

Assisted reproductive technology in Europe, 1997. Results generated from European registers by ESHRE

The European IVF-monitoring programme (EIM)*, for the European Society of Human Reproduction and Embryology (ESHRE)^{1,2}

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European results of assisted reproductive techniques from treatments initiated during 1997 are presented in this first ESHRE report. Data were collected from 18 European countries, usually from already-existing national registers. A total of 482 clinics from these 18 countries reported 203 893 cycles. In 10 countries with complete registration, 133 215 cycles were performed in a population of 174 million, corresponding to 765 cycles per million inhabitants. After IVF and intracytoplasmic sperm injection (ICSI), the distribution of transfer of one, two, three and four or more embryos was 11.5, 35.9, 38.4 and 14.3% respectively. Huge differences existed between countries. For IVF, the clinical pregnancy rate per transfer was 26.1%, and the delivery rate per embryo transfer 20.9%. For ICSI, the corresponding rates were 26.4% and 21.5%. Singleton, twin, triplet and quadruplet delivery rates for IVF were 70.4, 25.8, 3.6 and 0.2% respectively, giving a total multiple delivery rate for IVF of 29.6%. After ICSI, the corresponding rates were 71.7, 25.2, 2.9 and 0.1%, amounting to a total multiple delivery rate of 28.2%. The range of triplet delivery rates after IVF range from 0.4% to 11.9% among countries.

Key words: ESHRE/Europe/ICSI/IVF/register data

Introduction

Results from IVF treatments have been published in numerous reports from individual clinics, national registers and from regional data collected from Australia-New Zealand (Hurst *et al.*, 1997), Latin America (Zegers-Hochschild and Galdames, 1997) and the USA and Canada (SART, 1999). Additionally, five World Reports have been presented, the latest containing data from 1996 (World Collaborative Report, 1997).

Until now, Europe has been lacking a reporting system for IVF results, yet the latest World Report indicated that about one-half of all IVF cycles in the world were initiated in Europe.

In 1999, the European Society for Human Reproduction and Embryology (ESHRE) invited representatives from all European national IVF data registers to a joint effort to establish an IVF data collection programme for Europe. In countries where national IVF registers did not exist, other key persons were identified and invited to act as focal points for IVF data collection in their respective country. Representatives from 18 European countries met in June 1999. A Consortium was established, which discussed and adopted an ESHRE

proposal for an European IVF Monitoring programme, the EIM programme.

The EIM programme aims at publishing regional data for Europe on clinical results. Later, it is the intention to publish data on side effects, follow-up of children's health and of the availability and structure of assisted reproductive technology (ART) services in the different countries. Such data will be collected, audited and published by ESHRE, possibly on a yearly basis. The reports will allow comparisons between different countries in Europe and other regions of the world.

On its first meeting the Consortium discussed the present situation concerning different IVF data collection systems in the European countries, understanding that the situation is a very dynamic one. Each country has its own data collection system.

The Consortium decided to start data collection of national summary data on direct clinical IVF outcomes for treatments initiated during 1997, including cohort data for the corresponding deliveries.

Material and methods

National registers

A total of 16 countries already had existing data collection programmes for 1997, and therefore provided data directly from their register. In Greece and Italy, where no such register existed, national data were

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collected *de novo* for the purpose of the EIM programme. In western Europe, national data could not be collected from three countries: Austria, Ireland and Luxembourg, while in eastern Europe only the Czech Republic, Hungary and Russia were able to provide data.

All registers in the consortium collect data on the number of ART cycles and pregnancies, as well as deliveries. Apart from this, many differences exist. Among the 18 countries, six have registers with a compulsory reporting system that is administered either by a health authority or by an independent, official body: Denmark, France, the Netherlands, Sweden, Norway and the United Kingdom. Data from those six countries were complete. In Denmark, the data for 1997 were not yet completed in the National Register, and data from the Danish Fertility Society had to be used. In France, data are collected both by FIVNAT and by the French Ministry of Health, through a National Commission (Commission National de Médecine et de Biologie de la Reproduction et du Diagnostic Prénatal). The latter provided the present French data. In Finland, it is voluntary to report to the IVF registry, but there is a compulsory birth registry, where it is recorded whether or not the pregnancy is the result of ART.

The remaining countries have based their registration on a voluntary reporting system administered by a society, typically a National Fertility Society. In some countries a number of clinics do not report their data and the national data are, therefore, incomplete. In some countries, like Belgium, more than 90% of all clinics have joined the register, whereas an unknown fraction of the clinics submit their data in other countries.

In summary, the majority of European countries have IVF registers already in operation, but the data collection programmes are organized differently.

Data collection

The present report summarizes data from IVF treatments started during 1997. Most of these data were not collected for the purpose of the present study, but come from pre-existing data contained within registers in Europe. Exceptions are Greece and Italy, where data were collected from individual clinics for the purpose of the present study.

The data include treatments from IVF, ICSI, oocyte donation (OD) and frozen embryo replacements (FER) performed between the 1st January 1997 and 31st December 1997. Follow-up data on pregnancies and deliveries are cohort data.

Data quality

The data collection programmes vary considerably from one country to another. Registers from a number of countries have been unable to provide some of the data. Lack of such specific variables will appear in the tables as 'not available' (NA).

The reporting principle is either reports of individual cycles (Belgium, Czech Republic, Denmark, Germany, Italy, the Netherlands, United Kingdom and Switzerland) or summaries of treatments performed during the year.

The following countries reported complete data: Czech Republic, Denmark, Finland, France, Iceland, the Netherlands, Norway, Sweden, Switzerland and United Kingdom.

In most countries, reports of pregnancies are based on the presence of one or more gestational sacs at sonography approximately 5 weeks after embryo transfer. In Iceland and Denmark, a pregnancy was defined as a gestational sac with at least one living (fetal heartbeat) fetus, whilst in the Netherlands the definition was that there should be an ongoing pregnancy in the 12th week.

Deliveries were normally reported within the same reporting system as for treatments and pregnancies, but in Sweden and Finland the reports were obtained from separate birth certificates, where it must be stated whether or not the birth was the result of a pregnancy

obtained through an ART procedure. The definition of birth has not been standardized, neither in relation to the number of gestational weeks nor in relation to whether both livebirths and stillbirths are included.

Germany, Portugal, Spain and Switzerland had incomplete reporting of the deliveries. This is indicated in the tables.

As the data presented here are incomplete and generated through different principles using different definitions in different countries, they should be interpreted with some caution. Eventually, the quality and conformity of the data will improve in later reports.

Results

Number of treatment cycles

The number of all treatment cycles recorded in each country, the number of clinics in the country (if available) and the number and size of clinics reporting to the register are shown in Table I. Cycles includes all initiated cycles (IVF, ICSI, FER and OD). In France and Iceland, the number of aspirations was used, as the number of initiated cycles was not available. In total, 482 clinics from 18 countries reported 203 893 cycles.

Data from countries with complete reporting (Czech Republic, Denmark, Finland, France, Iceland, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom) are shown in Table II. The number of cycles is related to the total population in the country. In addition, the number of infants born after ART is expressed as a percentage of the total number of liveborn in that country. Overall, 133 215 cycles were undertaken in a population of 174.22 million, giving a mean of 765 cycles per million. Excluding the Netherlands (where the number of ART deliveries is not available) and Switzerland (where the reporting of deliveries is not complete), the treatments resulted in 18 899 deliveries of 24 283 infants. In countries with a complete reporting system the number of children born after ART constituted 1.33% of the overall number of live births in the countries.

Age distribution

The age distribution of treated women in various countries is shown in Table III. Among the different countries, the age ranges of women were: ≤ 29 years, 3.2–35.3%; 30–34 years, 31.0–44.7%; 35–39 years, 22.5–38.6%; and ≥ 40 years 6.3–17.9%.

Number of embryos transferred

Numbers of embryos transferred after IVF and ICSI are shown in Table IV. The total number of single embryo transfers was 11 877 (11.5%), dual embryo transfers 37 034 (35.9%), triple embryo transfers 39 521 (38.4%) and four or more embryo transfers 14 693 (14.3%). There were large differences between countries in the number of embryos transferred. The range of triple embryo transfers was 4.9 to 48.7% and the range of transfer of four or more embryos was 0.0 to 56.6%.

Pregnancies and deliveries after treatment

The number of pregnancies and deliveries in relation to the number of initiated cycles, aspirations and transfers are shown for IVF (Table V), ICSI (Table VI) and FER (Table VII). After

IVF, the 20 937 pregnancies resulted from 80 209 embryo transfers (Table V). Thus, the mean clinical pregnancy rate per embryo transfer was 26.1% (range 17.9–44.7%). If Iceland, where there is only a single clinic, is excluded, the pregnancy rate per embryo transfer showed a range between 17.9 and 32.5%. The delivery rates per embryo transfer after IVF could be calculated in 12 countries. In these countries, a total of 57 794 transfers resulted in 12 062 deliveries, giving a delivery rate per embryo transfer after IVF of 20.9%.

After ICSI, the 16 462 pregnancies resulted from 62 253 embryo transfers (Table VI). Thus, the mean clinical pregnancy rate per embryo transfer was 26.4% (range 12.7–34.5%). The delivery rates per embryo transfer after ICSI could be calculated

from 12 countries. In these countries, 36 728 transfers resulted in 7904 deliveries, giving a delivery rate per embryo transfer after ICSI of 21.5%.

After FER, 4024 pregnancies resulted from 26 547 embryo transfers (Table VII). Thus, the mean clinical pregnancy rate per embryo transfer after FER was 15.2%. The delivery rates per embryo transfer after FER could be calculated in 11 countries. In these countries, 18 644 transfers resulted in 2112 deliveries, giving a delivery rate per embryo transfer after FER of 11.3%.

In total, 10 registers (Czech Republic, Denmark, Finland, France, Greece, Hungary, Italy, Russia, Spain and the United Kingdom) reported on 3487 oocyte donations (in Finland,

Table I. IVF in European countries, 1997. Total number of clinics, number of clinics reporting to a National Register, total number of cycles recorded and the distribution of the size of the clinics. Cycles include initiated treatment cycles of IVF and ICSI, FER (thawings) and oocyte donations in 1997

Country	Clinics in the country	Clinics reporting to register	Recorded cycles in register	Size of clinics in % (all ART cycles, 1997)				
				<100	100–199	200–499	500–999	>1000
Belgium	35	26	7252	NA	NA	NA	NA	NA
Czech Republic	18	18	7940	22	17	33	17	11
Denmark	16	16	7855	13	19	19	44	6
Finland	19	19	7909	17	22	28	22	11
France	92	92	45 697	11	18	30	30	10
Germany	NA	75	27 923	NA	NA	NA	NA	NA
Greece	30	15	7277	13	33	47	7	0
Hungary	7	6	1747	0	17	83	0	0
Iceland	1	1	384	0	0	100	0	0
Italy	NA	37	9570	24	43	22	5	5
Netherlands	12	12	13 700	0	0	17	50	33
Norway	7	7	3562	0	13	50	38	0
Portugal	NA	4	1183	0	50	25	25	0
Russia	16	11	3123	18	36	27	18	0
Spain	NA	36	12 603	28	36	28	0	0
Sweden	15	15	8424	0	13	33	33	20
Switzerland	17	17	3346	47	24	18	12	0
United Kingdom	75	75	34 398	19	15	25	31	11
All		482	203 893					

France and Iceland: data are based on aspirations in fresh cycles and on transfers after FER. Belgium, the Netherlands, Russia and Spain: FER are based on transfers. NA = not available.

Table II. IVF in 1997 in those European countries where *all* clinics have reported to a National Register. Number of reported cycles, deliveries and infants in relation to the population and the national number of liveborn. Cycles include initiated treatment cycles of IVF and ICSI, FER (thawings) and oocyte donations

Country	Initiated cycles (n)	Population (n, ×10 ⁶)	Cycles/million (n)	ART deliveries (n)	Infants born after ART (n)	National births ^a (n; liveborn)	ART infants in % of total
Czech Republic	7940	10.30	771	1.191	1778	90 446	1.97
Denmark	7855	5.28	1448	1.443	1782	67 638	2.63
Finland	7909	5.14	1538	1.196	1454	60 723	2.39
France	45 697	58.61	780	6.934	8762	725 000	1.21
Iceland	384	0.27	1422	111	150	4351	3.45
The Netherlands	13 700	15.28	897	NA	NA	–	–
Norway	3562	4.39	811	622	796	61 314	1.30
Sweden	8424	8.85	952	1.656	2036	90 502	2.25
Switzerland ^b	3346	7.09	472	–	–	–	–
United Kingdom	34 398	59.01	583	5.746	7525	725 810	1.04
All	133 215	174.22	765	18.899	24 283	1 825 784	1.33

^aSource of population size and deliveries: OECD health data 1999; data from 1997 (if not available from 1996).

^bSwitzerland: delivery data not complete, therefore not included.

these were transfers) resulting in 944 clinical pregnancies, giving a clinical pregnancy rate per donation of 27.1%.

Singleton, twin, triplet and quadruplet deliveries

The deliveries after IVF in relation to singleton, twin, triplet and quadruplet deliveries in 16 countries are shown in Table VIII. The distribution of the deliveries was: singleton 70.4%; twin 25.8%; triplet 3.6%; and quadruplet 0.2%.

The deliveries after ICSI in relation to singleton, twin, triplet and quadruplet deliveries in 16 countries are shown in Table IX. The distribution of the deliveries was: singleton 71.7%; twin 25.2%; triplet 2.9%; and quadruplet 0.1%.

The deliveries after FER in relation to singleton, twin, triplet and quadruplet deliveries in 13 countries are shown in Table X. The distribution of the deliveries was: singleton 82.9%; twin 16.0%; triplet 1.1%; and quadruplet 0.0%.

Table III. Percentage age distribution of women treated with IVF and ICSI (oocyte donation excluded)

Country	Patient age (years)			
	≤29	30–34	35–39	≥40
Czech Republic	26.8	36.7	27.0	9.4
Denmark	–	–	–	7.4
Finland	20.8	37.1	27.9	14.1
France	20.4	37.9	29.7	12.0
Germany	17.4	38.3	29.9	14.5
Greece	17.5	31.9	32.7	17.9
Hungary	34.4	32.3	22.5	11.0
Iceland	3.2	37.6	29.6	14.7
Italy	15.6	38.7	33.2	12.5
Portugal	18.6	44.7	30.4	6.3
Russia	35.3	31.0	25.1	8.6
Spain	12.0	38.3	38.6	11.2
Sweden	18.9	37.6	34.0	9.5
Switzerland	11.2	37.9	36.1	14.8
United Kingdom	16.0	38.4	32.9	12.7
Range	3.2–35.3	31.0–44.7	22.5–38.6	6.3–17.9

Table IV. Number of transferred embryos after IVF and ICSI

Country	Number of transfers	1 embryo		2 embryo		3 embryo		4 embryo	
		(n)	%	(n)	%	(n)	%	(n)	%
Belgium	5246	382	7.3	2154	41.1	2154	41.1	556	10.6
Czech Republic	5167	564	10.9	715	13.8	1873	36.2	2015	40.0
Finland	4304	679	15.8	3185	74.0	438	10.2	2	0.0
France	32 684	4745	14.5	10 490	32.1	13 837	42.3	3612	11.1
Greece	5318	476	9.1	870	16.6	1752	33.5	2220	42.4
Hungary	1356	141	10.4	237	17.5	469	34.5	509	37.5
Iceland	287	23	8.0	164	57.1	100	34.8	0	0.0
Italy	6296	742	11.8	1640	26.0	2664	42.3	1250	19.5
Portugal	898	106	11.8	143	15.9	304	33.9	345	38.4
Russia	2510	329	13.1	372	14.8	388	15.5	1421	56.6
Spain	7790	766	9.8	1239	15.9	3095	39.7	2690	34.5
Sweden	5691	518	9.1	4894	86.0	279	4.9	0	0.0
Switzerland	2025	267	13.2	1005	49.6	680	33.6	73	3.6
United Kingdom	23 553	2139	9.1	9926	42.1	11 488	48.8	0	0.0
All (range,%)	103 125	11 877 (8.0–15.8)		37 034 (13.8–86.0)		39 521 (4.9–48.7)		14 693 (0.0–56.6)	

Discussion

Data collected in Europe on the results of IVF treatments initiated in 1997 are presented in this first ESHRE report. The data include all information available at the present time from national registers, using different collection systems with different validation systems. Furthermore, a majority of the countries contributing to this report do not yet have complete data registration systems. While recognizing and understanding these shortcomings, the consortium of countries nevertheless decided to publish the present report, and as a consequence the reader should make comparisons with some caution. It is hoped that data collection systems will be refined in the future.

The total number of cycles reported here exceeds 200 000 for one year. For comparison, the SART (1999) report from the United States and Canada covered 65 000 cycles in 1996. For the same year, the Latin American Register (Zegers-Hochschild and Galdames, 1997) reported 5332 cycles, while the Australian–New Zealand Register (Hurst *et al.*, 1997) reported 24 124 cycles. Therefore, it seems that Europe provides more IVF treatments than any other region, although specific data for Asia including Japan and for Africa are not available.

Within Europe, three countries dominate by number of cycles, with France, the UK and Germany together reporting >50% of the cycles. The availability of services for the different populations is, on the other hand, dominated by the Nordic countries and the Netherlands.

The highest availability of services is reported from Finland, with little more than 1500 cycles per million inhabitants. As a consequence, 2.4% of all children born in Finland were from different types of IVF treatment. The mean percentage of children born after ART was 1.3% of all newborn.

The number of embryos transferred has changed over time—in some countries quite dramatically. During the 1980s, most clinics transferred several embryos, but many countries now use only two or three embryos. This situation differs considerably, however. In the Nordic countries, dual

Table V. Pregnancies and deliveries after IVF in European countries from cycles initiated in 1997

Country	Cycles (n)	Aspirations (n)	Transfers (n)	Pregnancies (n)	Deliveries (n)	Pregnancies, % per:			Deliveries, % per:		
						Cycle	Aspiration	Transfer	Cycle	Aspiration	Transfer
Belgium	2924	NA	2430	698	NA	23.9	NA	28.7	NA	NA	NA
Czech Republic	5056	4504	3554	1065	778	21.1	23.6	30.0	15.4	17.3	21.9
Denmark	4948	4586	3994	1143	963	23.1	24.9	28.6	19.5	21.0	24.1
Finland	3215	3085	2647	721	553	22.4	23.4	27.2	17.2	17.9	20.9
France	NA	23 540	18 748	4792	3536	NA	20.4	25.6	NA	15.0	18.9
Germany	9902	9893	8105	1980	–	20.0	20.0	24.4	–	–	–
Greece	3483	3170	2637	903	661	25.9	28.5	34.2	19.0	20.9	25.1
Hungary	873	780	646	171	99	19.6	21.9	26.5	11.3	12.7	15.3
Iceland	NA	216	206	92	83	NA	42.6	44.7	NA	38.4	40.3
Italy	4177	3695	3258	873	698	20.9	23.6	26.8	16.7	18.9	21.4
Netherlands	9510	8453	7326	1636	NA	17.2	19.4	22.3	NA	NA	NA
Norway	2397	2254	1946	535	426	22.3	23.7	27.5	17.8	18.9	21.9
Portugal	535	469	404	81	–	15.1	17.3	20.0	–	–	–
Russia	2675	2562	2281	586	350	21.9	22.9	25.7	13.1	13.7	15.3
Spain	4278	3784	3325	877	–	20.5	23.2	26.4	–	–	–
Sweden	3784	3486	3019	980	760	25.9	28.1	32.5	20.1	21.8	25.2
Switzerland	995	935	825	148	–	14.9	15.8	17.9	–	–	–
United Kingdom	19 240	16 880	14 858	3656	3155	19.0	21.7	24.6	16.4	18.7	21.2
All			80 209	20 937				26.1			

Germany, Portugal, Spain, Switzerland: delivery data either not complete, or the deliveries after IVF cycles and FER cannot be completely separated (Spain). Delivery data therefore not included in this table.

NA = not available.

Table VI. Pregnancies and deliveries after ICSI in European countries in 1997

Country	Cycles (n)	Aspirations (n)	Transfers (n)	Pregnancies (n)	Deliveries (n)	Pregnancies, % per:			Deliveries, % per:		
						Cycle	Aspiration	Transfer	Cycle	Aspiration	Transfer
Belgium	3032	NA	2816	737	NA	24.3	NA	26.1	NA	NA	NA
Czech Republic	1939	1879	1615	449	347	23.2	23.8	24.9	17.9	18.5	21.5
Denmark	1820	1720	1570	428	368	23.5	24.9	27.3	20.2	21.4	23.4
Finland	1875	1817	1635	467	353	24.9	25.7	28.6	18.8	19.4	21.6
France	NA	15 212	13 936	3639	2762	NA	23.9	26.1	NA	18.2	19.8
Germany	15 365	15 356	13 911	3248	–	21.1	21.2	23.3	–	–	–
Greece	2927	2741	2595	866	552	29.6	31.6	33.4	18.9	20.1	21.3
Hungary	860	772	710	219	144	22.8	28.4	30.8	16.7	18.7	20.3
Iceland	NA	88	81	27	24	NA	30.9	33.3	NA	24.3	29.6
Italy	3650	3429	3040	760	614	20.8	23.2	25.0	16.8	17.9	20.2
Netherlands	3062	2805	2635	644	NA	21.0	23.8	24.4	NA	NA	NA
Norway	776	743	690	191	146	24.6	25.7	27.7	18.8	19.7	21.1
Portugal	600	540	494	122	–	20.3	22.6	24.7	–	–	–
Russia	278	269	229	29	13	10.4	10.8	12.7	4.7	4.8	5.7
Spain	5106	4673	4469	1375	–	26.9	29.4	30.8	–	–	–
Sweden	3088	2929	2672	921	761	29.8	31.4	34.5	22.7	23.9	26.2
Switzerland	1370	1328	1200	252	–	18.4	19.0	21.0	–	–	–
United Kingdom	8541	8541	7955	2088	1820	24.4	24.4	26.2	21.3	21.3	22.9
All			62 253	16 462				26.4			

Germany, Portugal, Spain, Switzerland: delivery data either not complete, or the deliveries after ICSI cycles cannot be completely separated (Spain). Delivery data therefore not included in this table.

NA = not available.

embryo replacements were the dominant procedure in 1997, and for Sweden the proportion of triple embryo transfers was as low as 5%. Several countries report the transfer of higher numbers of embryos, with transfer of four or more embryos being a frequent occurrence in Russia (57%), Greece (42%), the Czech Republic (40%), Hungary (38%) and Spain (35%).

Clinical results are presently reported as pregnancies and

deliveries. The numbers are related to initiated cycles, oocyte aspirations and transfers. All three ratios contain different information, but no single rate contains all the information needed. Internationally, the proportion of deliveries per embryo transfer is often highlighted. In the present report, the delivery rate per transfer was 20.9% after IVF and 21.5% after ICSI. This compares with values between 20 and 25% in most countries.

Table VII. Pregnancies and deliveries after FER in European countries from cycles initiated in 1997

Country	Thawings	Transfers	Pregnancies	Deliveries	Pregnancies, % per:		Deliveries, % per:	
					Thawing	Transfer	Thawing	Transfer
Belgium	NA	1296	165	NA	NA	12.7	NA	NA
Czech Republic	858	817	97	60	11.7	11.9	7.0	7.3
Denmark	943	775	109	86	11.2	14.0	10.6	11.1
Finland	2533	2246	425	290	16.8	18.9	11.4	12.9
France	NA	6690	982	610	NA	14.7	NA	9.1
Germany	2656	2389	295	—	11.1	12.3	—	—
Greece	472	451	95	—	20.1	21.1	—	—
Hungary	10	10	1	0	10.0	10.0	0	0
Iceland	NA	20	4	4	NA	20.0	NA	20.0
Italy	1054	959	157	105	14.9	16.4	10.0	10.9
Netherlands	NA	1128	109	NA	NA	9.7	NA	NA
Norway	389	339	48	42	12.3	12.4	10.8	12.4
Portugal	48	40	5	—	10.4	12.5	—	—
Russia	NA	32	2	2	NA	6.3	NA	6.3
Spain	NA	1733	257	NA	NA	14.8	NA	NA
Sweden	1552	1268	262	195	16.9	20.7	12.7	15.4
Switzerland	981	866	133	—	13.6	15.4	—	—
United Kingdom	6192	5488	878	718	14.2	16.0	11.6	13.1
All		26 547	4024			15.2		

Germany, Greece, Portugal, Switzerland: delivery data incomplete; data therefore not included in this table.

NA = not available.

Table VIII. Deliveries in relation to multiple births after IVF treatments initiated in 1997

Country	Singleton deliveries		Twin deliveries		Triplet deliveries		Quadruplet deliveries	
	(n)	%	(n)	%	(n)	%	(n)	%
Czech Republic	475	61.1	213	27.4	78	10.0	12	1.5
Denmark	726	75.4	233	24.2	4	0.4	0	0.0
Finland	402	72.6	146	26.3	6	1.1	0	0.0
France	2630	74.4	839	23.7	67	1.9	0	0.0
Germany	475	72.2	147	22.3	35	5.3	1	0.2
Greece	417	63.1	235	35.6	18	2.7	0	0.0
Hungary	101	70.1	39	27.1	4	2.8	0	0.0
Iceland	56	67.5	23	27.8	4	4.8	0	0.0
Italy	514	73.6	147	20.3	36	5.1	6	0.9
Norway	301	70.6	120	28.2	5	1.2	0	0.0
Portugal	52	77.6	11	16.4	4	6.0	0	0.0
Russia	239	68.3	93	26.6	16	4.5	2	0.6
Spain	482	54.5	290	32.7	105	11.9	8	0.9
Sweden	564	74.2	193	25.4	3	0.4	0	0.0
Switzerland	48	76.2	13	20.6	2	3.2	0	0.0
United Kingdom	2232	70.7	818	25.9	104	3.3	1	0.0
All	9714 (70.4)	54.5–75.4	3560 (25.8)	16.4–35.6	491 (3.6)	0.4–11.9	30 (0.2)	0.0–1.5

Values in parentheses are percentages.

In Germany, Portugal and Switzerland, the deliveries are not based on complete reporting. In Spain, the deliveries include some that are the result of FER.

NA = not available.

The rate of multiple births—which is a major concern in relation to IVF treatments—varied greatly in Europe. The overall rate of multiple births was 29.6%, with twins at 25.8%, triplets at 3.6% and quadruplets at 0.2%. By comparison, values for 1996 in the United States and Canada were 31% twins, 5.8% triplets and 0.5% quadruplets, giving a total of approximately 37% multiple deliveries (SART, 1999).

Several countries in Europe—especially the Nordic countries—have reduced their triplet rates considerably. For

example, Denmark and Sweden report here only 0.4% triplets compared with 3.3% in the United Kingdom and 11.9% in Spain.

In this report, data on spontaneous abortions and ectopic pregnancy are not presented separately but may be deduced as the difference between pregnancy and delivery rates.

Fetal reduction is being used to a very different degree in different European countries. No definite data exist on the occurrence of this procedure.

Table IX. Deliveries in relation to multiple births after ICSI treatments initiated in 1997

Country	Singleton deliveries		Twin deliveries		Triplet deliveries		Quadruplet deliveries	
	(n)	%	(n)	%	(n)	%	(n)	%
Czech Republic	219	63.1	94	27.1	31	8.9	3	0.9
Denmark	294	79.9	72	19.6	2	0.5	0	0.0
Finland	270	76.5	77	21.8	6	1.7	0	0.0
France	2057	74.5	658	23.8	47	1.7	0	0.0
Germany	1078	72.4	248	23.0	50	4.6	0	0.0
Greece	367	66.5	178	32.5	10	1.8	0	0.0
Hungary	75	75.8	21	21.2	3	3.0	0	0.0
Iceland	17	70.8	6	25.0	1	4.2	0	0.0
Italy	464	75.6	126	20.5	22	3.6	2	0.3
Norway	113	77.4	29	19.9	4	2.7	0	0.0
Portugal	69	70.4	21	26.4	8	8.2	0	0.0
Russia	10	76.9	2	15.4	1	7.7	0	0.0
Spain	745	55.4	483	35.9	112	8.3	4	0.3
Sweden	554	79.0	146	20.8	1	0.2	0	0.0
Switzerland	71	69.6	30	29.4	1	0.8	0	0.0
United Kingdom	1289	70.8	483	26.5	48	2.6	0	0.0
All	7692 (71.7)	53.8–79.9	2704 (25.0)	15.4–32.5	316 (2.9)	0.2–8.9	9 (0.1)	0.0–0.9

Values in parentheses are percentages.

In Germany, Portugal and Switzerland, the deliveries are not based on complete reporting. In Spain, the deliveries include some that are the result of FER.

Table X. Deliveries in relation to multiple births after FER treatments initiated in 1997

Country	Singleton deliveries		Twin deliveries		Triplet deliveries		Quadruplet deliveries	
	(n)	%	(n)	%	(n)	%	(n)	%
Czech Republic	46	76.6	11	18.6	3	5.0	0	0.0
Denmark	71	82.5	14	16.3	1	1.2	0	0.0
Finland	250	86.2	40	13.8	0	0.0	0	0.0
France	512	83.9	92	15.1	4	0.7	0	0.0
Germany	95	86.4	14	12.7	1	0.9	0	0.0
Iceland	4	100.0	0	0.0	0	0.0	0	0.0
Italy	97	92.4	8	7.6	0	0.0	0	0.0
Norway	27	64.3	15	35.7	0	0.0	0	0.0
Portugal	69	84.1	12	14.3	1	1.2	0	0.0
Russia	1	50.0	0	0.0	1	50.0	0	0.0
Sweden	162	83.9	33	16.9	0	0.0	0	0.0
Switzerland	49	81.7	11	18.3	0	0.0	0	0.0
United Kingdom	575	80.1	128	17.8	15	2.1	0	0.0
All	1958 (82.9)	50.0–100.0	378 (16.0)	0.0–35.7	26 (1.1)	0.0–50.0	0	0.0

Values in parentheses are percentages.

In Germany and Switzerland, the deliveries are not based on complete reporting.

In conclusion, this first ESHRE report on IVF results in Europe shows that, during 1997, more than half of all IVF cycles worldwide were performed in Europe, although the number of cycles reported (slightly more than 200 000) is an underestimation as the report is incomplete. The availability of services is highest in the Nordic countries, while deliveries per embryo transfer lie between 20% and 25% for most countries, there being no differences between standard IVF and ICSI procedures. Mean multiple delivery rates were reported as 25.8% for twins, 3.6% for triplets and 0.2% for quadruplets after standard IVF, with similar corresponding rates after ICSI. Thus, the total multiple delivery rate was 29%.

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