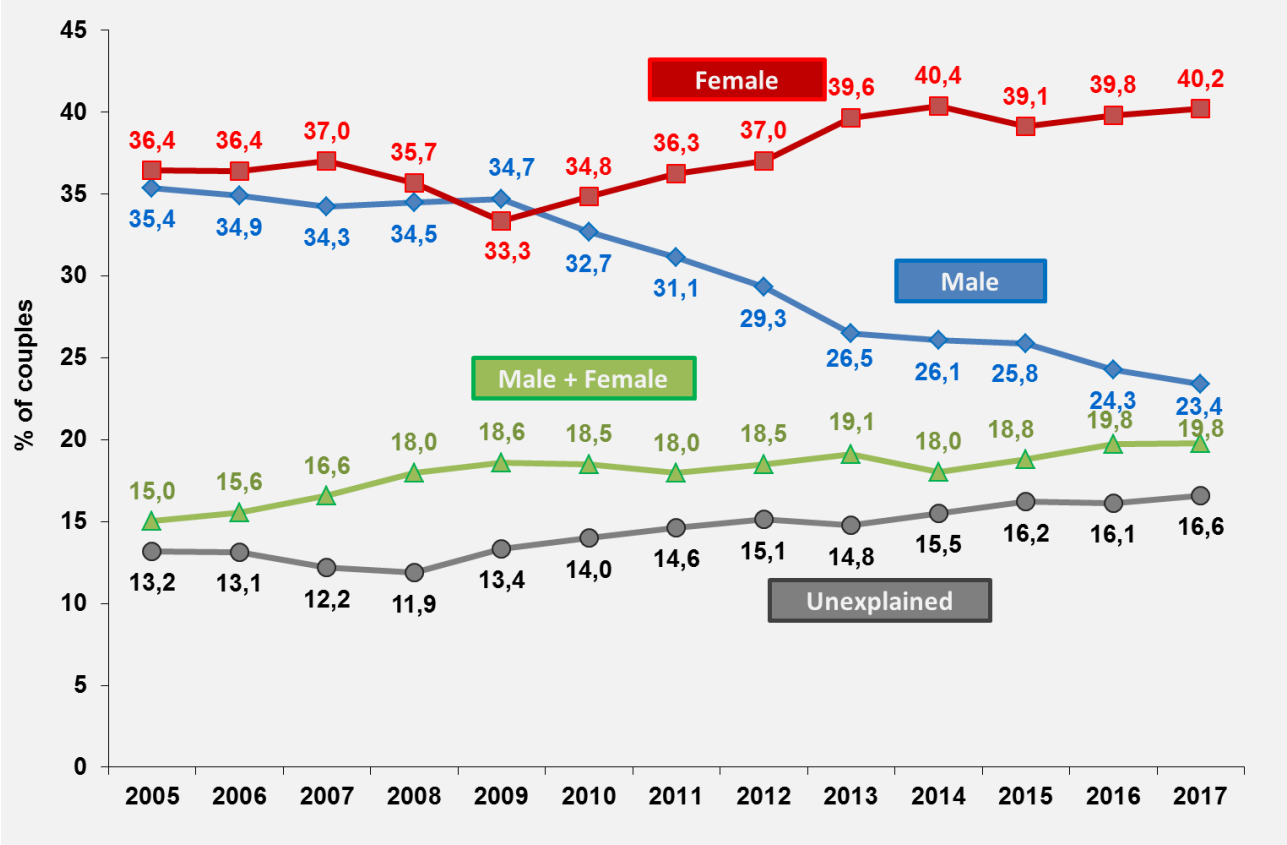

Figure 13. Time-trends of gender distributions of infertility causes among patients who had ART using fresh cycle, 2017. Total couples treated: 44.279

2.2.8. Is the use of ART procedures change over time?

Figure 14 shows the number of ART non donor initiated/thawing cycle and the number of ART active centers (with at least 1 cycle performed in the year) from 2005 to 2017.

The numbers of initiated cycles increased by 92% over time with an average increase of 7,7% for each year and it seems not to be related to the number of active centers.

Intra-Cytoplasmic Sperm Injection (ICSI) was originally developed to improve fertilization rates in couples with severe male factor infertility indication. Today, this procedure is widely used even without a reported diagnosis of male factor infertility.

The number of ICSI cycles increased from 24.209 in 2005 to 44.965 in 2017, while IVF cycles decreased from 8.994 to 8.049. Also FET thawing increased from 1.338 to 17.281, while FO procedures decreased from 2.711 to 1.391.

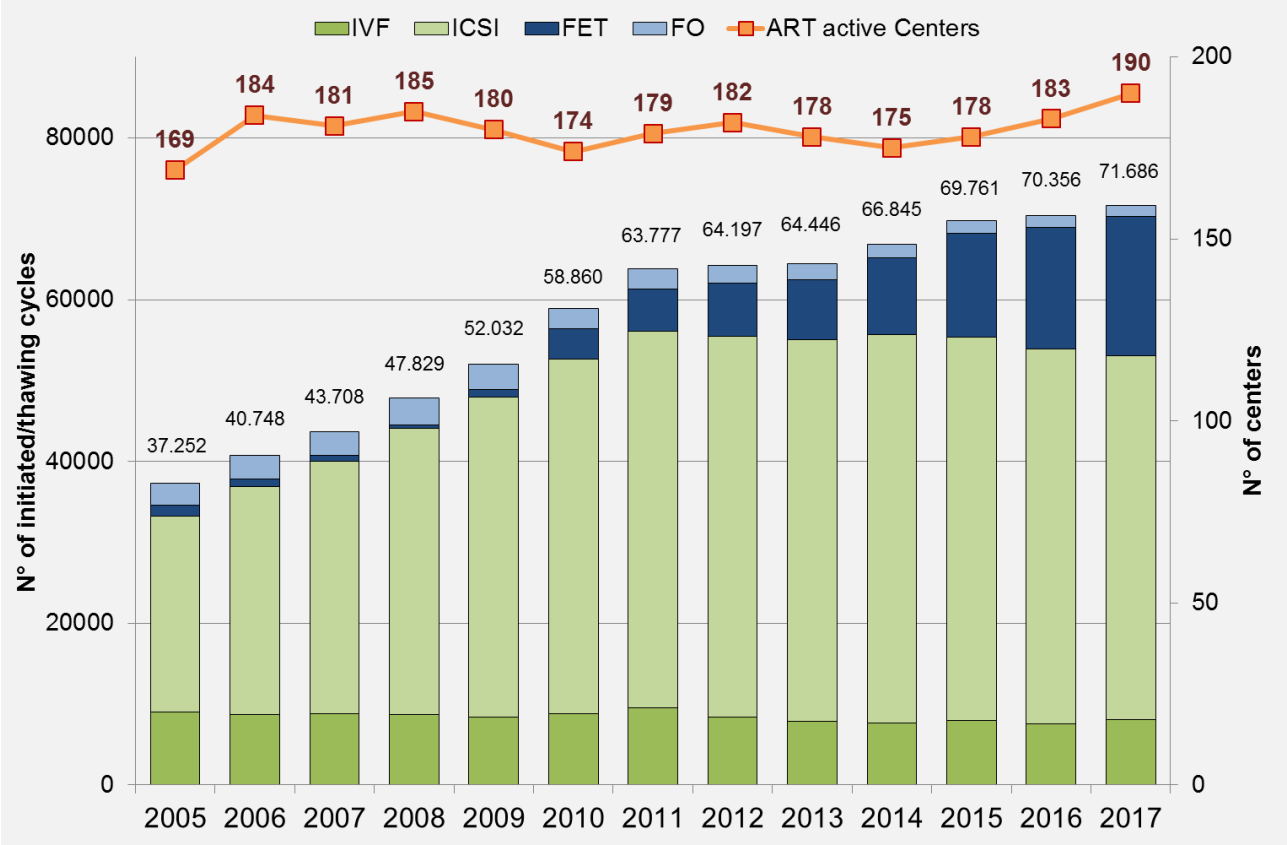

Figure 14. Time-trends of ART non donor initiated cycles/thawings and number of active ART centers, 2005–2017

2.2.9. Did the use of FET procedures differ in Italy compared to the other European countries over time?

In 2004 the Italian Parliament approved a Law (40/2004) regulating ART in which embryo cryopreservation was banned. In 2009 Italian Constitutional Court removed some limitations set out in the Law, including the practice of embryo freezing, now permitted under specific conditions. For this reason the use of FET has declined consistently after 2004 and resumed steadily after 2009 (**Figure 14**). As shown in **Figure 15** percentage of FET cycles performed highly increased from 3,6% in 2005 to 24,1% in 2017. In comparison with some European countries, such as France, Germany and Sweden, for 2014 Italy still show the lowest number of FET cycles performed, but they are steadily increasing.

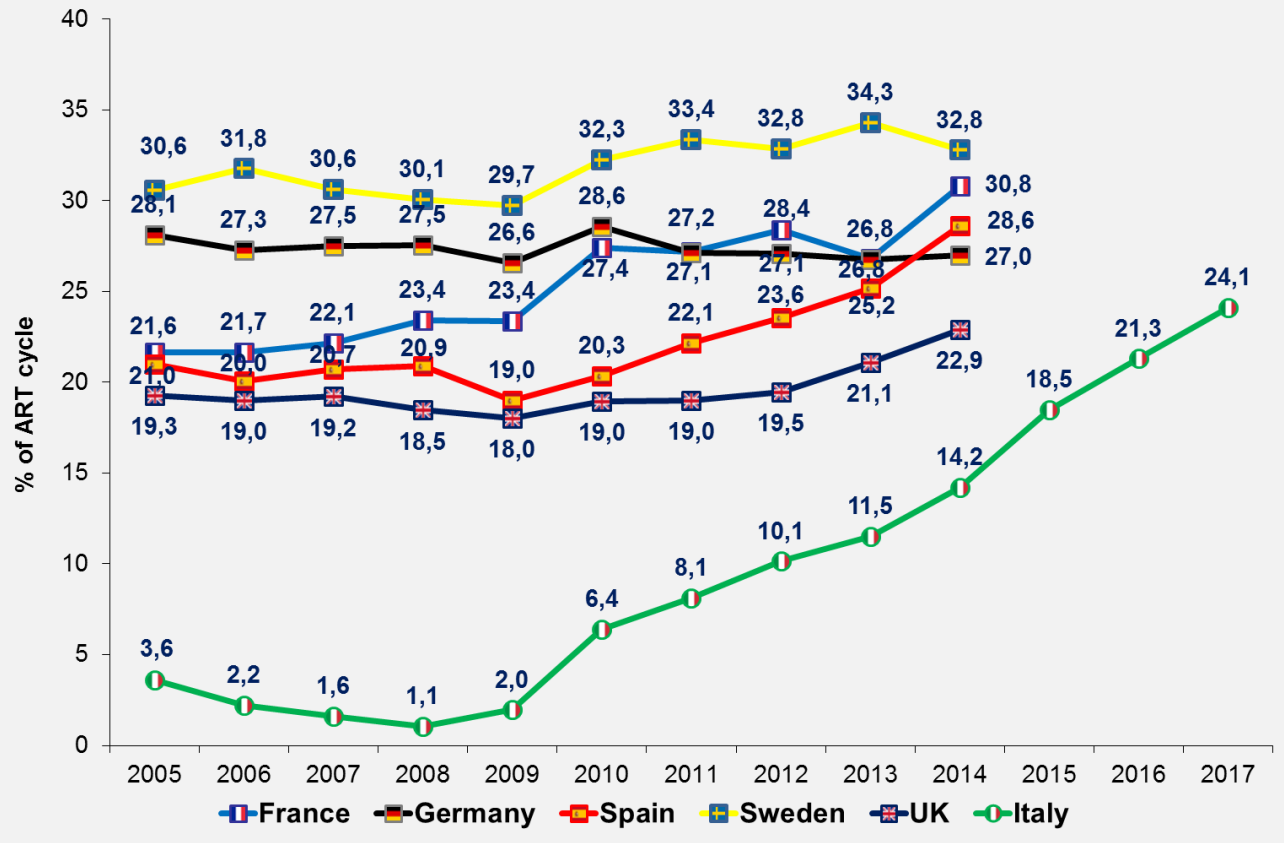

Figure 15. Time- trends of percentages of FER thawing on total ART non-donor initiated cycles in selected European countries (2005-2014)* and Italy (2005-2017)

*Elaboration of number of ART treatment cycles: source ESHRE reports on ART.

2.2.10. Has the age of ART female patients changed over time?

Figure 16 shows the distribution of fresh cycles by women age groups, from 2005 to 2017.

For women older than 40 the percentage of fresh cycles performed increased from 20,7% in 2005 to 34,3% in 2017, whilst the percentage of fresh cycles performed in women ≤34 years old decreased from 39,3% in 2005 to 27,8% in 2017. Overall, the mean age of women who had fresh cycles increase over time from 35,3 to 36,7 years.

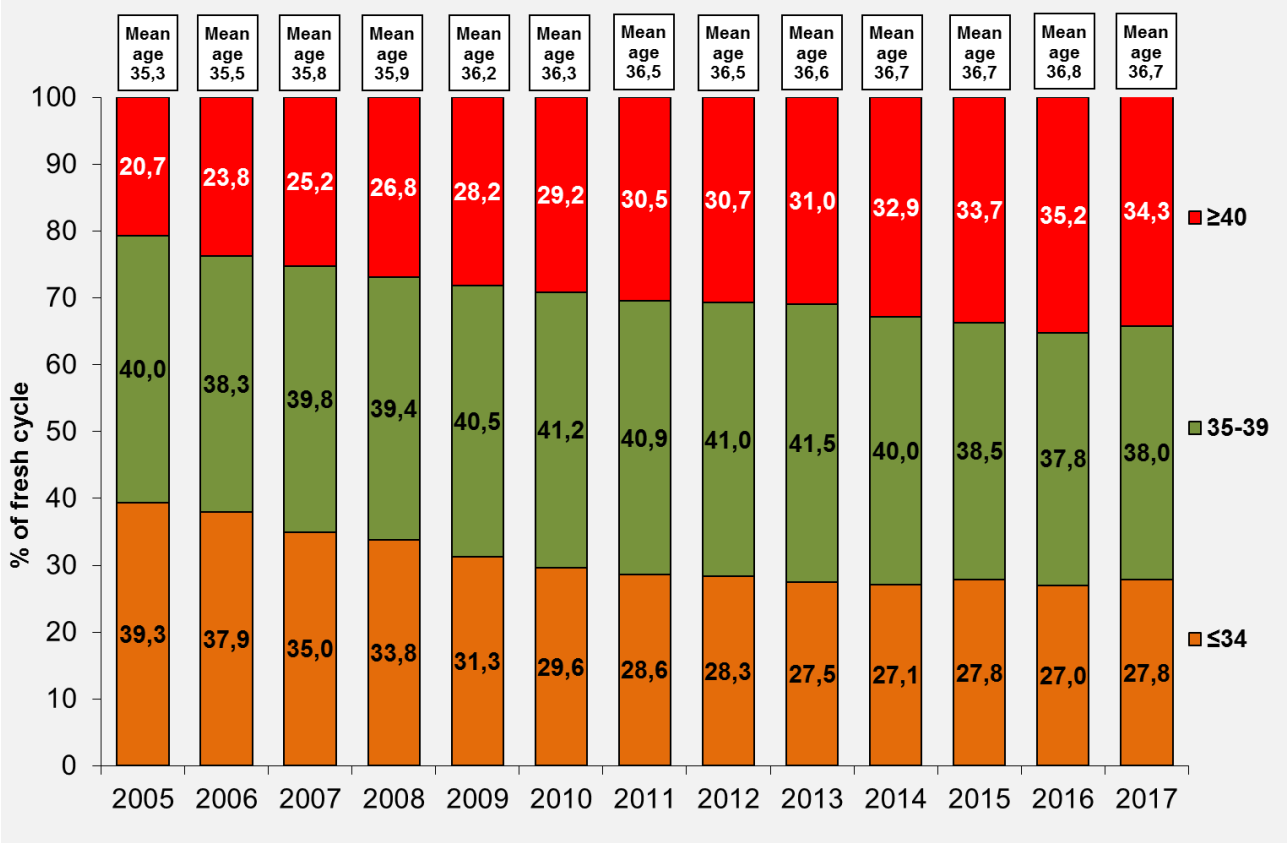

Figure 16. Time-trends of fresh initiated cycles distributions by age classes of female patients, 2005-2017

2.2.11. Has the number of embryos transferred changed in fresh cycles?

Figure 17 shows trends with the percentage of the number of embryos transferred in fresh cycles. From 2005 to 2017 the transfer with one and with two embryos increased from 18,7% to 34,1% and from 30,9% to 48,9%, respectively. On the other hand, transfers with 3 embryos dramatically decreased from 50,4%, first to 38,1% in 2010 to reach 16% in 2017. As shown in the figure**,** this trend begins from the end of 2009 when Law 40/2004 was changed, and the limit to transfer all the embryos created for a maximum of three removed. Values of transfers with four or more embryos has finally been more than halved, from 2,6% in 2009 to 1,1% in 2017, after having been quite stable during time. The average number of embryos transferred decreased from 2,3 embryos per transfer in 2005 to 1,8 in 2017. This trend is similar in most of the European countries[1].

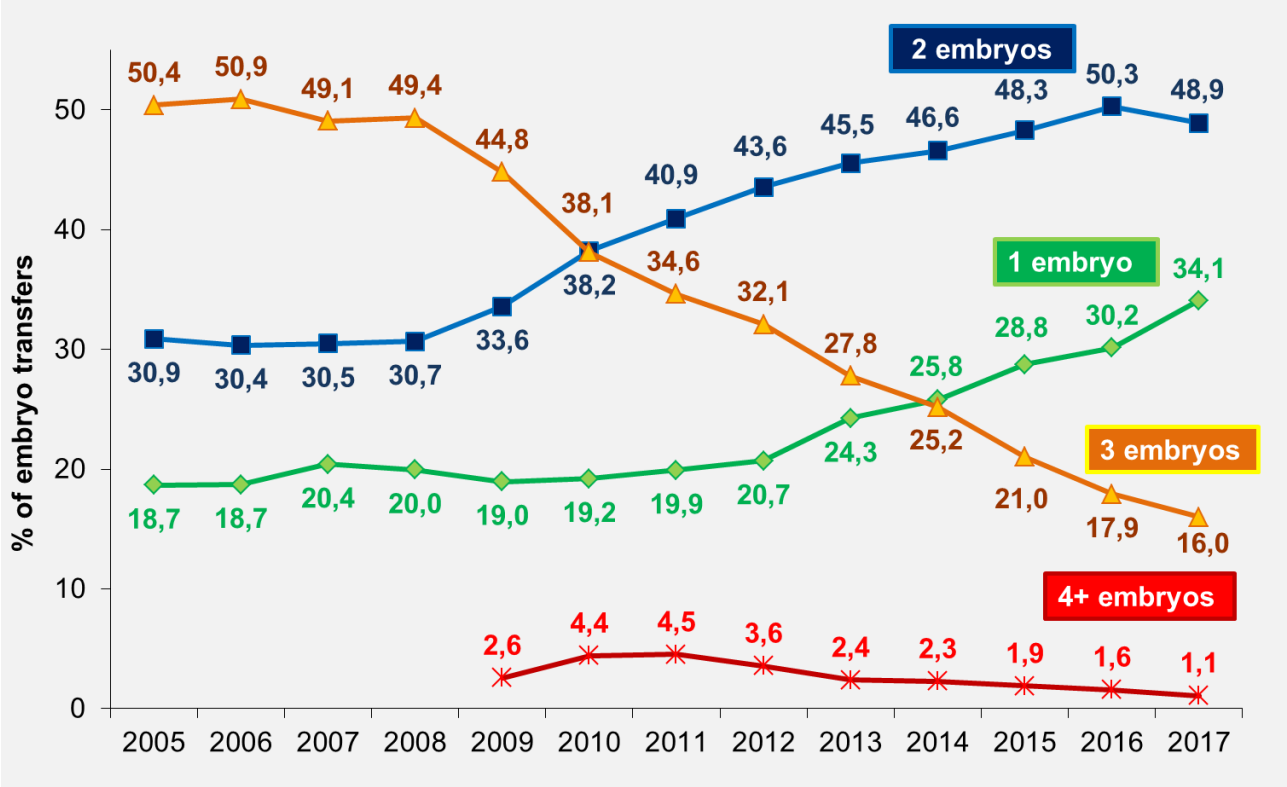

Figure 17. Time-trends of transfer by number of embryos transferred, 2005-2017

2.2.12. Did pregnancy rates per transfer changed over time among different ART procedures?

Figure 18 shows pregnancy rates per transfer in order to compare cycles with fresh oocytes and embryos vs. those using frozen embryos (FET) or frozen oocytes (FO).

Overall, FET cycles showed the best pregnancy rates increasing highly from 16,3% in 2005 to 30,3% in 2017, those with fresh oocytes slightly increased from 24,5% to 27,5%, and those with frozen oocytes from 11,4% to 20,5%. Since four years apart, FET pregnancy rates are higher than the fresh ones.

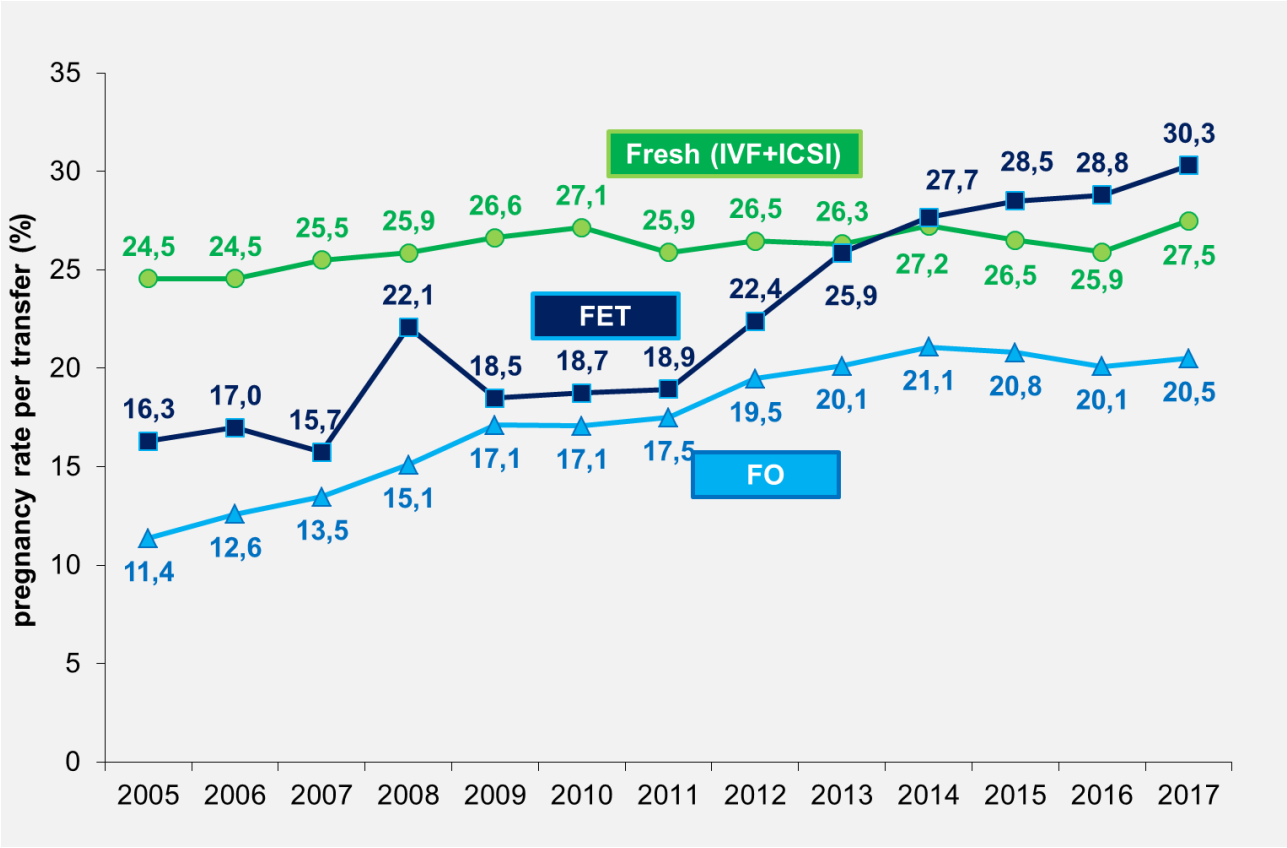

Figure 18. Time-trends of pregnancy rate per transfer for fresh, thawed embryos (FET) and thawed/warmed oocytes cycles (FO), 2005-2017

2.2.13. Did cumulative pregnancy rates per initiated cycle changed over time?

Figure 19 compares the percentage of pregnancies obtained on fresh initiated cycles with the Cumulative Pregnancy Rate (CPR) over time. As described in **Chapter 2.2.5**, CPR is presented as the sum of pregnancies obtained from fresh cycles and with frozen/thawing cycles (FET and FO) as nominator and the number of initiated cycles with fresh techniques of the same year as denominator. CPR gives an estimate of the likelihood of obtain a pregnancy for a woman undergoing an ART cycle, also having the opportunity to perform oocyte and/or embryo thawing cycles. Moreover, the comparison of pregnancy rate from fresh cycles vs. CPR may show the estimated added value of embryo and oocyte cryopreservation. As the **Figure 19** show this value is constantly growing from +6,6% in 2005 to a +37,5% in 2017.

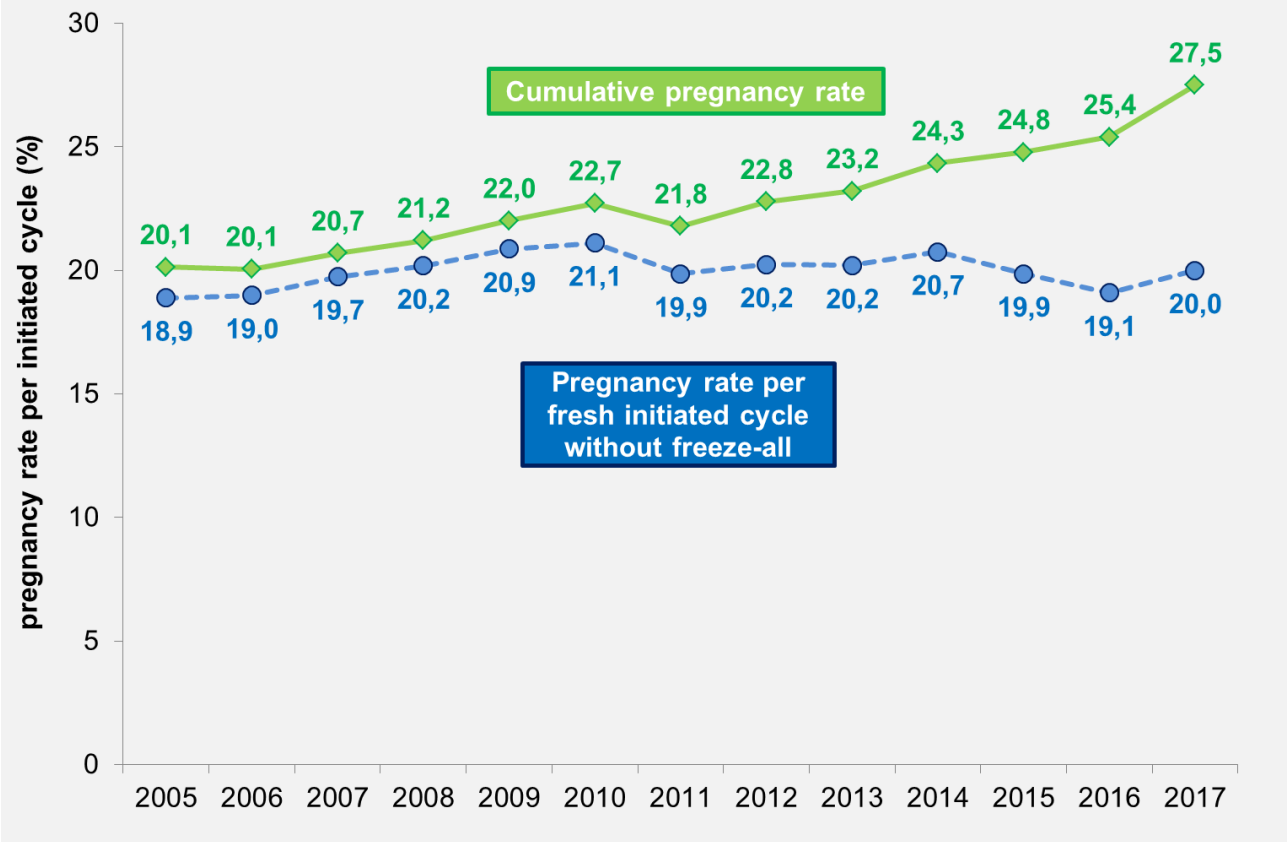

Figure 19. Time-trends of pregnancy rate per initiated cycle for fresh and cumulative pregnancy rate per initiated cycle, 2005-2017

2.2.14. Does the risk of pregnancy loss differ among women of different age groups?

Increasing female age also increases the risk of negative pregnancy outcomes (spontaneous or therapeutic abortions and ectopic pregnancies). As shown in **figure 20** pregnancy loss rates were much higher in older age groups. Rates decreased over time from 65,2% to 53,7% for women older than 43 years old and from 42,5% to 37,8% for women aged 40-42. Rates for the age classes younger than 40 were quite stable from 2009 to 2017.

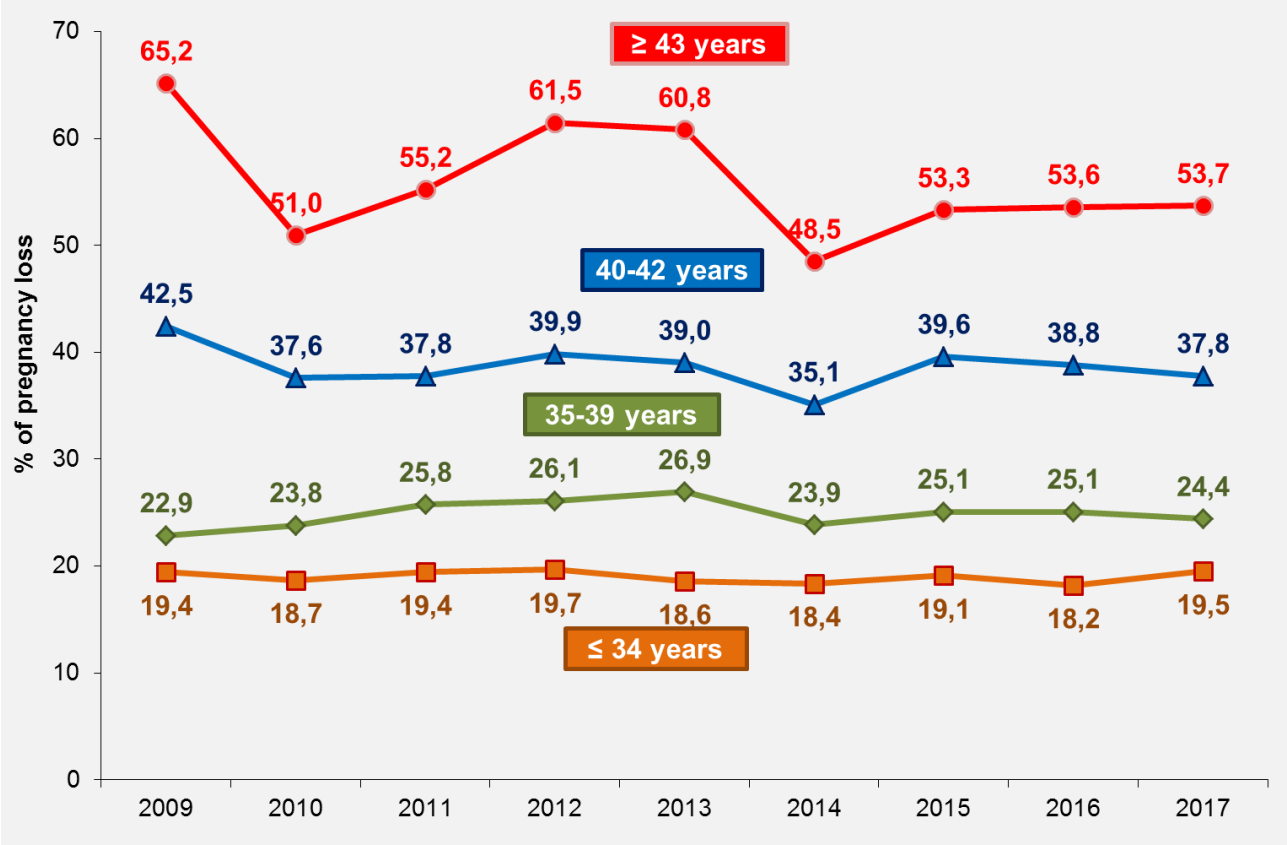

Figure 20. Time-trends of percentages of total pregnancy loss using ART non donor cycles by female age groups, 2009-2017

2.3. ART donor cycles

In April 2014 Italian Constitutional Court removed the prohibition (set out in the Law 40/2004), regarding the practice of ART techniques using donor gametes. Currently oocyte donation, semen donation and double donation are allowed.

For more detailed data on activity and outcomes regarding ART donor cycles, see the Summary table for 2017 (see page 55).

2.3.1. Which gametes were used in ART donor cycles in 2017?

Figure 21 shows the distribution of types of the 6.771 ART cycles using donor gametes applied in Italy in 2017 and the origin of the donated frozen oocytes. In about 46% of ART donor cycles, fresh or frozen eggs were used, in almost 15% of cycles there was a sperm donation, more than 40% of cycles were performed using cryopreserved embryos obtained from donation of gamete(s) and in 2,5% of cycles there were a double donation. In the oocyte donation cycles, almost all (97,5%) were performed with oocytes obtained from a foreign bank.

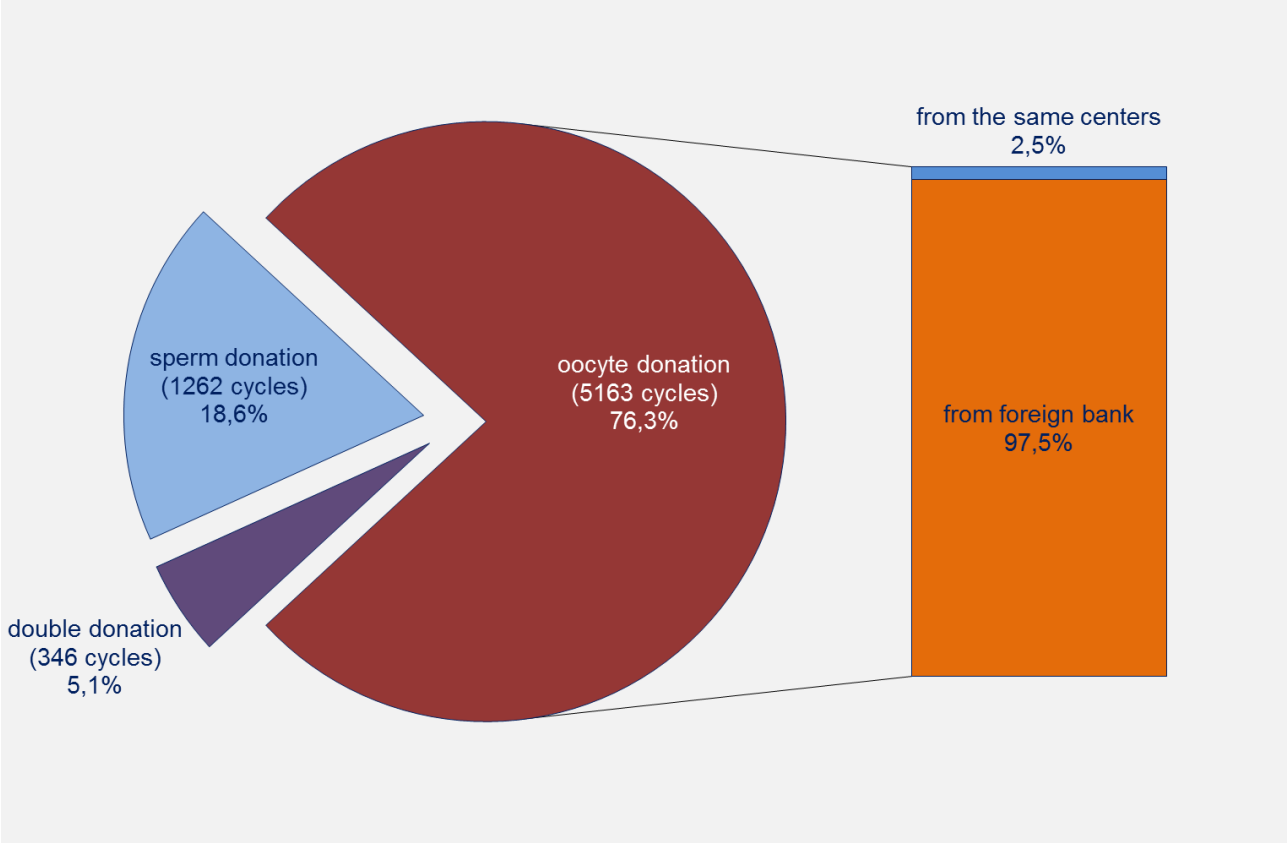

Figure 21. Distribution of all ART cycles using donor gametes and origin of the oocytes for the donor oocyte cycles, 2017. Total cycles = 6.771

2.3.2. What was the age of recipient female patients in ART donor cycles in 2017?

Figure 22 shows the distribution of transfers performed according to the recipient female age group at the start of a cycle performed with a gamete donation. The different distribution by age depending on the different types of gametes and embryos used reflects the indication of the treatment of the technique itself.

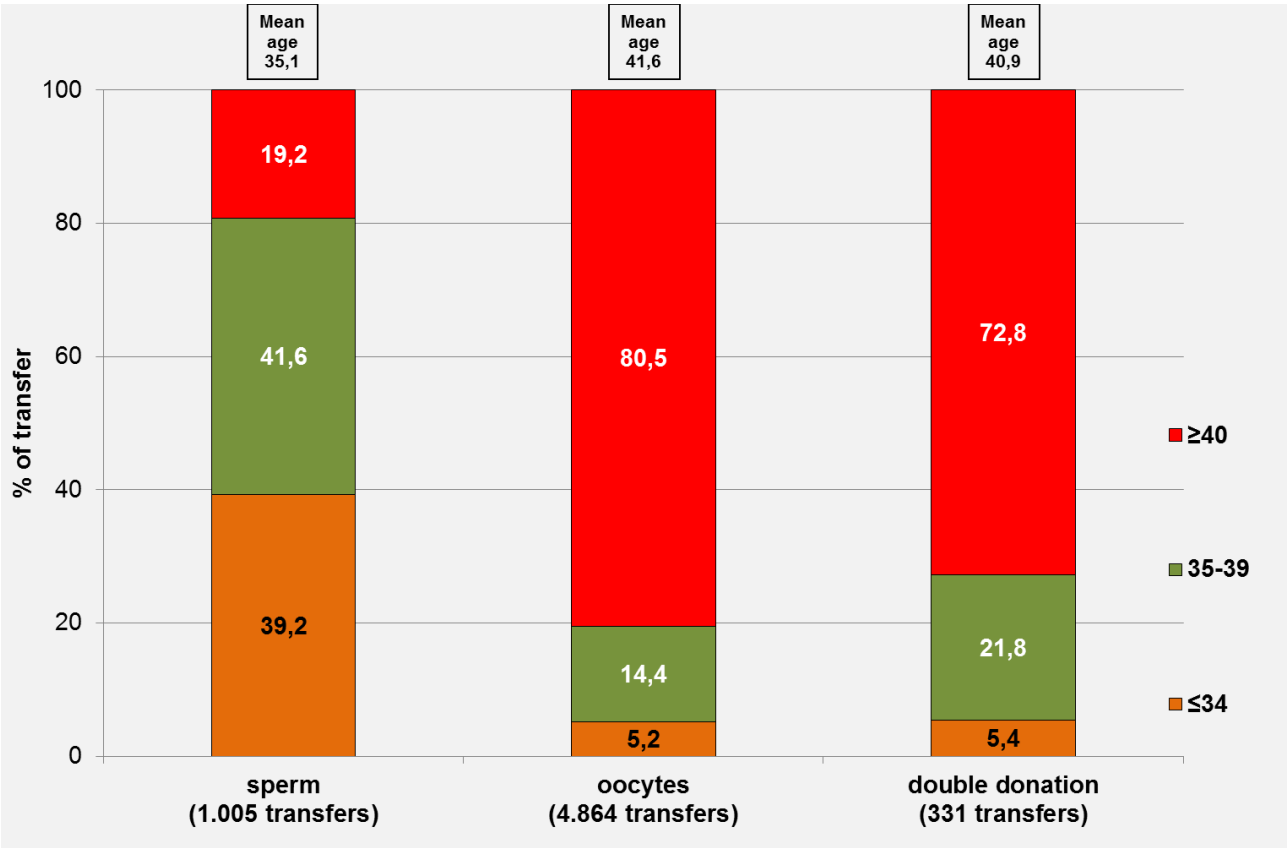

Figure 22. Distribution of transfers cycles using donor gametes by recipient female age groups, 2017

2.3.3. What was the percentage of transfers that result in pregnancies in ART donor cycles in 2017?

Figure 23 shows the pregnancy rate per transfer in ART donor techniques.

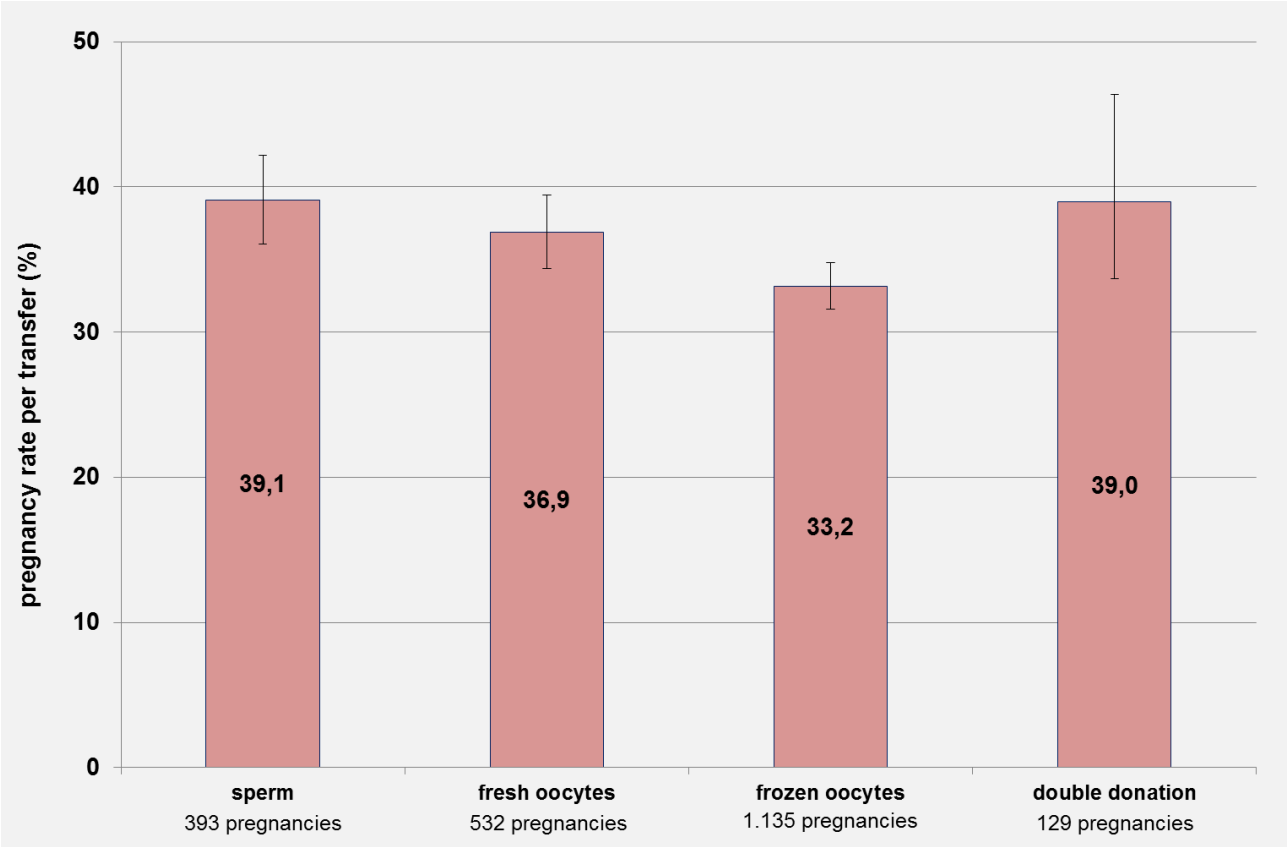

Figure 23. Distribution of pregnancy rate per transfer using donor gametes, 2017

2.3.3. What were the outcomes of pregnancies obtained in ART donor cycle in 2017?

Figure 24 shows the outcomes of the monitored clinical pregnancies obtained from the application of ART donor procedures in Italy in 2017. Of the 334 monitored pregnancies resulted from sperm donation 10,5% resulted in multiple deliveries and the 22,2% in an abortion. In frozen donor oocyte cycles the multiple deliveries rate was significantly higher (13,3%) then in fresh donor oocyte ones (7,4%). While there aren't significantly difference between the type of donations for the percentage of abortion: 22,2% for sperm donation cycles, 20,7% for fresh oocytes, 24,5% for frozen oocytes donation cycles and 21,2% for double donation cycles.

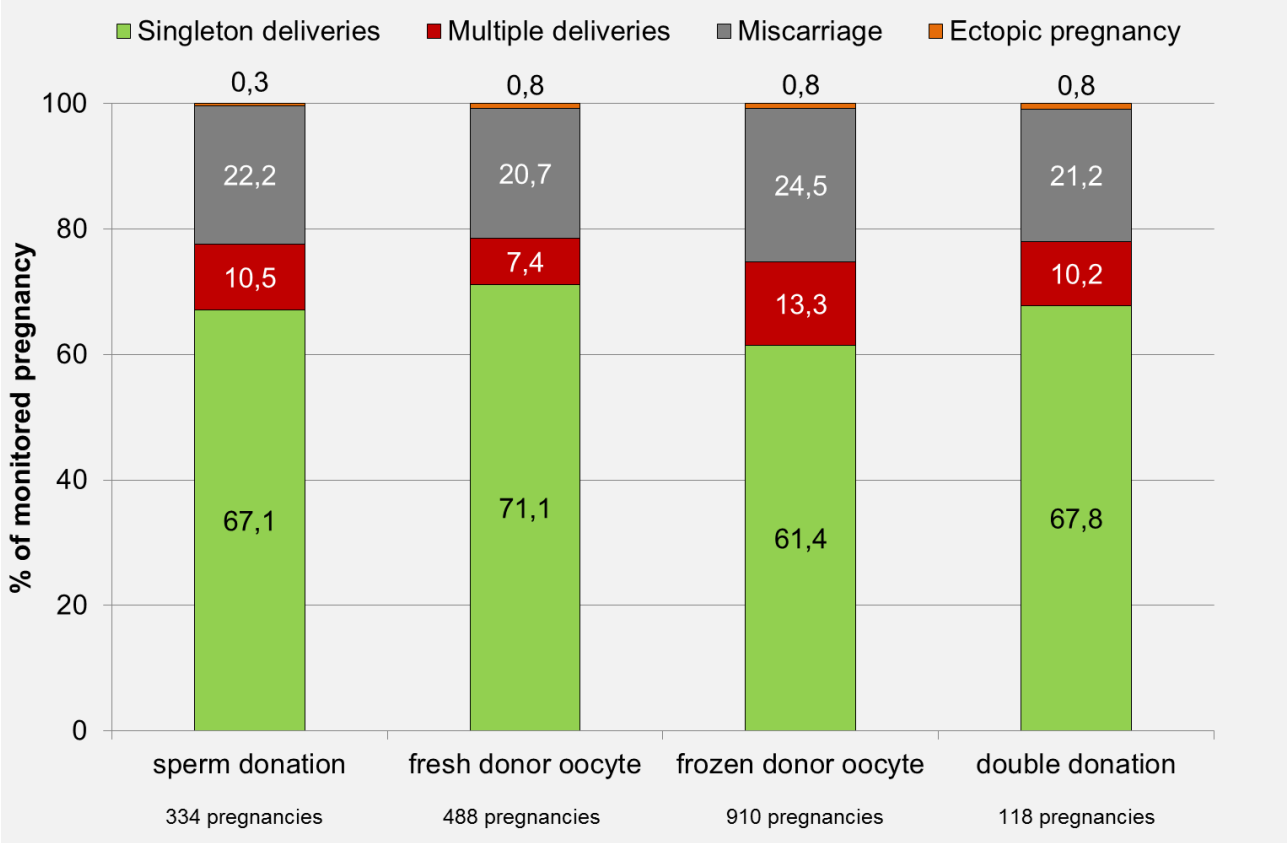

Figure 24. Comparison of the outcomes of monitored clinical pregnancies that resulted from ART donor cycles, 2017

2.4. PGD/PGS activity

During an ART treatment some investigation could be performed to evaluate the embryo's health status regarding the detection of possible genetic disorder.

For this analysis Preimplantation Genetic Diagnosis (PGD) technique or Preimplantation Genetic Screening (PGS) or a combination of the two may be used:

- **PGD -** analysis of polar bodies, blastomeres or trophectoderm from oocytes, zygotes or embryos for the detection of specific genetic, structural and/or chromosomal alterations;
- **PGS** - analysis of polar bodies, blastomeres or trophectoderm from oocytes, zygotes or embryos for the detection of aneuploidy, mutation and/or DNA rearrangement.

2.4.1. Which types of genetic analysis were performed in ART cycles in 2017?

PGD/PGS activity, recorded from 42 centers, involved 2.483 tests (2.388 fresh and 95 thawing). They result in 1.911 fresh and 50 frozen embryo transfers. **Figure 25** shows the distribution of the application of PGD/PGS cycles in Italy. A total of 841 pregnancies (44% per transfer) and 679 deliveries (35,5% per transfer) resulted from fresh cycles, while 18 pregnancies (36% per transfer) and 14 deliveries (28% per transfer) resulted from frozen embryo cycles. For more detailed data on activity and outcomes regarding PGD/PGS cycles, please check on summary table (see page 54).

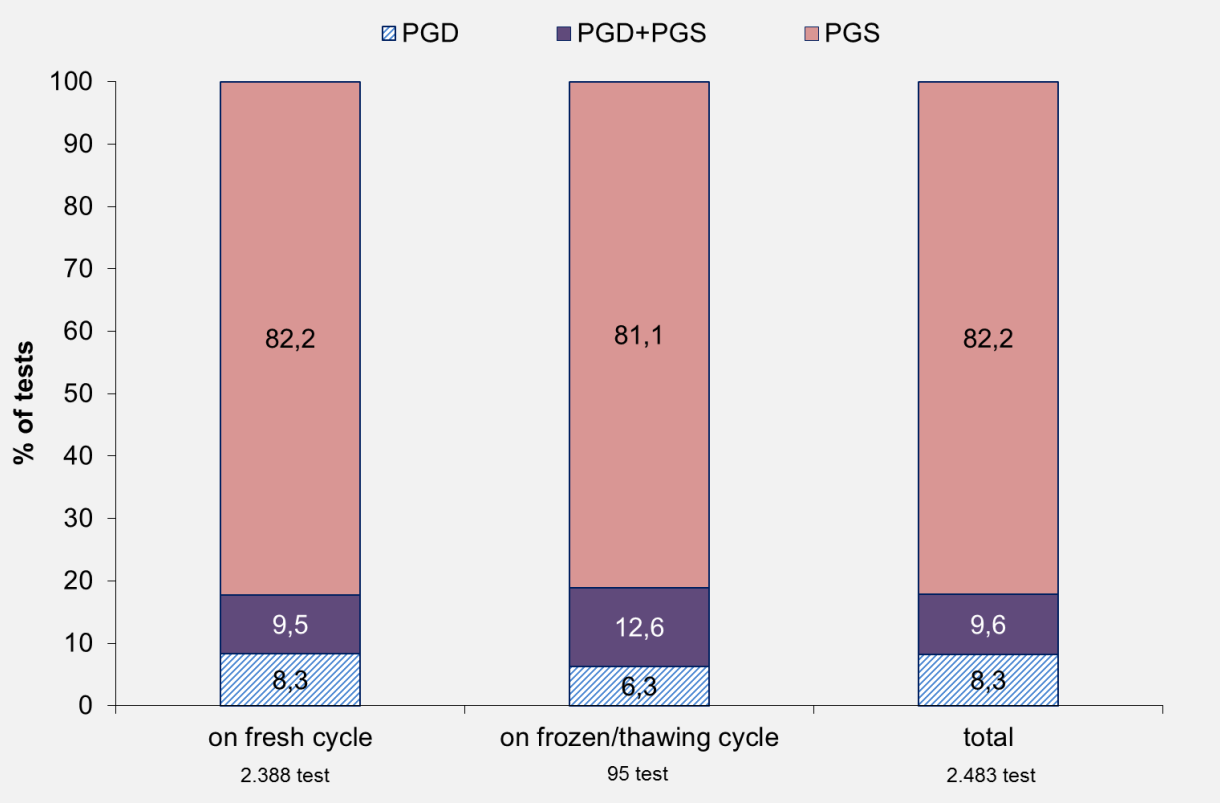

Figure 25. Distribution of PGD/PGS tests, 2017

2.4.2. Did the use of different genetic analysis in ART change over time?

Since the first data collection on PGD/PGS cycles performed on 2014 activity, the number of centers performing at least one PGD/PGS cycle increased from 22 in 2014 to 42 in 2017. At the same time also the number of analysis performed increased from 1.695 cycles in 2014 to 2.483 cycles in 2017 (**Figure 26**).

The time-trend of the different analysis performed according to the different type of tests shows no difference in the application of the genetic analysis, however PGS analysis is the most common in all the fourth data collection.

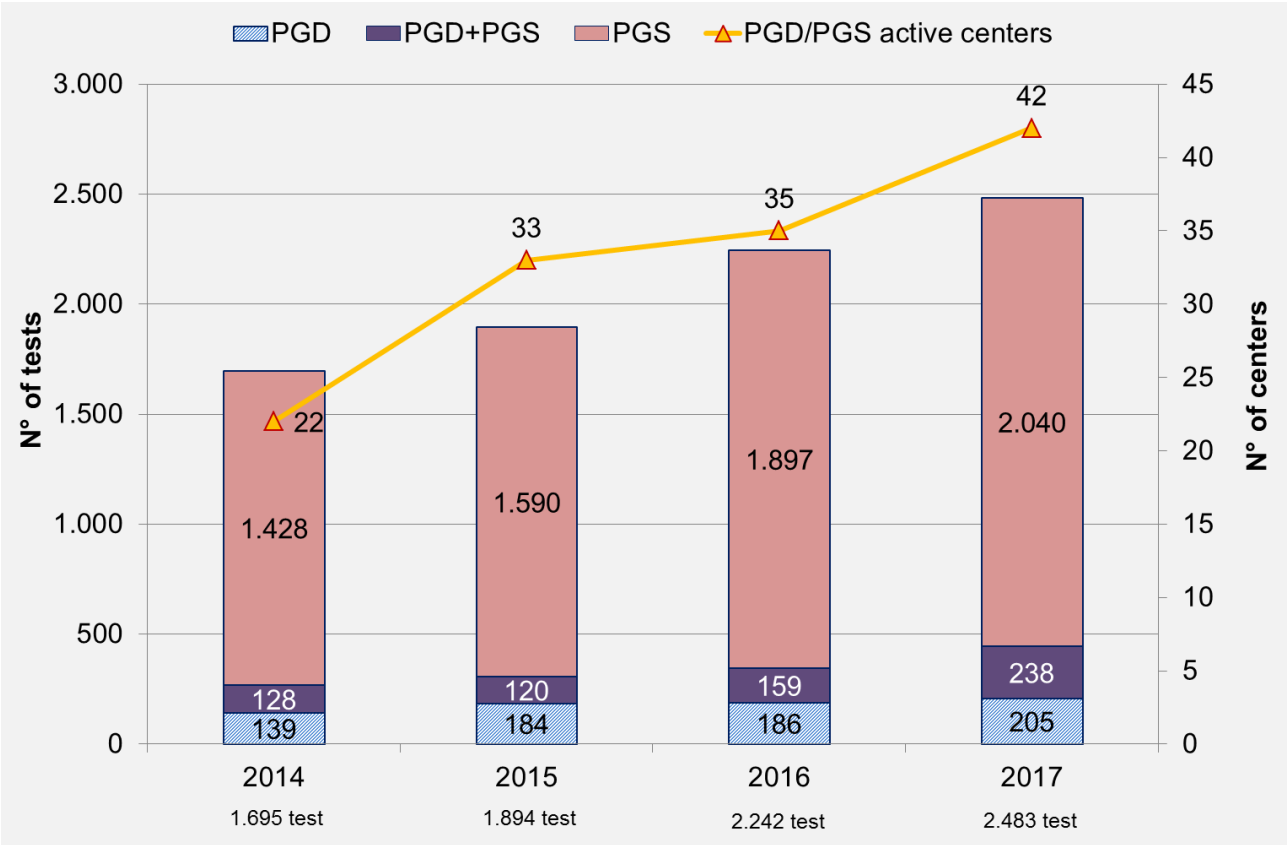

Figure 26. Time-trend of number of PGD/PGS tests according to the type of analysis performed, and of n° of ART centers performing at least one PGD/PGS tests, 2017

3. INDICATORS OF ART SAFETY

3.1. Safety in ART procedures

Although ART techniques are considered a safe medical procedure, in few cases some complications could arise during the treatment. These complications could arise at the moment of the ovarian stimulation or during pick-up procedure. Both could affect women's health. Another kind of complication for mothers and child it is strictly related to embryo transfer policies. The transfer of more than one embryo could determine multiple pregnancies and therefore multiple deliveries and multiple births that could determine prematurity, morbidity and perinatal mortality of the babies.

3.1.1. Did the numbers of complications for ART cycles change over time?

Complications in an ART treatment are considered:

- **Ovarian Hyper Stimulation Syndrome (OHSS)**: An exaggerated systemic response to ovarian stimulation characterized by a wide spectrum of clinical and laboratory manifestations. It may be classified as mild, moderate or severe according to the degree of complications[1]. It is registered as a complication in the ART Register when it is diagnosed as "severe" (at least grade 3).
- **Bleeding**: Significant bleeding, internal or external, after oocyte aspiration retrieval requiring hospitalization for blood transfusion, surgical intervention, clinical observation or other medical procedure[1].
- **Infection**: the presence of a bacterial or viral infection that can occur during any surgical procedure.

Cases of bleedings and infections are decreasing during time, while the number of OHSS is quite stable.

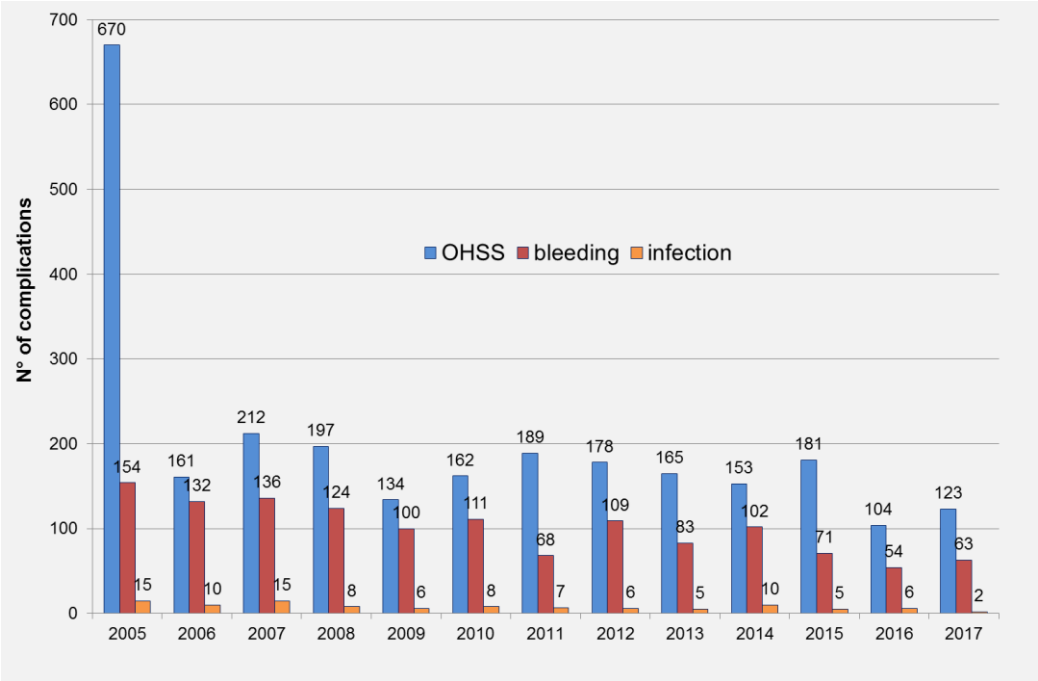

Figure 27. Time-trends of complications in fresh non donor ART treatments, 2005-2017.

3.1.2. Did the percentages of multiple deliveries for ART non donor cycles change over time?

Figure 28 shows trends for multiple deliveries in fresh cycles.

From 2005 to 2017 twin delivery percentage decreased from 21,6% to 15,2% while percentages of triplets and more deliveries decreased from 2,7% to 0,4%. This value is similar to the average European value of 0,5% reported in 2014 EIM data[1]. We must remember that from 2004 till 2009 the Law obliged to transfer at once, all the embryos created for a maximum of 3.

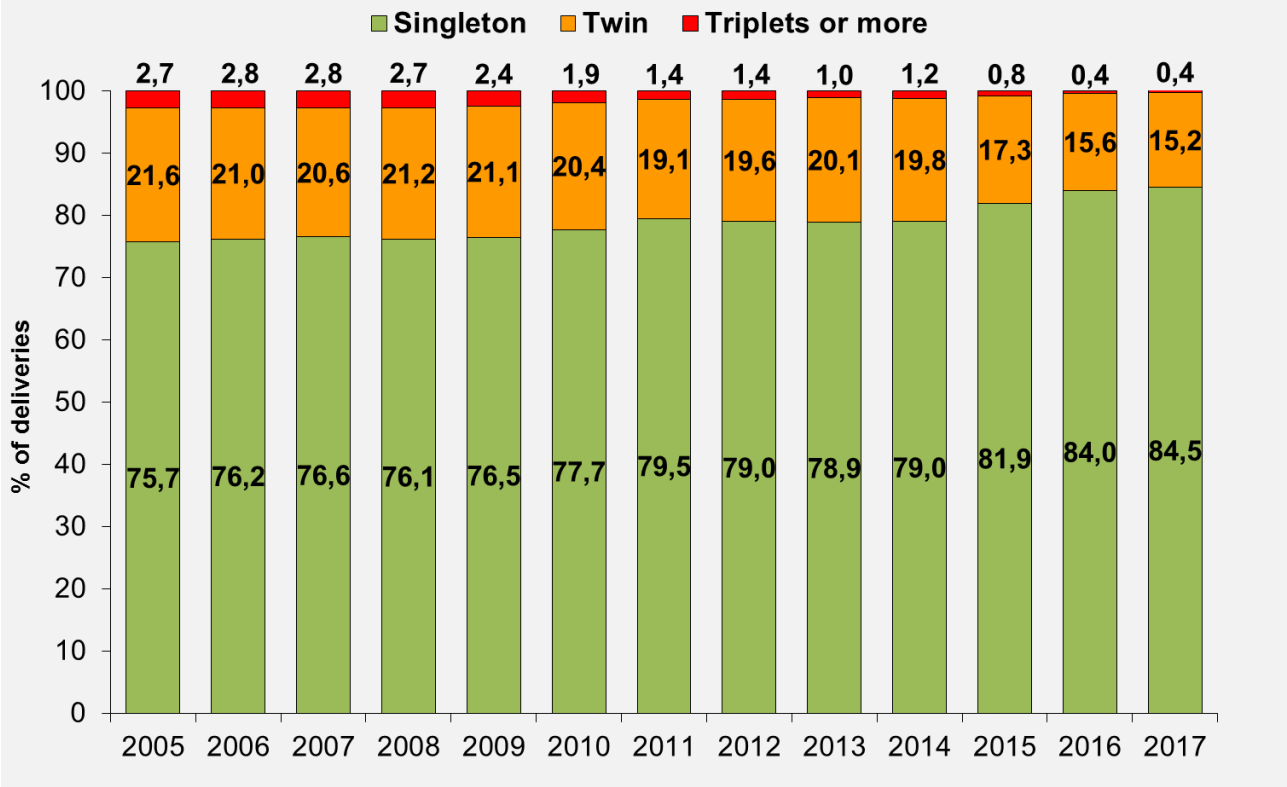

Figure 28. Time-trends of deliveries from fresh cycles according to gestational order, 2005-2017.

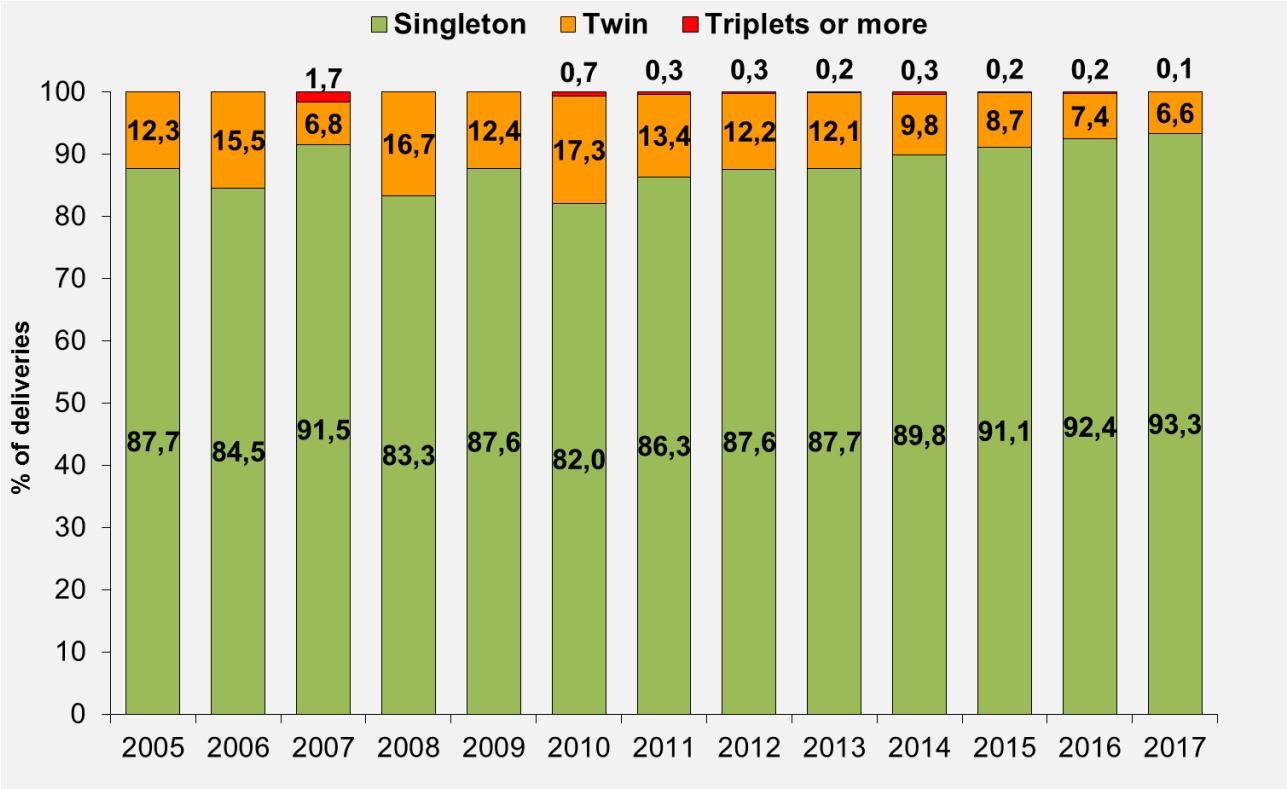

Figure 29. Time-trends of deliveries from FER thawing according to gestational order, 2005-2017

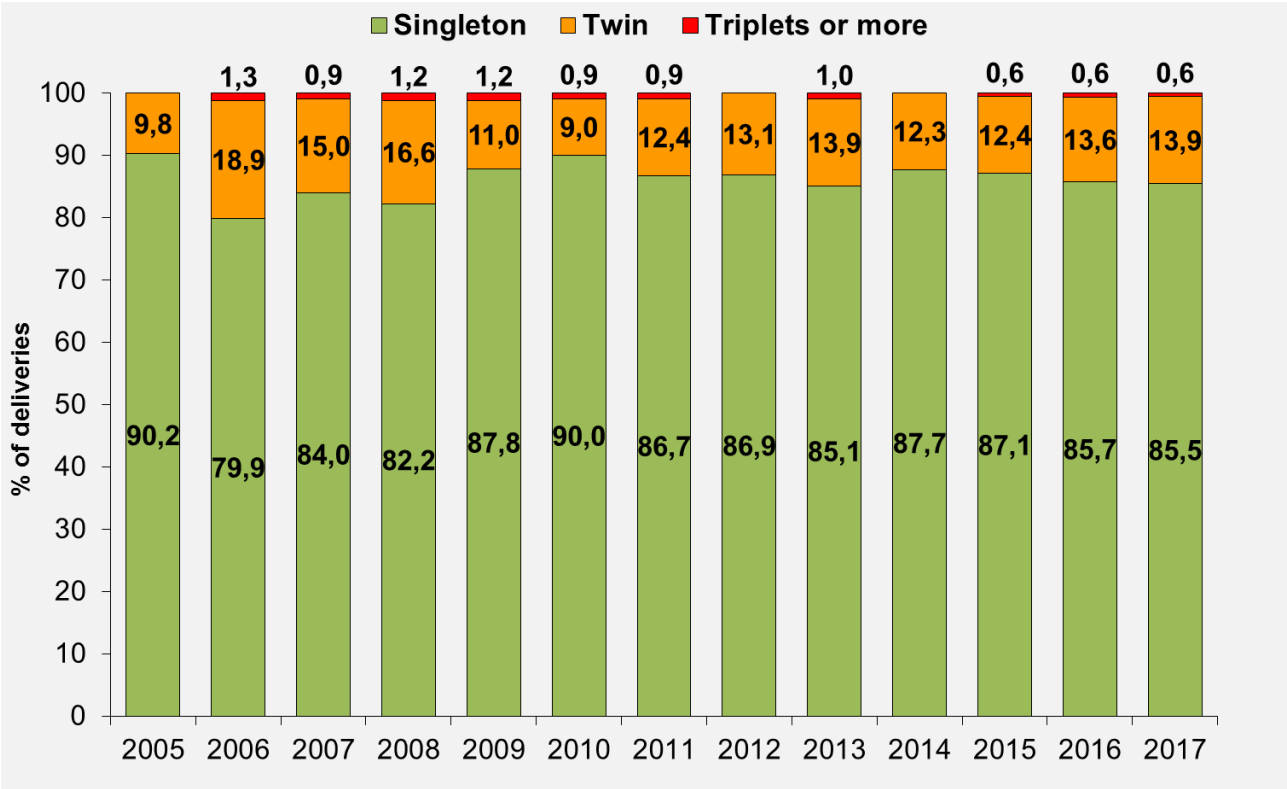

Figure 30. Time-trends of deliveries from FO thawing according to gestational order, 2005-2017

3.1.2. Did the percentages of preterm live babies change over time?

Figure 31 shows trends of ART preterm live born babies that are highly correlated with the multiplicity of deliveries.

The percentage of preterm live babies in singleton and twin deliveries are quite stable during all the period. Otherwise in triplet deliveries there is a variability from year to year, but overall the trend is upwards from 82,7% in 2005 to 96,1% in 2017 while it is stable or slightly lower in singletons.

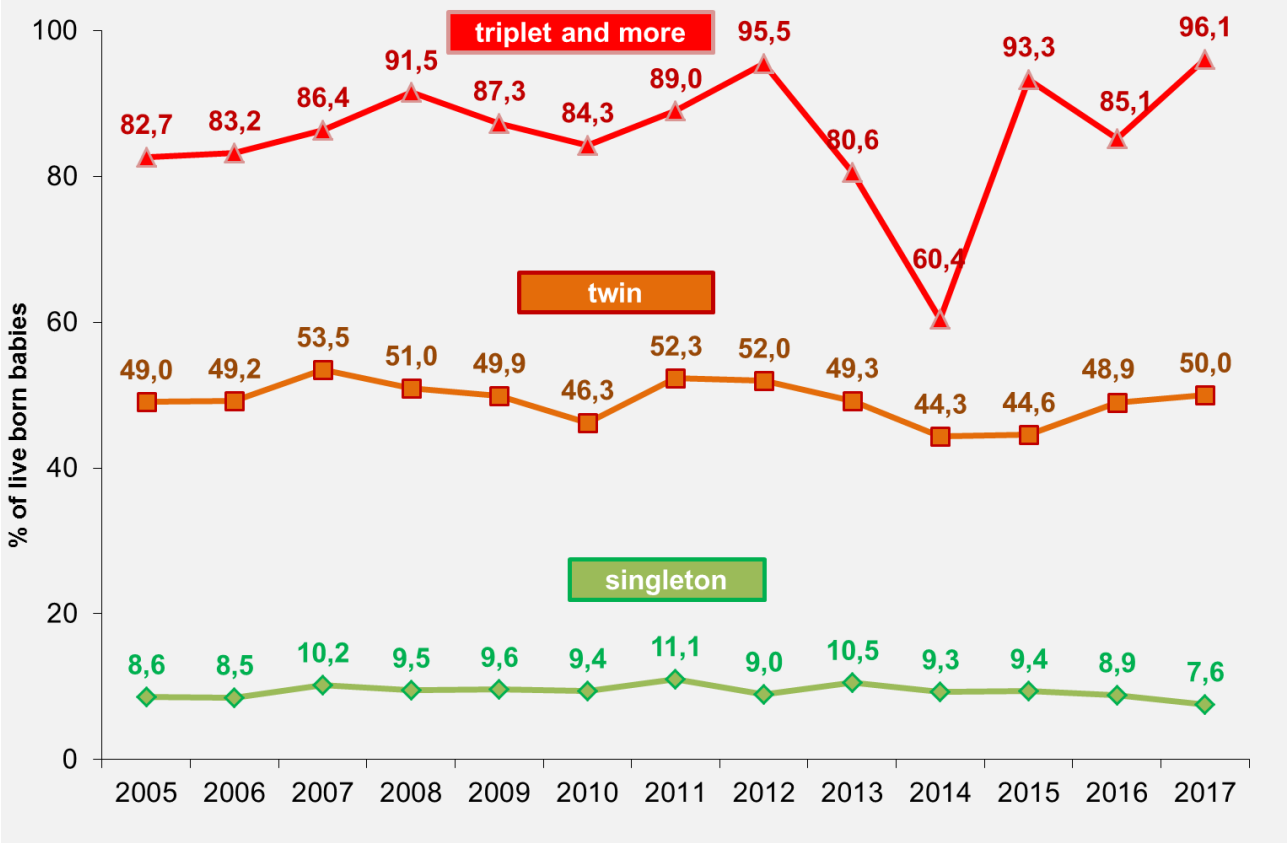

Figure 31. Time-trends of percentage of preterm ART live born babies (<37 week of gestation) by gestational order, 2005-2017

3.1.4. Did the percentage of underweight live babies change over time?

Figure 32 shows the trends of ART live born babies underweight that are highly correlated with the multiplicity of deliveries as already described in respect to prematurity.

In babies born underweight, the percentage in singleton and twin deliveries are quite stable during all the period. Overall the trend is also quite stable for triplet and more deliveries from 90% in 2005 to 92,2% in 2017 with a minimum value of 63,3% in 2014 due to variability of the small number.

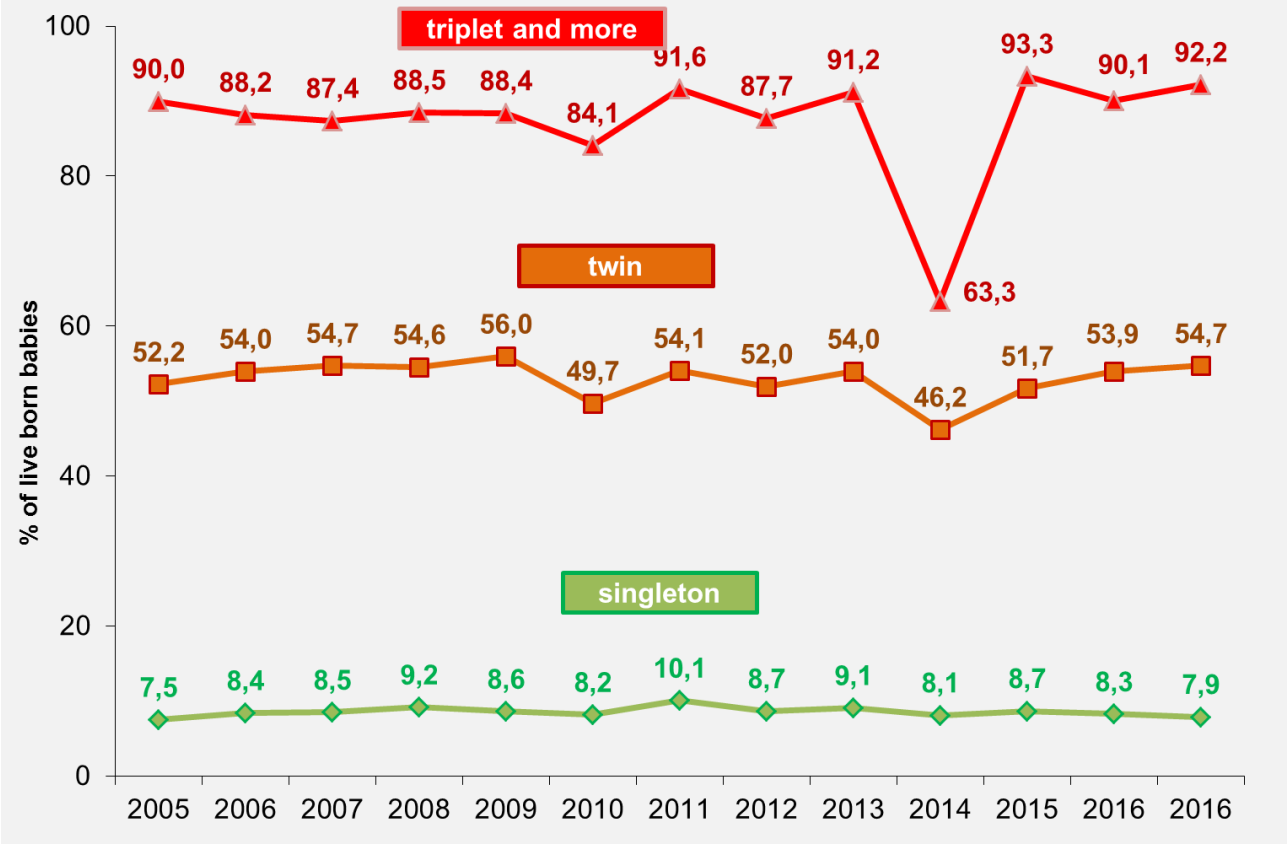

Figure 32. Time-trends of percentage of ART live born babies underweight (<2,500 gr) by gestational order, 2005-2017

4. INTRA-UTERINE INSEMINATION PROCEDURES

4.1.Access to Intra-Uterine Insemination service

Figure 33 shows the regional distribution of the 366 Intra-Uterine Insemination (IUI) authorized centers in 2017, but only 293 performed at least one homologous IUI cycle.

The largest number of the centers is concentrated in Northern Italy (169, 46,2% of the total) and then in the South (125 centers, 34,2% of the total), irrespective of the amount of activity they have carried out. Even with some dofference the access is almost good in all the regions.

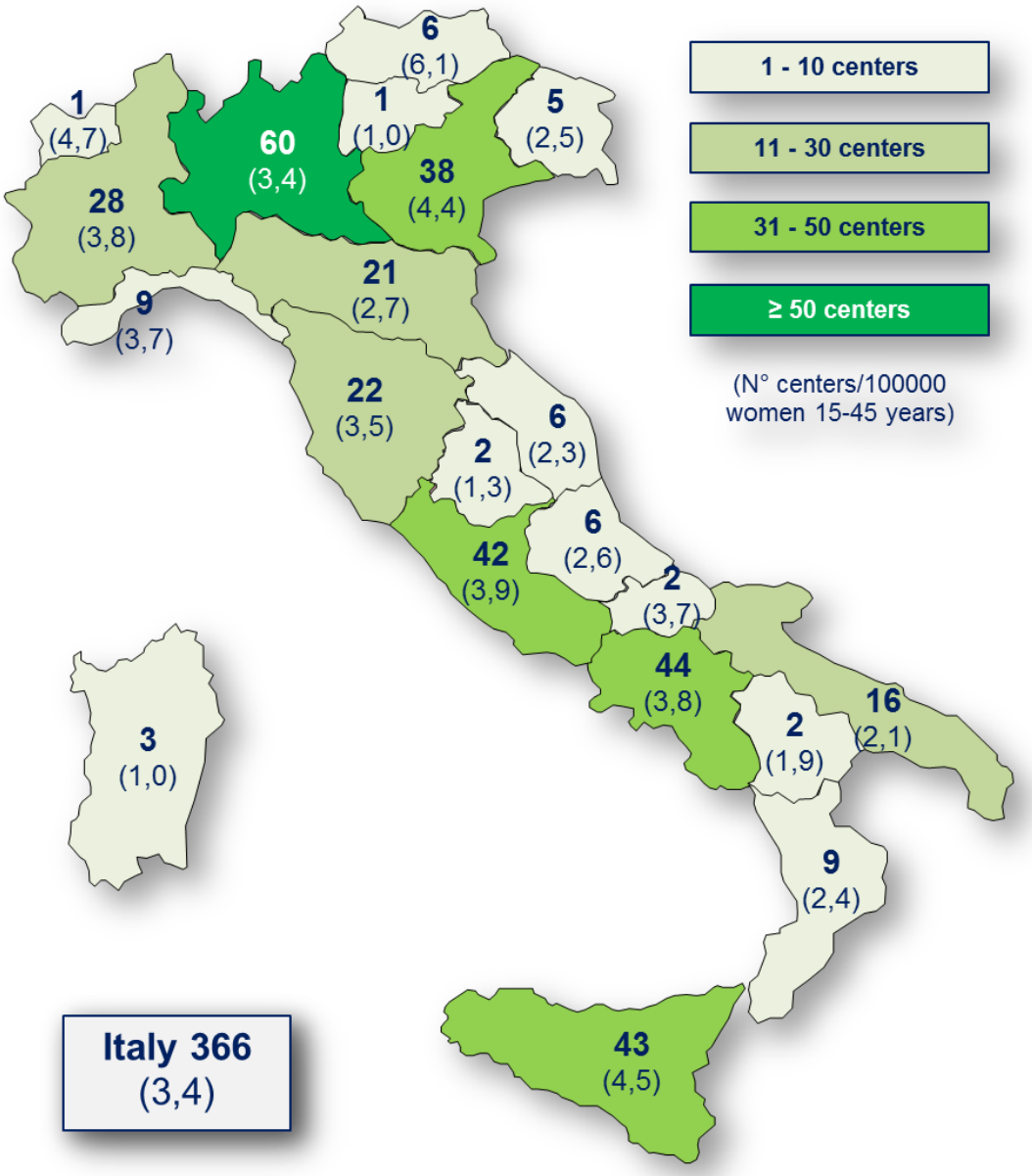

Figure 33. Regional distribution of IUI + ART authorized centers and in brackets the number of centers per 100000 women of reproductive age (15-45 years)*, 2017

*Average resident population in Italy in 2017: Source ISTAT.

As shown in **Table 3**, in 2017 there were 366 authorized centers that perform IUI of which only 135 operating within the National Health System (public and private 36,9%) and 231 providing private service (63,1%). Most of public centers that could perform IUI in Italy were in the North: 67 out of 114 centers (58,8%).

Table 3. IUI authorized centers distribution by region and type of service, 2017

Region and Geographical Area	Total	Type of Service					
		Public		Private covered by NHS		Private	
		N	%	N	%	N	%
Piemonte	28	11	39,3	1	3,6	16	57,1
Valle d'Aosta	1	1	100	0	0	0	0
Lombardia	60	19	31,7	10	16,7	31	51,7
Liguria	9	5	55,6	0	0	4	44,4
Northwest	***98***	***36***	***36,7***	***11***	***11,2***	***51***	***52,0***
P.A. Bolzano	6	4	66,7	0	0	2	33,3
P.A. Trento	1	1	100	0	0	0	0
Veneto	38	13	34,2	2	5,3	23	60,5
Friuli Venezia Giulia	5	3	60,0	1	20,0	1	20,0
Emilia Romagna	21	10	47,6	0	0	11	52,4
Northeast	***71***	***31***	***43,7***	***3***	***4,2***	***37***	***52,1***
Toscana	22	8	36,4	5	22,7	9	40,9
Umbria	2	1	50,0	0	0	1	50,0
Marche	6	2	33,3	0	0	4	66,7
Lazio	42	7	16,7	2	4,8	33	78,6
Central	***72***	***18***	***25,0***	***7***	***9,7***	***47***	***65,3***
Abruzzo	6	3	50,0	0	0	3	50,0
Molise	2	0	0	0	0	2	100
Campania	44	9	20,5	0	0	35	79,5
Puglia	16	4	25,0	0	0	12	75,0
Basilicata	2	2	100	0	0	0	0
Calabria	9	1	11,1	0	0	8	88,9
Sicilia	43	7	16,3	0	0	36	83,7
Sardegna	3	3	100	0	0	0	0
South and Islands	***125***	***29***	***23,2***	***0***	***0***	***96***	***76,8***
Italy	**366**	**114**	**31,1**	**21**	**5,7**	**231**	**63,1**

4.2. Efficacy and safety of IUI and trends

4.2.1. Is the use of IUI-H increasing?

Intra-Uterine Insemination (IUI) is a medical procedure in which a laboratory processed sperm is placed into the women's uterus to attempt a pregnancy[1]. It can be performed using husband semen (**IUI-Homologous**) or with the semen of an anonymous donor (**IUI-Donor**).

As described for ART techniques using donor gametes (see page 30) the IUI-D procedures have been permitted only after the Italian Constitutional Court sentence in April 2014. For the activity of IUI-D in 2017, please check on Summary table for 2017 (see page 55) for more detailed data.

Figure 34 shows the use of IUI-H from 2005 to 2017. The number of IUI-H cycles decreased from 26.292 to 18.688 after having reached his maximum of 33.335 cycles in 2009. There were no changes in pregnancy rate from 10,7% in 2005 to 10,3% in 2017. Average women age increases of 0,4 year during time.

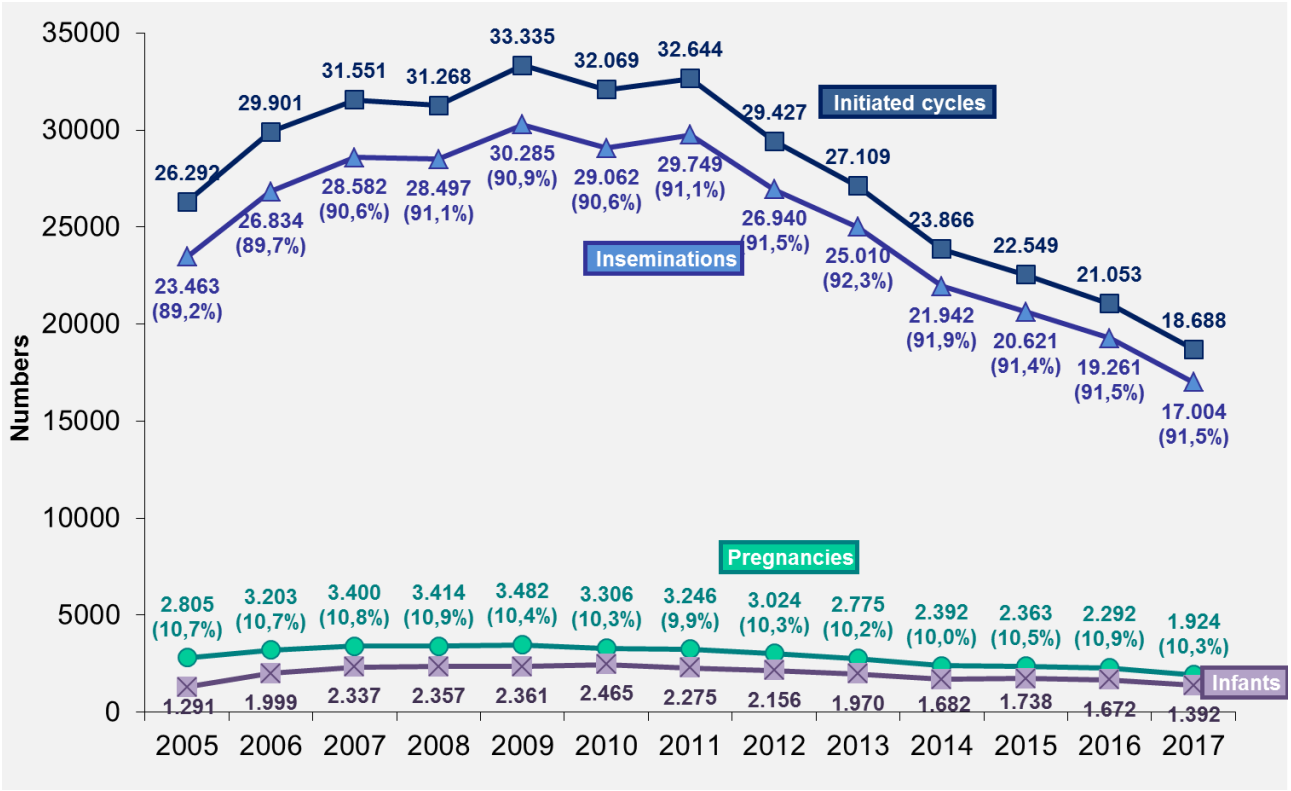

Figure 34. Time-trends of outcomes of IUI-H cycles, 2005-2017

4.2.2. Do percentages of IUI-H cycles resulting in pregnancies differ among women of different age groups?

Figure 35 shows percentages of insemination cycles for IUI-H that resulted in pregnancies and in deliveries among women of different age groups.

The probability to obtain a pregnancy and to reach a delivery in an IUI-H treatment is highly related to the age of women. The percentage in older women are very low: 4,3% for pregnancy and 3,8% for delivery in over 43.

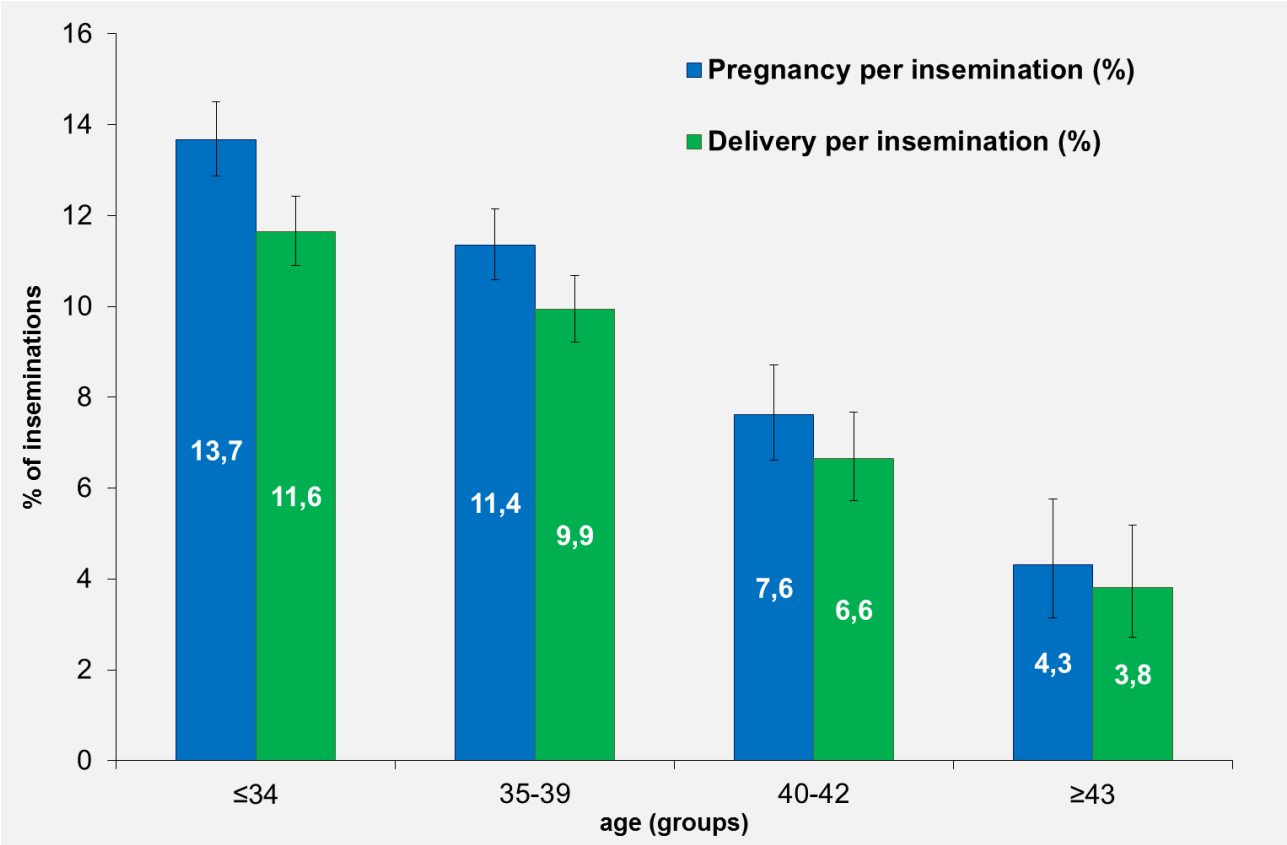

Figure 35. Pregnancy rates and delivery rates per insemination for IUI-H cycles by age groups of female patients, 2017

4.2.3. What were the outcomes of the pregnancies obtained in IUI-H cycles in 2017?

Figure 36 shows the outcomes of the monitored clinical pregnancies obtained from the application of the homologous IUI in Italy in 2017. Of the 1.662 monitored pregnancies in homoulogous IUI cycles 6,4% resulted in multiple deliveries and the 21,4% have a miscarriage.

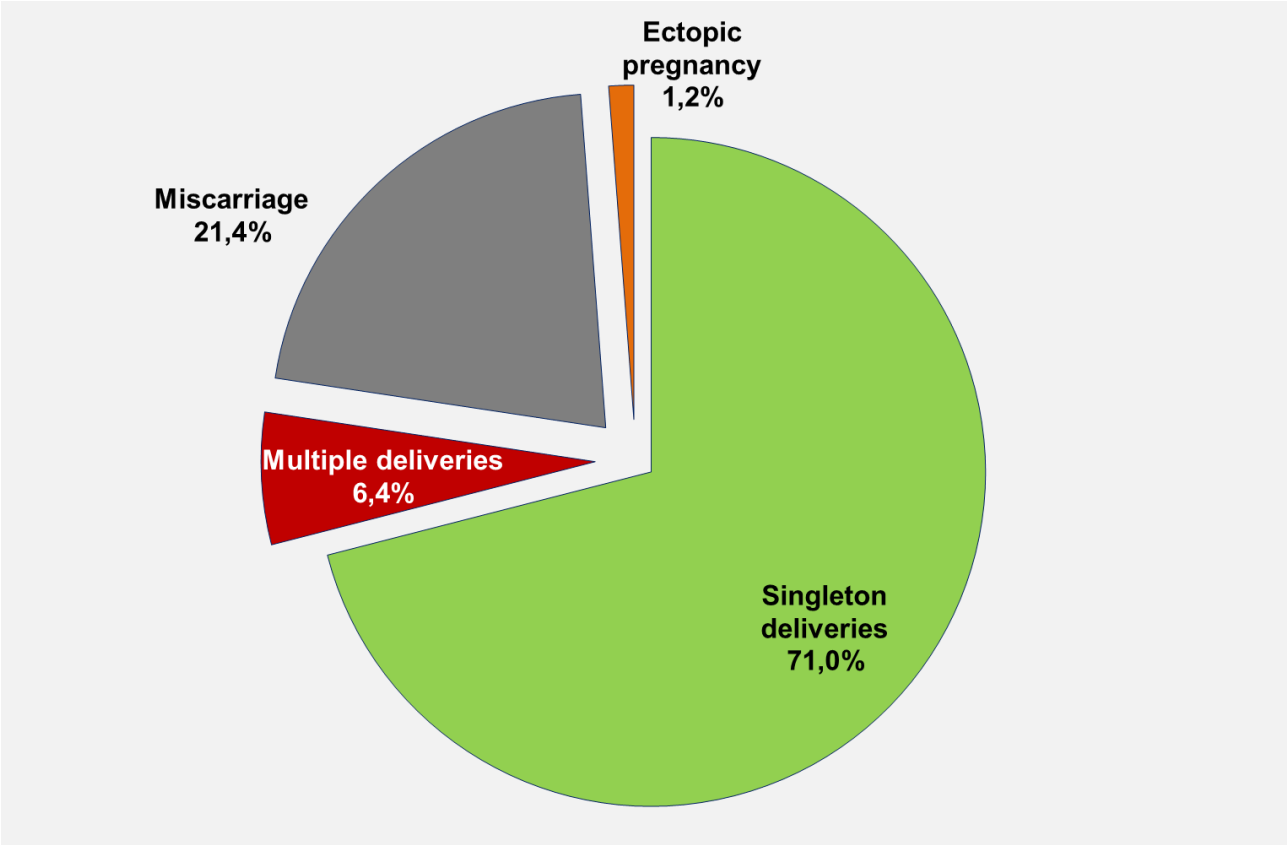

Figure 36. Outcomes of clinical pregnancies that resulted from H-IUI cycles, 2017

4.2.4. Did the numbers of complications for H-IUI cycles change over time?

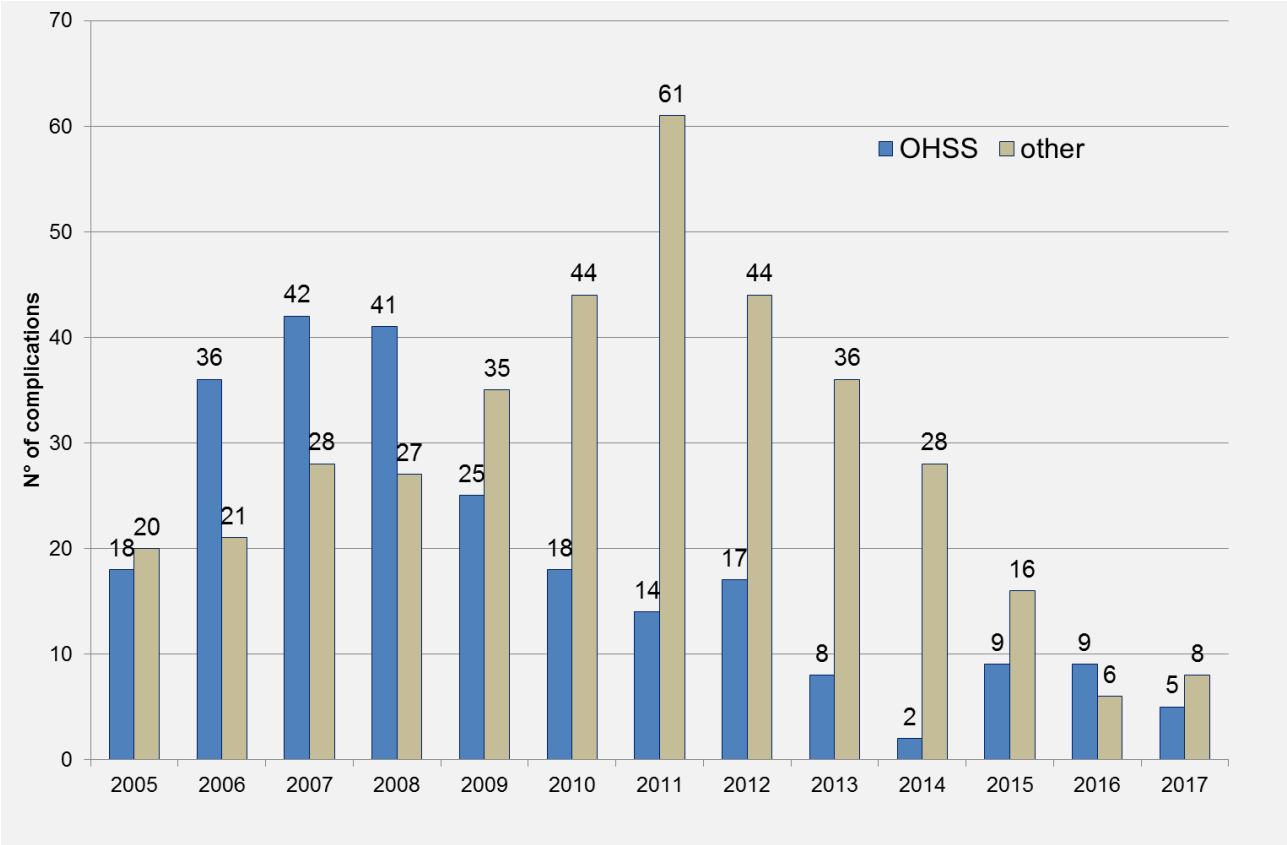

Figure 37. Time-trends of complications in homologous-IUI treatments, 2005-2017

4.2.5. Did the percentages of multiple deliveries change over time for homologous intrauterine insemination cycles?

Figure 38 shows time trends for multiplicity of deliveries in IUI-H cycles.

From 2005 to 2017 twin deliveries rates decreased from 15% to 7,7% while percentage of triplets and more deliveries are quite stable: in 2017, 9 deliveries out of 10 were singleton.

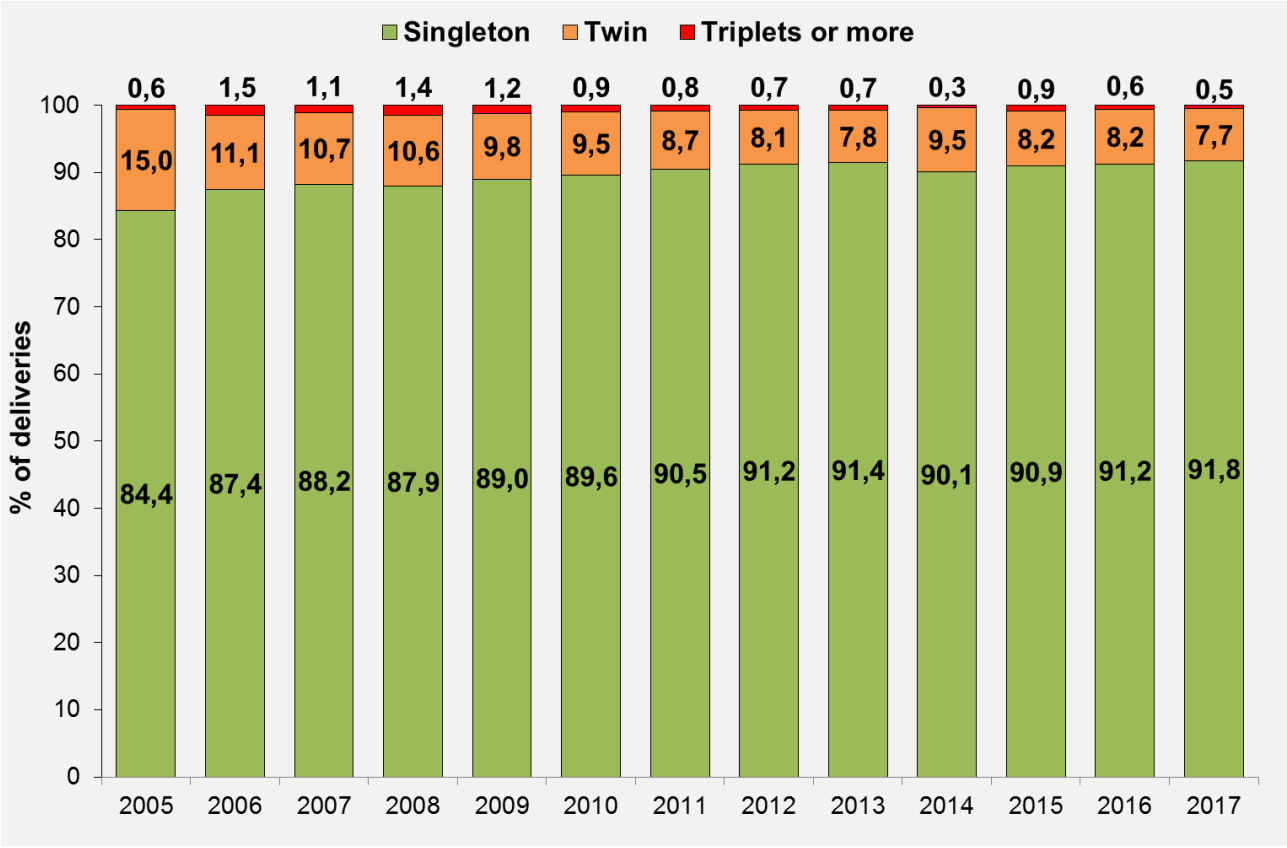

Figure 38. Time-trends of deliveries from IUI-H cycles according to gestational order, 2005-2017

4.3. IUI donor cycles.

4.3.1. What was the outcome in IUI donor cycles in 2017?

In total 743 initiated cycles using donor sperm in IUI cycle started in 2017, 20,7% resulted in a clinical pregnancy and 14,8% resulted in a delivery. However, most of these cycles (about 79%) did not produce a pregnancy while a small proportion (2,4%) resulted in a pregnancy loss (i.e. ectopic pregnancy or miscarriage).

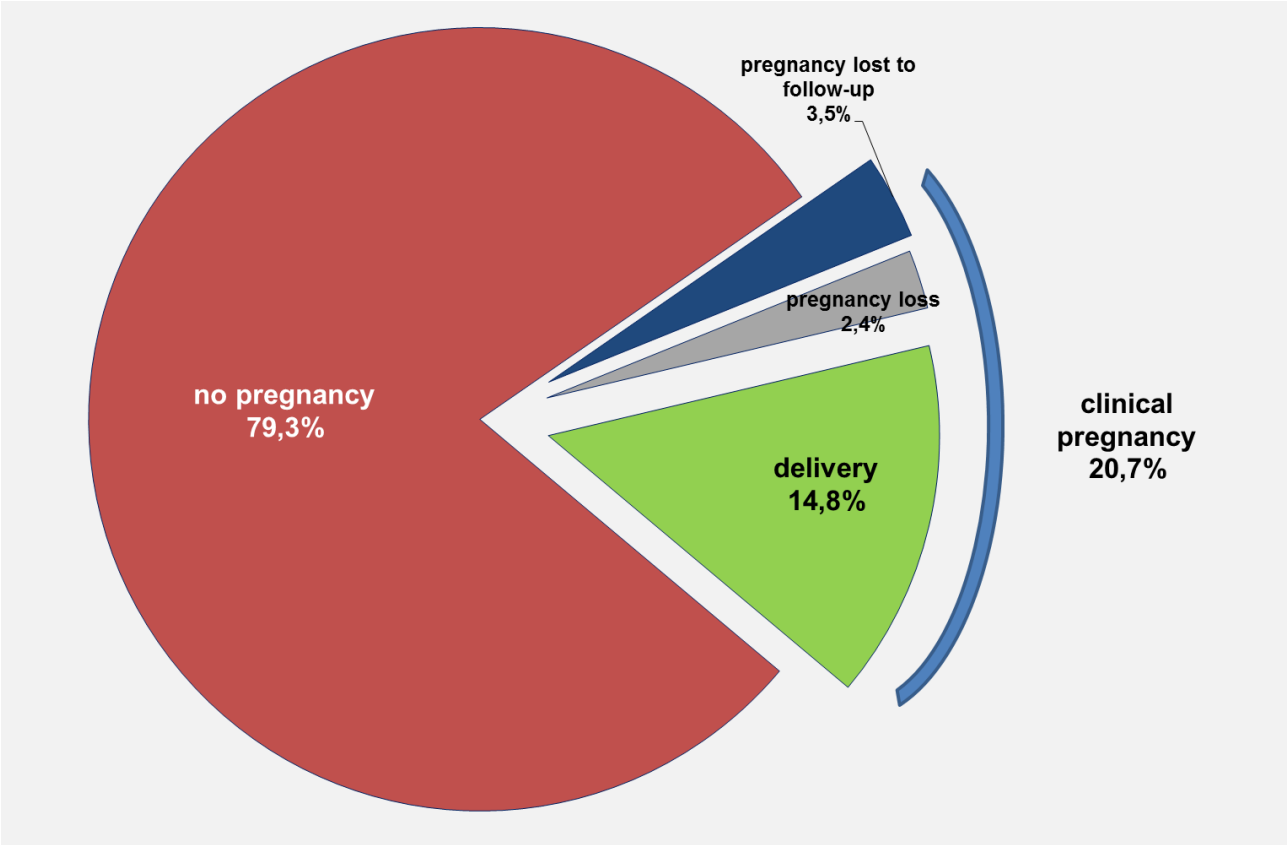

Figure 39. Outcome of IUI-D cycles, 2017 (743 initiated cycles)

APPENDIX

SUMMARY TABLE OF ACTIVITY AND OUTCOME OF ART PROCEDURES

YEARS 2010-2017

Summary table of activity and outcome of all ART procedures, 2010-2017

	2010	2011	2012	2013	2014	2015	2016	2017
N° Clinics	357	354	355	369	362	366	360	366
% of clinics reporting data to ISS	100	100	100	100	100	100	100	100
ALL PROCEDURES (IUI-H, IUI-D, ART-Non donor and ART-Donor)								
N° Patients	69.797	73.570	72.543	71.741	70.826	74.292	77.522	78.366
N° Initiated cycles	90.944	96.427	93.634	91.556	90.957	95.110	97.656	97.888
N° Live born	12.506	11.933	11.974	12.187	12.720	12.836	13.582	13.973
IUI-H and IUI-D activity								
N° Patients	19.707	20.012	18.085	17.218	14.967	14.545	13.798	12.423
N° Initiated cycles	32.069	32.644	29.427	27.109	23.903	23.062	21.767	19.431
N° Pregnancies	3.306	3.246	3.024	2.775	2.399	2.466	2.429	2.078
% Pregnancy Rate per cycle	10,3	9,9	10,3	10,2	10,0	10,7	11,2	10,7
% Pregnancies lost to follow-up	15,5	18,1	17,1	16,8	18,2	16,8	15,0	13,9
N° Deliveries	2.220	2.062	1.974	1.810	1.530	1.649	1.629	1.396
N° Live born	2.465	2.275	2.156	1.970	1.683	1.807	1.791	1.519
ART activity (Fresh-non donor, Thawing-non donor, donor)								
N° Patients	50.090	53.558	54.458	54.523	55.859	59.747	63.724	65.943
N° Initiated cycles	58.875	63.783	64.207	64.447	67.054	72.048	75.889	78.457
N° Pregnancies	11.968	12.221	12.646	12.775	13.642	14.391	15.405	16.793
Cumulative Pregnancy Rate per couple treated with fresh cycle	27,0	26,3	27,2	27,5	29,7	31,5	34,3	37,9
% Pregnancies lost to follow-up	10,2	12,2	13,2	10,3	10,8	11,3	10,2	11,9
N° Deliveries	8.167	8.003	8.127	8.495	9.252	9.512	10.386	11.094
N° Live born	10.041	9.658	9.818	10.217	11.037	11.029	11.791	12.454
INDICATORS OF THE AVALIABILITY OF SERVICES								
ART Initiated cycles per 1 million women aged 15 and 45	4.809	5.293	5.562	5.601	5.860	6.341	6.781	7.106
ART Initiated cycles per 1 million inhabitants	973	1.050	1.078	1.070	1.103	1.175	1.237	1.275

Summary table of activity and outcome of ART non donor procedures, 2010-2017

	2010	2011	2012	2013	2014	2015	2016	2017
FRESH CYCLES (Non Donor)								
N° Patients	44.365	46.491	46.491	46.433	45.985	45.689	44.965	44.279
Average age calculated	36,34	36,48	36,50	36,55	36,68	36,68	36,80	36,70
N° Initiated cycles	52.676	56.092	55.505	55.050	55.705	55.329	53.906	53.014
N° aspirations	47.461	50.290	50.096	50.174	50.794	50.214	48.756	47.911
N° transfers	40.468	42.331	41.822	40.696	39.768	37.975	36.038	33.832
N° Pregnancies	10.988	10.959	11.077	10.712	10.834	10.081	9.326	9.310
% Pregnancies rate per cycles	20,9	19,5	20,0	19,5	19,4	18,2	17,3	17,6
% Pregnancies rate per cycles without freeze-all strategy	21,1	19,9	20,2	20,2	20,7	19,9	19,1	20,0
% Pregnancies rate per aspirations	23,2	21,6	22,1	21,3	21,3	20,1	19,1	19,4
% Pregnancies rate per transfers	27,2	25,9	26,5	26,3	27,2	26,5	25,9	27,5
% Twin Pregnancies	20,2	18,8	18,9	19,4	19,5	17,0	15,6	15,0
% Triplet or more Pregnancies	2,3	1,8	1,8	1,6	1,4	0,9	0,6	0,5
% Pregnancies lost to follow-up	10,8	12,7	13,9	10,9	11,9	13,1	11,2	13,4
N° Deliveries	7.512	7.193	7.116	7.125	7.277	6.498	6.196	6.029
N° Live born	9.286	8.734	8.680	8.677	8.848	7.695	7.172	6.951
FROZEN/THAWED EMBRYOS (FER)								
N° Patients	3.470	4.712	5.937	6.316	8.139	10.557	12.485	14.441
Average age calculated	35,0	35,0	35,2	35,2	35,4	35,2	35,3	35,3
N° thawing cycles	3.758	5.184	6.513	7.428	9.501	12.903	14.990	17.281
N° transfers	3.441	4.808	5.496	6.818	8.851	11.849	14.328	16.673
N° Pregnancies	645	910	1.231	1.763	2.448	3.379	4.128	5.059
% Pregnancies rate per thawings	17,2	17,6	18,9	23,7	25,8	26,2	27,5	29,3
% Pregnancies rate per transfers	18,7	18,9	22,4	25,9	27,7	28,5	28,8	30,3
% Twin Pregnancies	17,2	14,4	12,7	10,6	11,2	9,8	9,1	7,7
% Triplet or more Pregnancies	1,4	0,5	0,6	0,7	0,4	0,4	0,3	0,1
% Pregnancies lost to follow-up	4,7	6,7	8,4	7,0	5,5	5,6	6,7	7,9
N° Deliveries	434	584	790	1.169	1.747	2.403	2.890	3.486
N° Live born	513	666	888	1.308	1.929	2.609	3.104	3.703
FROZEN/THAWED OOCYTES (FO)								
N° Patients	2.255	2.355	2.030	1.774	1.530	1.418	1.341	1.281
Average age calculated	35,1	34,7	35,0	35,0	35,1	35,2	35,1	35,2
N° thawing cycles	2.441	2.507	2.189	1.969	1.639	1.529	1.460	1.391
N° transfers	1.962	2.012	1.736	1.491	1.295	1.221	1.187	1.146
N° Pregnancies	335	352	338	300	273	254	238	235
% Pregnancies rate per thawings	13,7	14,0	15,4	15,2	16,7	16,6	16,3	16,9
% Pregnancies rate per transfers	17,1	17,5	19,5	20,1	21,1	20,8	20,1	20,5
% Twin Pregnancies	9,3	12,2	13,3	13,0	12,5	10,6	12,2	12,8
% Triplet or more Pregnancies	0,9	1,1	0,3	1,7	0,8	0,4	1,3	0,4
% Pregnancies lost to follow-up	3,6	10,5	6,8	6,0	7,0	5,9	4,6	4,7
N° Deliveries	221	226	221	201	179	170	154	165
N° Live born	242	258	250	232	199	193	177	190

Summary table of activity and outcome of ART with PGD/PGS analysis, 2014-2017

	2014	2015	2016	2017
PGD/PGS activity				
N° clinics reporting data (with at least 1 patients treated)	22	33	35	42
N° Patients	1.596	1.799	2.247	2.459
N° Tests performed	1.695	1.894	2.242	2483
Patient average age	36,1	36,2	36,0	36,0
N° Pregnancies	459	617	721	859
% Pregnancies rate per transfer	45,5	45,1	44,4	43,8
% Pregnancies lost to follow-up	1,5	1,5	2,5	3,3
N° Deliveries	383	514	582	693
N° Live born	398	529	599	705

Summary table of activity and outcome of ART procedures with gamete donation, 2014-2017

Donor activity				
	2014	**2015**	**2016**	**2017**
ART-Donor activity				
N° clinics reporting data (with at least 1 patients treated)	17	69	83	91
N° Patients	205	2.083	4.933	5.941
N° Initiated cycles	209	2.287	5.533	6.771
N° Pregnancies	87	677	1.713	2.189
% Pregnancies lost to follow-up	26,4	15,7	13,9	15,5
N° Deliveries	49	441	1.146	1.414
N° Live born	61	532	1.338	1.610
IUI-D activity (sperm donation)				
N° clinics reporting data (with at least 1 patients treated)	13	52	65	62
N° Patients	32	379	517	487
N° Initiated cycles	37	513	714	743
N° Pregnancies	7	103	137	154
% Pregnancies rate per cycles	18,9	20,1	19,2	20,7
% Pregnancies lost to follow-up	85,7	30,1	16,8	16,9
N° Deliveries	1	61	98	110
N° Live born	1	69	119	127

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