International Committee for Monitoring Assisted Reproductive Technology (ICMART) world report: assisted reproductive technology 2003

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Objective: To analyze information on assisted reproductive technologies (ART) performed globally.
Design: Data on access, efficacy, and safety of ART were collected for the year 2003 from 54 countries.
Setting: National and regional ART registries globally.
Patient(s): Patients undergoing ART globally.
Intervention(s): Collection and analysis of international ART registry data.
Main Outcome Measure(s): Number of cycles performed in reporting countries and regions globally for different ART procedures with resulting pregnancy, live birth and multiple birth rates.
Result(s): A total of 433,427 initiated cycles reported in this registry resulted in 173,424 babies born. This corresponded to a delivery rate per aspiration of 22.4% for in vitro fertilization (IVF), 23.3% for intracytoplasmic sperm injection (ICSI), and a delivery rate per transfer of 17.1% for frozen embryo transfer. Although there is wide variation among countries and regions, the overall proportion of deliveries with twins and triplets from IVF and ICSI was 24.8% and 2.0%, respectively. There were wide variations in access, and compared with the previous report (year 2002), there was a 3.9% increase in the number of reported cycles and a minor increase in the delivery rate per aspiration. There was also a marginal decline in the mean number of embryos transfered and in the rate of multiple births.
Conclusion(s): ART access, efficacy, and safety varies greatly globally. Collection and analysis of data over time will benefit ART patients, providers, and policy makers. (Fertil Steril® 2011;95:2209–22. ©2011 by American Society for Reproductive Medicine.)

Key Words: ART, assisted reproductive technology, registry, outcomes, multiple pregnancies, public health, IVF

This is the ninth world report on assisted reproductive technologies (ART). Similar reports have been generated and published since 1989 by the International Working Group on Assisted Reproduction, later renamed the International Committee for Monitoring Assisted Reproductive Technologies (ICMART) (1–7). The present report provides an overview of world variation on availability, efficacy, and safety for the year 2003. It also allows for comparisons among countries and regions as well as trends over the years.

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MATERIALS AND METHODS

Data from ART treatment cycles started during 2003 were collected from five regional ART registries built on data from national registries in Europe, North America, and Australia/New Zealand, from individual ART clinics in Latin America and the Middle East, and from national registries directly reporting to ICMART in Asia. No data were available from Africa except for Egypt and Tunisia, both of which sent their data to the Middle East Regional ART Registry. Institutional Review Board approval was not obtained by ICMART because such approvals were obtained as appropriate in individual countries, no individual data were submitted to ICMART, and only aggregated national data were reported to ICMART. The authors have no disclosures regarding conflicts of interest.

The ICMART data collection process uses forms describing the organization of each country's registry, the practice of ART and results of in vitro fertilization (IVF), intracytoplasmic sperm injection (ICSI), and frozen embryo transfer (FET): initiated cycles, aspirations, transfers, clinical pregnancies, deliveries, and newborns. These variables are further classified according to the fertilization technique, woman's age, number of embryos transfered, and gestational age at delivery. Other forms describe preimplantation genetic diagnosis (PGD), oocyte donation (OD), immediate complications for women, and congenital anomalies detected during the perinatal period. The 2002 ICMART ART glossary was used as the reference for terminology (8–12). The present report covers ART cycles performed during the year 2003 and is based on aggregated country data which, after collection, was transfered to the Uppsala Clinical Research Center, Uppsala University,

Uppsala, Sweden, where data were checked for consistency and a statistical report was produced. The delay in reporting data is due to delay in countries collecting their own data, logistical difficulties in international data collection, ICMART's development of new formats and procedures, and change of data collection to involve the University of Uppsala, Sweden.

Data are presented by country and region. In countries where the number of initiated cycles was unavailable, an estimation of this number was made by adding the average cycle cancellation rate (9.4%) to the number of aspiration cycles. For national registries with incomplete coverage, the number of initiated cycles per country was estimated by dividing the reported number by the percentage of participating clinics. The number of babies born, when not reported by a registry, was estimated by using the reported clinical pregnancy rate, average miscarriage rate, and multiple live birth rate in those countries that reported all of those variables. Finally, the total number of babies born worldwide from 2003 ART procedures was estimated by using the hypothesis that the missing countries, mostly in Asia, Africa, Oceania and West Indies, performed between 10% and 20% of the world activity in ART. Availability is expressed as the number of cycles (estimated) per million inhabitants in 2003 (13). A cumulative delivery rate per aspiration was estimated by adding the FET deliveries to those obtained from fresh cycles and dividing the sum by the number of aspirations.

RESULTS

Results are presented in ten tables and nine figures. Four of these tables and three figures are presented in this text, and the remaining six tables and six figures are available online at www.fertstert.org.

Availability

Data were received from 1,709 clinics in 54 countries (146 more clinics and 1 more country than in 2002). The largest number of reporting clinics was from Europe with 741 (43.4%), followed by the USA with 371 (21.7%). The size of the reporting clinics also had some geographic variations. Clinics reporting <100 cycles were mainly located in Asia (58%) and Latin America (45%), and medium-sized clinics (200–500 cycles) were mainly located in Europe (46%) and North America (32%). Large clinics (>1,000 cycles) were located in Australia/New Zealand (30%) and Israel (29%), where they represented 66% of all registered clinics in those countries. Twenty-six countries, or almost one-half of the total of 54, could provide data on >95% of cycles that were performed in their country (Supplemental Table 1).

Table 1 reports an estimated total of 932,415 cycles, an increase of 13.7% from 2002. The availability of ART varied from 5 treatment cycles per million population in the Dominican Republic to 4,916 per million in Jordan. The USA reported the largest number of aspirations, followed by Germany and France. On a regional basis, Europe had the largest number of aspirations, performing 60.9% of the world total. FETs represented 23.8% of the aspirations, up from 21.7% in 2002. ICSI represented 58.1% of procedures, almost the same percentage as in 2000, and also varied according to regions. ICSI was performed in 70.5% of procedures in Latin America and 96% of those in the Middle East.

Efficacy

Table 2 reports on ART outcomes. Pregnancy rates (PRs) and delivery rates (DRs) per aspiration were similar in IVF and ICSI: PR 28.6% versus 29.4% and DR 22.4% versus 23.3%, respectively. For FET, PR and DR per transfer were 22.9% and 17.1%, respectively. Since 2002, the DR for IVF remained the same at 22.4%, increased for ICSI from 21.2% to 23.3%, and increased for FET from 15.3% to 17.1%. For FET cycles, the number of transfered embryos, efficacy and multiplicity are reported in Supplemental Table 2. The cumulative DR per aspiration varied among countries, being the highest in North America (37.6%). When combining IVF and ICSI "fresh" cycles (Table 3), DR per aspiration increased to 23.1% compared with 22.3% for 2002, and it increased to 26.3% compared with 25.7% for 2002 for the cumulative delivery rate (fresh plus frozen cycles). The miscarriage rate per clinical pregnancies (Table 4) averaged 20.9% in fresh cycles, similar to 2002, with large differences reported among countries and higher in FET pregnancies (24.2%).

A total of 173,424 babies (Table 2) were reported to have been born, an increase of 26,212 babies from the 148,208 babies reported born in 2002. The proportion of women aged ≥40 years was 14.6%, similar to 2002, and varied among regions, from 11.6% in Europe to 22.7% in Asia (Supplemental Table 3).

Safety

The percentage of transfers with four or more embryos in fresh cycles decreased since 2000 from 13.7% to 10.8%, but with large differences among and within regions (Table 3). The highest proportion was reported from Latin America at 33.9% and the lowest from Europe at 3.5% and Australia/New Zealand at 0.4%. The proportion of single embryo transfers increased from 12.4% to 14.7% and was highest in Sweden (54.5%), Finland (50.1%), and Australia (29.3%).

The proportion of multiple deliveries decreased from 2002, with twins going from 25.7% to 24.8% and triplets from 2.5% to 2.0%. The triplet rate varied markedly from <1% in 23 countries to 8.6% in Brazil and to 25.0% in Guatemala. Similar developments were seen for FET, but with a lower rate of multiple deliveries, with twins at 16.9% and triplets or higher at 0.9% (Supplemental Table 2). The mean number of embryos transfered (Supplemental Figs. 1 and 2) correlated with the triplet or higher rate (Supplemental Figs. 3 and 4; $r = 0.45$; P=.001) but not with DR (Supplemental Figs. 1 and 2; $r = 0.18$; P=.21).

The proportions of premature delivery and perinatal death were similar to 2002, but there were no data from European countries (Table 4). The frequency of ovarian hyperstimulation syndrome was reported by 34 countries as 1.0%, with a regional range of 0.6%–2.2% (Supplemental Table 4). Congenital anomalies were recorded too infrequently to be reported.

Special Techniques—Ovum Donation (OD), Preimplantation Genetic Diagnosis (PGD), In Vitro Maturation, Surrogacy, and Multifetal Reduction

Thity-six countries reported 23,664 OD transfers, representing about 4.2% of all ART treatments (Supplemental Table 5): 73.5% were fresh embryo transfers and 50.4% were performed in the USA. DR per transfer (fresh and FET together) was 36.1%, with the USA highest at 45.5%. The multiple delivery rate was 35.4%, with the USA at 37.7%. The total number of reported babies was 11,803, with 7,652 from the USA. Europe reported a DR of 26.4%, multiple rate of 28.7%, and 2,431 babies born, the highest being 1,154 from Spain. Eighteen countries reported 2,670 PGD aspiration cycles, with PR and DR per aspiration at 22.1% and 16.5%, respectively (Supplemental Table 6). Very few data were reported on in vitro maturation, surrogacy, and multifetal reduction.

Taking into account the missing centers and missing data from a few reporting centers, it was estimated that ART produced 232,980 babies from treatments in 2003, an increase of 10.2% compared with the year 2002.

TABLE 1

Number of procedures by type of procedure for year 2003.

Country/region	Nondonation cycles								Donation cycles		
	Fresh cycles[c]					FET cycles[c]					
	Initiated cycles[b]	Aspiration cycles				Thaw cycles	Transfer cycles	PGD cycles transfer cycles	Oocyte donation transfer cycles	Estimated overall total cycles[d]	Availability, cycles/million[e]
		Total[b]	IVF	ICSI	GIFT						
India[a]	NA	12,082	NA	NA	NA	1,573	1,411	NA	NA	18,291	17
Japan	36,878	32,898	17,671	15,199	28	9,311	8,895	NA	NA	143,429	1,127
South Korea	14,649	13,485	7,483	5,998	4	2,101	2,008	NA	292	32,309	669
Taiwan	4,775	4,769	2,661	2,096	12	398	395	NA	121	5,447	241
Australia	NA	NA	NA	NA	NA	11,763	10,786	620	1,084	32,024	1,623
New Zealand	NA	NA	NA	NA	NA	943	861	1	125	2,951	747
Austria	4,841	NA	NA	NA	NA	51	46	NA	NA	4,892	597
Belgium	NA	10,278	3,442	6,836	NA	4,099	3,028	555	515	16,462	1,600
Bulgaria	814	631	338	293	NA	47	42	2	16	1,538	204
Croatia	2,107	2,003	1,235	768	NA	600	514	NA	NA	2,707	612
Denmark	9,292	8,912	5,349	3,563	NA	1,519	1,260	NA	72	10,883	2,021
Finland	4,438	4,322	2,592	1,730	NA	2,841	2,548	32	810	8,121	1,565
France	NA	48,007	21,704	26,303	NA	12,423	11,099	NA	251	65,423	1,087
Germany	87,185	79,564	28,154	51,410	NA	15,241	13,598	NA	NA	102,426	1,243
Greece	8,474	8,112	3,046	5,066	NA	892	830	108	263	19,474	1,826
Hungary	2,615	2,468	692	1,776	NA	206	201	6	19	5,218	519
Iceland	NA	285	146	139	NA	85	85	0	16	414	1,474
Ireland	1,696	1,761	1,058	703	NA	359	319	0	2	2,571	655
Italy	22,517	19,962	7,172	12,790	NA	3,092	2,882	268	NA	43,198	745
Latvia	109	102	88	14	NA	38	38	0	0	147	63
Lithuania	69	70	41	29	NA	13	7	0	NA	246	68
Macedonia	383	351	195	156	NA	0	0	0	0	383	186
Netherlands	15,769	14,247	8,744	5,503	NA	1,970	1,767	68	37	17,844	1,105
Norway	4,800	4,630	2,683	1,947	NA	514	406	0	0	5,314	1,169
Poland	3,032	2,943	452	2,491	NA	1,071	952	NA	59	5,054	131
Portugal	2,712	2,481	951	1,530	NA	364	337	17	13	3,471	344
Russia	8,937	8,613	6,353	2,260	NA	1,110	1,023	51	644	12,234	85
Serbia	191	157	41	116	NA	NA	NA	NA	NA	1,910	179
Slovenia	2,124	2,035	717	1,318	NA	506	419	0	17	2,647	1,367
Spain	11,734	10,131	2,630	7,501	NA	1,972	1,584	594	2,374	47,243	1,175
Sweden	9,314	8,769	4,584	4,185	NA	2,405	1,964	NA	19	11,738	1,322
Switzerland	3,168	2,968	828	2,140	NA	2,460	2,188	NA	NA	5,628	769
Ukraine	1,746	1,689	1,129	560	NA	197	195	23	143	3,281	68
United Kingdom	28,255	26,256	14,288	11,968	NA	6,858	6,029	232	1,882	37,227	619
Argentina	3,251	3,082	798	2,264	20	395	354	NA	518	5,479	141
Bolivia	47	45	11	34	0	6	5	NA	7	120	14
Brazil	8,094	7,632	998	6,619	15	1,143	1,025	NA	797	11,079	61

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TABLE 1

Continued.

Country/region	Nondonation cycles: Fresh cycles[c] Initiated cycles[b]	Aspiration cycles Total[b]	Aspiration cycles IVF	Aspiration cycles ICSI	Aspiration cycles GIFT	FET cycles[c] Thaw cycles	FET cycles[c] Transfer cycles	PGD cycles transfer cycles	Oocyte donation transfer cycles	Estimated overall total cycles[d]	Availability, cycles/million[e]
Chile	897	832	339	471	22	225	202	NA	104	1,226	78
Colombia	677	636	248	388	0	42	38	NA	171	1,446	35
Dominican Republic	42	37	28	9	0	0	0	NA	0	42	5
Ecuador	119	111	19	92	0	5	4	NA	42	166	12
Guatemala	21	21	17	4	0	2	2	NA	6	29	2
Mexico	2,348	2,228	965	1,262	1	275	247	NA	438	NA	NA
Peru	247	247	140	107	0	28	25	NA	173	896	32
Uruguay	161	141	39	102	0	17	15	NA	3	362	106
Venezuela	697	567	208	359	0	119	107	NA	120	936	38
Egypt	7,197	6,883	49	6,834	0	495	444	19	NA	23,133	310
Jordan	2,792	2,648	28	2,620	0	151	93	215	NA	26,843	4,916
Lebanon	690	657	190	467	0	10	9	NA	24	4,706	1,262
Saudi Arabia	1,125	1,028	41	987	0	42	20	65	NA	5,749	237
Tunisia	NA	792	181	611	0	119	118	0	0	6,923	698
Israel[a]	16,473	NA	NA	NA	NA	5,976	5,480	NA	NA	22,449	3,670
Canada	7,165	6,390	2,836	3,552	2	2,202	2,014	5	561	9,933	308
United States	88,760	77,553	28,045	49,409	99	17,111	15,352	NA	11,926	138,753	478
Asia	>56,302	63,234	>27,815	>23,293	>44	13,383	12,709	NA	>413	199,476	160
Australia/ New Zealand	NA	NA	NA	NA	NA	12,706	11,647	621	1,209	34,975	1,477
Europe	>236,322	>271,747	>118,652	>153,095	NA	>60,933	>53,361	>1,956	>7,152	437,694	658
Latin America	16,601	15,579	3,810	11,711	58	2,257	2,024	NA	2,379	>21,781	57
Middle East	>11,804	12,008	489	11,519	0	817	684	>299	>24	67,354	570
Middle East (Israel)	16,473	NA	NA	NA	NA	5,976	5,480	NA	NA	22,449	3,670
North America	95,925	83,943	30,881	52,961	101	19,313	17,366	>5	12,487	148,686	461
Total	>433,427	>446,511	>181,647	>252,579	>203	>115,385	>103,271	>2,881	>23,664	>932,415	337

Note: NA = not available.

[a] Countries that did not separate ICSI and IVF.

[b] Reported in the registries.

[c] Excluding PGD and oocyte donation cycles.

[d] Overall initiated cycles estimation: step 1: reported cycles for countries reporting them, or estimation by applying their cancellation rate to the aspiration numbers for the nonreporting countries; step 2: total of step 1 if 100% of the clinics reported, or estimation by applying the percentage of participating clinics to this total if <100% of the clinics reported.

[e] Total estimated number of cycles in the country divided by its population in 2,003 (CIA World Fact Book).

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TABLE 2

IVF, ICSI, and FET results (pregnancy rates [PRs], delivery rates [DRs], and babies) for year 2003.

Country/region	IVF		ICSI		FET		IVF and ICSI				Total babies reported (n)[c,e]	Total babies est (n)[d,e]
	PR/Asp (%)	DR/Asp (%)	PR/Asp (%)	DR/Asp (%)	PR/FET (%)	DR/FET (%)	DR/Asp fresh (%)	DR/Asp cum (%)[f,g]	Babies/Asp fresh (%)	Babies/Asp cum (%)[b]		
India[a]	NA	NA	NA	NA	18.3	13.7	NA	26.4[f]	26.4	28.3	3,419	4,212
Japan	19.1	12.8	16.6	11.4	30.9	21.0	12.2	17.9	14.8	21.9	7,203	22,367
South Korea	32.1	NA	27.7	NA	31.7	23.8	NA	27.6[f]	27.8	32.0	4,415	8,370
Taiwan	41.7	30.0	40.4	29.2	32.2	22.5	29.6	31.5	44.4	47.0	2,317	2,384
Australia	NA	NA	NA	NA	20.2	15.0	NA	NA	NA	NA	6,282	6,282
New Zealand	NA	NA	NA	NA	22.0	16.8	NA	NA	NA	NA	927	927
Austria	NA	NA	NA	NA	21.7	0.0	NA	NA	NA	NA	NA	NA
Belgium	19.1	14.6	20.1	15.3	16.1	11.4	15.1	18.4	8.6	12.8	1,504	1,504
Bulgaria	32.0	17.8	30.0	24.2	11.9	0.0	20.8	20.8	25.8	25.8	169	296
Croatia	22.3	18.9	25.9	22.3	18.9	16.5	20.2	24.5	25.8	30.5	611	611
Denmark	28.0	22.8	27.9	23.6	16.6	12.9	23.1	25.0	28.6	30.8	2,767	2,767
Finland	29.9	22.9	28.5	22.2	22.4	16.5	22.6	32.3	25.5	36.3	1,796	1,796
France	22.1	16.9	23.6	18.5	16.3	12.7	17.8	20.7	21.4	24.7	11,884	11,884
Germany	25.3	19.4	26.6	20.9	16.4	11.5	20.4	22.3	25.2	27.4	21,821	21,821
Greece	32.1	23.9	32.5	24.7	33.0	27.2	24.4	27.2	32.9	36.6	3,090	6,180
Hungary	29.8	25.4	29.7	22.9	12.9	7.5	23.6	24.2	32.0	32.6	811	1,487
Iceland	40.4	28.8	33.8	29.5	31.8	23.5	29.1	36.1	36.8	49.5	151	151
Ireland	32.3	26.7	27.7	23.0	26.6	20.1	25.2	28.8	31.2	35.4	624	780
Italy	24.4	19.9	24.7	20.3	19.7	15.6	20.1	22.4	25.3	27.9	5,618	9,378
Latvia	29.5	NA	35.7	NA	13.2	2.6	NA	25.5[f]	34.3	38.2	39	39
Lithuania	34.1	22.0	20.7	10.3	NA	0.0	17.1	17.1	17.1	17.1	12	36
Macedonia	29.2	15.9	7.1	9.6	NA	NA	13.1	13.1	18.2	18.2	64	64
Netherlands	29.3	NA	32.5	NA	21.4	0.0	NA	24.3[f]	NA	NA	4,397[c]	4,397
Norway	28.8	22.7	28.7	22.8	21.2	18.0	22.7	24.3	28.5	30.3	1,404	1,404
Poland	26.8	24.1	30.8	27.5	16.5	14.2	26.9	31.5	33.7	39.4	1,176	1,428
Portugal	28.4	24.8	25.9	21.3	21.1	14.2	22.7	24.6	29.8	32.3	809	904
Russia	29.1	23.0	27.8	22.4	22.6	17.0	22.9	24.9	28.6	30.8	2,882	3,282
Serbia	17.1	12.2	13.8	9.5	NA	NA	10.2	10.2	12.1	12.1	19	190
Slovenia	28.9	22.5	26.8	22.6	14.6	11.5	22.6	24.9	28.4	31.1	637	637
Spain	32.8	25.3	35.4	21.5	23.4	17.9	22.5	25.3	23.0	26.7	4,119	11,671
Sweden	31.2	24.3	29.0	23.4	25.1	19.6	23.9	28.2	26.7	31.6	2,781	2,781
Switzerland	27.1	20.3	30.0	22.8	18.6	14.1	22.1	32.5	26.4	38.6	1,147	1,147
Ukraine	28.0	23.5	28.4	24.5	22.1	17.4	23.8	25.8	33.9	36.2	691	1,075
United Kingdom	27.4	24.5	28.5	25.9	20.5	18.2	25.1	29.3	31.7	36.6	10,307	10,307
Argentina	26.8	21.1	20.8	17.3	12.1	8.8	18.3	19.3	24.0	25.2	957	1,259
Bolivia	36.4	27.3	35.3	32.4	0.0	0.0	31.1	31.1	37.8	37.8	17	34
Brazil	34.0	29.2	33.0	26.6	17.2	13.2	26.9	28.7	39.5	41.7	3,493	3,857
Chile	36.0	28.3	29.5	26.5	21.8	15.8	27.3	31.2	33.5	38.3	342	342
Colombia	35.5	31.5	29.6	22.4	26.3	21.1	25.9	27.2	34.3	35.8	300	488

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TABLE 2

Continued.

Country/region	IVF		ICSI		FET		IVF and ICSI				Total babies reported (n)[c,e]	Total babies est (n)[d,e]
	PR/Asp (%)	DR/Asp (%)	PR/Asp (%)	DR/Asp (%)	PR/FET (%)	DR/FET (%)	DR/Asp fresh (%)	DR/Asp cum (%)[f,g]	Babies/Asp fresh (%)	Babies/Asp cum (%)[b]		
Dominican Republic	14.3	10.7	11.1	11.1	NA	NA	10.8	10.8	13.5	13.5	5	5
Ecuador	31.6	31.6	26.1	22.8	75.0	50.0	24.3	26.1	32.4	36.0	53	53
Guatemala	11.8	11.8	50.0	50.0	0.0	0.0	19.0	19.0	33.3	33.3	7	7
Mexico	28.2	23.2	26.3	20.7	19.4	12.1	21.8	23.1	28.2	29.7	851	NA
Peru	32.1	25.7	29.0	25.2	20.0	12.0	25.5	26.7	33.6	34.8	194	388
Uruguay	20.5	15.4	24.5	19.6	13.3	13.3	18.4	19.9	22.7	25.5	37	74
Venezuela	33.2	23.1	35.4	27.0	16.8	12.1	25.6	27.9	35.3	37.7	266	266
Egypt	32.7	24.5	36.7	31.4	24.3	17.6	31.3	32.5	44.7	46.1	3,177	9,531
Jordan	39.3	25.0	20.5	11.2	9.7	2.2	11.3	11.4	16.0	16.0	441	3,749
Lebanon	31.6	28.4	35.5	31.0	22.2	11.1	30.3	30.4	36.5	36.7	241	1,567
Saudi Arabia	12.2	7.3	32.5	25.2	15.0	10.0	24.5	24.7	27.5	27.8	294	1,372
Tunisia	24.3	18.8	39.8	30.8	42.4	29.7	28.0	32.4	38.3	43.8	347	2,429
Israel[a]	NA	NA	NA	NA	22.3	17.6	NA	NA	NA	NA	5,659[c]	5,659
Canada	33.1	26.0	35.3	25.8	24.5	18.5	25.9	31.7	37.5	45.5	3,120	3,120
United States	41.6	33.6	39.4	32.1	35.1	27.3	32.6	38.1	44.9	51.8	47,730	56,221
Asia	24.8	15.1	21.6	13.6	29.7	20.7	14.4	22.6	22.0	27.2	17,354	37,333
Australia/New Zealand	NA	NA	NA	NA	20.4	15.2	NA	NA	NA	NA	7,209	7,209
Europe	26.3	20.7	26.9	21.1	18.6	13.8	20.9	23.8	25.3	28.7	>81,330	>98,017
Latin America	30.8	25.2	29.6	24.0	17.2	12.6	24.3	25.9	33.7	35.8	6,522	>6,773
Middle East	27.8	22.5	32.8	26.2	25.1	17.3	26.1	27.0	36.1	37.3	4,500	18,648
Middle East (Israel)	NA	NA	NA	NA	22.3	17.6	NA	NA	NA	NA	5,659	5,659
North America	40.8	32.9	39.1	31.7	33.9	26.3	32.1	37.6	44.3	51.3	50,850	59,341
Total	28.6	22.4	29.4	23.3	22.9	17.1	22.9	26.4	29.1	33.3	>173,424	>232,980

Note: The total numbers and numbers by region were calculated only from the countries with complete data (i.e., both number of pregnancies and number of aspirations). Cum = cumulative rate per aspiration, computed by adding the FET deliveries and babies, respectively, to those obtained after fresh cycles, the sum being divided by the number of aspirations; NA = not available.

[a] Countries that did not separate ICSI and IVF.

[b] In countries in which the sum of singleton, twins, and triplets were less than the total number of deliveries, the numbers of unknown babies and lost-to-follow-up deliveries were estimated by applying the distribution of reported deliveries in these countries.

[c] Imputed by multiplying number of deliveries by the average number of babies per delivery.

[d] Total babies reported if 100% of the clinics reported. If <100% of clinics reported, this number was estimated by using the percentage of participating clinics to calculate the total number of babies as if all clinics in these countries had reported.

[e] Total babies also includes PGD and OD.

[f] Imputed by calculating the mean percentage of deliveries per pregnancy.

[g] Number of aspirations was imputed.

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TABLE 3

IVF and ICSI cycles: number of transfered embryos, efficacy, and multiplicity for year 2003.

Country/region	Aspirations	Transfers[c]	No. of transfered embryos (%)					Efficacy			Multiplicity	
			1	2	3	≥4	Average	PR/Asp (%)	DR/Asp (%)	Babies/Asp (%)[b]	Twin (%)	Triplet+ (%)
India	12,082	10,641	NA	NA	NA	NA	NA	31.1	24.8[e]	26.4	NA	NA
Japan	32,870	21,734	28.0	40.6	28.2	3.1	2.07	17.9	12.2	14.8	20.0	0.8
South Korea	13,481	12,759	9.7	14.1	28.5	47.7	3.34	30.2	24.0[e]	27.8	14.4	0.2
Taiwan	4,757	4,756	7.0	14.0	22.2	56.7	3.57	41.1	29.6	44.4	39.9	2.2
Australia	NA	14,940	29.3	65.7	4.6	0.3	1.76	NA	NA	NA	19.9	0.4
New Zealand	NA	1,532	13.1	80.7	5.7	0.5	1.94	NA	NA	NA	29.8	0.0
Austria	4,406[a]	4,370	11.3	60.0	25.7	3.0	2.20	NA	NA	NA	NA	NA
Belgium	10,278	9,994	43.6	41.7	12.1	2.5	1.74	19.8	15.1	8.6	16.3	0.7
Bulgaria	631	740	8.5	22.8	52.4	16.2	2.76	31.1	20.8	25.8	18.3	3.1
Croatia	2,003	1,883	8.8	89.3	1.9	0.0	1.93	23.7	20.2	25.8	24.1	1.6
Denmark	8,912	7,795	21.5	72.5	6.0	0.0	1.85	28.0	23.1	28.6	22.7	0.4
Finland	4,322	4,491	50.1	48.9	1.0	0.0	1.51	29.3	22.6	25.5	13.2	0.1
France	48,007	41,615	15.6	57.6	23.8	2.9	2.14	22.9	17.8	21.4	20.7	0.5
Germany	79,564	73,190	11.0	60.6	28.4	0.0	2.17	26.1	20.4	25.2	21.5	1.4
Greece	8,112	7,187	11.1	22.0	37.2	29.8	2.86	32.3	24.4	32.9	31.0	1.8
Hungary	2,468	2,345	9.9	18.3	53.2	18.6	2.81	29.7	23.6	32.0	29.6	4.4
Iceland	285	262	10.7	71.8	17.6	0.0	2.07	37.2	29.1	36.8	26.5	0.0
Ireland	1,761	1,660	6.0	69.2	23.5	1.4	2.20	30.5	25.2	31.2	21.8	0.9
Italy	19,962	17,829	13.6	34.0	44.0	8.4	2.47	24.6	20.1	25.3	19.3	3.3
Latvia	102	102	22.5	48.0	29.4	0.0	2.07	30.4	24.5[e]	34.3	25.0	0.0
Lithuania	70	61	1.6	18.0	60.7	19.7	2.98	28.6	17.1	17.1	0.0	0.0
Macedonia	351	263	28.1	28.1	31.2	12.5	2.28	19.4	13.1	18.2	30.4	4.3
Netherlands	14,247	12,743	NA	NA	NA	NA	NA	30.5	24.3[e]	NA	NA	NA
Norway	4,630	4,241	NA	NA	NA	NA	NA	28.8	22.7	28.5	25.1	0.2
Poland	2,943	2,712	13.3	61.9	23.2	1.6	2.13	30.2	26.9	33.7	23.8	0.8
Portugal	2,481	2,294	14.1	54.2	28.6	3.0	2.21	26.8	22.7	29.8	25.9	3.1
Russia	8,613	7,974	13.2	39.1	33.0	14.6	2.49	28.7	22.9	28.6	20.5	2.3
Serbia	157	114	23.7	17.5	35.1	23.7	2.59	14.6	10.2	12.1	18.2	0.0
Slovenia	2,035	1,848	26.2	65.6	8.2	0.0	1.82	27.5	22.6	28.4	28.2	0.0
Spain	10,131	9,849	11.5	43.9	37.0	7.7	2.41	34.7	22.5	23.0	27.1	3.3
Sweden	8,769	7,918	54.5	45.4	0.1	0.0	1.46	30.2	23.9	26.7	11.8	0.0
Switzerland	2,968	2,727	12.0	64.8	23.1	0.0	2.11	29.1	22.1	26.4	21.3	0.7
Ukraine	1,689	1,581	10.8	28.2	43.8	17.3	2.68	28.1	23.8	33.9	38.3	2.1
United Kingdom	26,256	24,399	8.3	79.8	11.9	0.0	2.04	27.9	25.1	31.7	25.0	0.5
Argentina	3,062	2,711	15.2	29.7	39.5	15.6	2.58	22.4	18.3	24.0	21.4	4.5
Bolivia	45	42	16.7	71.4	11.9	0.0	1.95	35.6	31.1	37.8	14.3	0.0
Brazil	7,617	6,989	7.1	16.3	32.0	44.6	3.27	33.1	26.9	39.5	29.4	8.6
Chile	810	747	7.8	41.0	40.7	10.5	2.54	32.2	27.3	33.5	27.6	2.5
Colombia	636	580	12.8	19.3	32.1	35.9	3.02	31.9	25.9	34.3	23.0	4.2
Dominican Republic	37	27	74.1	3.7	14.8	7.4	1.59	13.5	10.8	13.5	25.0	0.0

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TABLE 3

Continued.

Country/region	Aspirations	Transfers[c]	No. of transfered embryos (%)					Efficacy			Multiplicity	
			1	2	3	≥4	Average	PR/Asp (%)	DR/Asp (%)	Babies/Asp (%)[b]	Twin (%)	Triplet+ (%)
Ecuador	111	99	9.1	20.2	37.4	33.3	2.97	27.0	24.3	32.4	22.2	3.7
Guatemala	21	20	30.0	0.0	15.0	55.0	3.00	19.0	19.0	33.3	25.0	25.0
Mexico	2,227	2,044	11.5	18.6	32.0	37.8	3.04	27.1	21.8	28.2	19.2	4.9
Peru	247	219	5.9	28.3	59.4	6.4	2.66	30.8	25.5	33.6	31.7	0.0
Uruguay	141	127	18.9	25.2	27.6	28.3	2.68	23.4	18.4	22.7	23.1	0.0
Venezuela	567	553	12.3	36.2	34.5	17.0	2.58	34.6	25.6	35.3	21.4	6.2
Egypt	6,883	6,092	7.8	13.6	53.3	25.3	3.05	36.7	31.3	44.7	27.7	3.2
Jordan	2,648	2,357	11.2	17.1	25.4	46.3	3.21	20.7	11.3	16.0	28.3	5.0
Lebanon	657	636	3.4	27.0	59.0	10.6	2.78	34.4	30.3	36.5	17.7	5.7
Saudi Arabia	1,028	983	7.7	55.8	25.6	10.9	2.40	31.7	24.5	27.5	10.7	3.8
Tunisia	792	693	14.1	43.4	35.5	6.9	2.36	36.2	28.0	38.3	29.9	3.2
Israel	14,992[a]	14,325	NA	NA	NA	NA	NA	21.8[d]	23.3[e]	NA	NA	NA
Canada	6,388	5,947	9.5	55.3	26.8	8.4	2.36	34.3	25.9	37.5	29.7	1.6
United States	77,454	72,024	7.5	36.4	32.8	23.3	2.80	40.2	32.6	44.9	31.1	3.1
Asia	63,190	49,890	19.5	28.8	27.6	24.1	2.67	24.8	18.4	22.0	21.1	0.8
Australia/New Zealand	NA	16,472	27.8	67.1	4.7	0.4	1.78	NA	NA	NA	21.3	0.4
Europe	276,153	252,187	15.9	55.8	24.8	3.5	2.16	26.6	21.1	25.3	22.0	1.2
Latin America	15,521	14,158	10.1	21.8	34.3	33.9	3.01	29.9	24.3	33.7	26.1	6.6
Middle East	12,008	10,761	8.7	20.5	44.0	26.8	2.97	32.6	26.1	36.1	26.0	3.6
Middle East (Israel)	14,992	14,325	NA	NA	NA	NA	NA	21.8	23.3	NA	NA	NA
North America	83,842	77,971	7.6	37.9	32.3	22.2	2.76	39.8	32.1	44.3	31.0	3.0
Total	>465,706	435,764	14.7	47.9	26.6	10.8	2.37	28.9	23.1	29.1	24.8	2.0

[a] Imputed by applying the average cancellation rate to the number of initiated cycles.
[b] In countries in which the sum of singleton, twins, and triplets was less than the total number of deliveries, the numbers of unknown babies and lost-to-follow-up deliveries were estimated by applying the distribution of reported deliveries in these countries.
[c] Reported directly in the ICMART registry forms.
[d] Imputed by calculating the number of aspirations from the number of initiated cycles reported.
[e] Imputed by calculating the mean percentage of deliveries per pregnancy.

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TABLE 4

Pregnancy losses, prematurity, and perinatal mortality for year 2003.

	Aspiration cycles (IVF and ICSI)					FET				
	Pregnancies			Deliveries		Pregnancies			Deliveries	
Country/region	Reported (n)	Outcome (n)[a]	Losses %	Preterm (%)[b]	Mortality (per 1,000)[c]	Reported (n)	Issue (n)[a]	Losses (%)	Preterm (%)[b]	Mortality (per 1,000)[c]
India	3,753	NA	NA	NA	NA	258	NA	NA	NA	NA
Japan	5,900	5,319	24.9	19.0	12.9	2,747	2,484	25.4	11.8	9.0
South Korea	4,066	NA	NA	NA	NA	637	NA	NA	NA	NA
Taiwan	1,957	1,931	27.0	38.7	37.1	127	122	27.0	11.7	41.3
Australia	4,427	4,357	23.0	20.4	13.7	2,182	2,119	23.5	15.9	6.0
New Zealand	659	648	15.0	26.3	11.2	189	182	20.3	15.9	6.0
Austria	NA	NA	NA	NA	NA	10	NA	NA	NA	NA
Belgium	2,036	1,181	36.5	NA	NA	488	288	41.3	NA	NA
Bulgaria	196	178	26.4	NA	NA	6	NA	NA	NA	NA
Croatia	474	439	15.7	NA	NA	97	91	12.1	NA	NA
Denmark	2,493	2,285	18.9	NA	NA	209	191	24.1	NA	NA
Finland	1,267	1,248	22.1	NA	NA	570	570	26.3	NA	NA
France	10,984	10,890	23.2	NA	NA	1,853	1,814	26.6	NA	NA
Germany	20,788	18,347	25.6	NA	NA	2,227	2,036	32.6	NA	NA
Greece	2,621	1,875	18.0	NA	NA	274	194	16.5	NA	NA
Hungary	733	719	20.6	NA	NA	26	19	21.1	NA	NA
Iceland	106	106	21.7	NA	NA	37	37	18.9	NA	NA
Ireland	537	535	17.0	NA	NA	85	85	24.7	NA	NA
Italy	4,914	3,837	23.3	NA	NA	567	477	24.3	NA	NA
Latvia	31	31	9.7	NA	NA	5	4	25.0	NA	NA
Lithuania	20	16	50.0	NA	NA	1	1	100.0	NA	NA
Macedonia	68	67	31.3	NA	NA	NA	NA	NA	NA	NA
Netherlands	4,352	NA	NA	NA	NA	379	NA	NA	NA	NA
Norway	1,332	1,332	20.9	NA	NA	86	86	15.1	NA	NA
Poland	888	861	11.0	NA	NA	157	153	14.4	NA	NA
Portugal	666	622	16.7	NA	NA	71	64	35.9	NA	NA
Russia	2,474	1,785	28.3	NA	NA	231	152	37.5	NA	NA
Serbia	23	18	38.9	NA	NA	NA	NA	NA	NA	NA
Slovenia	560	560	19.5	NA	NA	61	54	11.1	NA	NA
Spain	3,515	2,305	24.2	NA	NA	370	301	16.3	NA	NA
Sweden	2,647	2,632	20.5	NA	NA	492	489	21.5	NA	NA
Switzerland	865	822	27.4	NA	NA	407	407	32.4	NA	NA
Ukraine	475	457	16.0	NA	NA	43	39	23.1	NA	NA
United Kingdom	7,326	7,220	10.1	NA	NA	1,233	1,212	11.1	NA	NA
Argentina	685	NA	NA	22.0	23.3	43	43	27.9	17.4	0.0
Bolivia	16	NA	NA	14.3	187.5	0	0	NA	NA	NA
Brazil	2,521	NA	NA	35.4	36.4	176	174	22.4	21.1	46.5
Chile	261	NA	NA	32.7	26.0	44	44	27.3	19.4	0.0

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TABLE 4

Continued.

	Aspiration cycles (IVF and ICSI)					FET				
	Pregnancies			Deliveries		Pregnancies			Deliveries	
Country/region	Reported (n)	Outcome (n)[a]	Losses %	Preterm (%)[b]	Mortality (per 1,000)[c]	Reported (n)	Issue (n)[a]	Losses (%)	Preterm (%)[b]	Mortality (per 1,000)[c]
Colombia	203	NA	NA	29.4	4.6	10	10	20.0	25.0	0.0
Dominican Republic	5	NA	NA	0.0	0.0	0	0	NA	NA	NA
Ecuador	30	NA	NA	14.8	57.1	3	3	33.3	100.0	0.0
Guatemala	4	NA	NA	50.0	0.0	0	0	NA	NA	NA
Mexico	604	NA	NA	27.6	25.3	48	48	37.5	10.0	0.0
Peru	76	NA	NA	69.8	12.0	5	5	40.0	100.0	0.0
Uruguay	33	NA	NA	3.8	0.0	2	2	0.0	100.0	0.0
Venezuela	196	NA	NA	24.1	36.1	18	18	27.8	0.0	0.0
Egypt	2,527	2,280	16.3	42.4	108.8	108	93	32.3	48.6	154.8
Jordan	548	399	24.8	63.3	28.8	9	6	66.7	NA	0.0
Lebanon	226	167	15.6	62.3	162.0	2	1	0.0	100.0	NA
Saudi Arabia	326	300	22.0	31.9	93.6	3	3	33.3	50.0	0.0
Tunisia	287	273	19.0	26.4	80.0	50	47	25.5	8.8	0.0
Israel	3,272	NA	NA	NA	NA	1,224	NA	NA	NA	NA
Canada	2,193	2,193	20.0	30.4	28.8	494	468	20.3	27.9	10.4
United States	31,143	30,883	18.1	32.8	21.1	5,390	5,389	22.3	24.0	18.1
Asia	15,676	>7,250	25.4	24.3	20.8	3,769	>2,606	25.5	11.8	10.9
Australia/New Zealand	5,086	5,005	22.0	21.2	13.3	2,371	2,301	23.3	15.9	6.0
Europe	>72,391	>60,368	21.9	NA	NA	>9,985	>8,764	25.1	NA	NA
Latin America	4,634	NA	NA	31.7	31.2	349	347	26.2	20.5	25.2
Middle East	3,914	3,419	18.0	43.8	97.2	172	150	31.3	36.7	100.8
Middle East (Israel)	3,272	NA	NA	NA	NA	1,224	NA	NA	NA	NA
North America	33,336	33,076	18.3	32.7	21.6	5,884	5,857	22.1	24.3	17.5
Total	>138,309	>109,118	20.9	31.2	26.0	>23,754	>20,025	24.2	19.9	15.2

[a] Pregnancies with known outcome (i.e., both pregnancy losses and live births).
[b] Preterm = <37 weeks.
[c] Mortality = perinatal mortality (stillbirths + neonatal deaths/stillbirths + live births) × 1,000.

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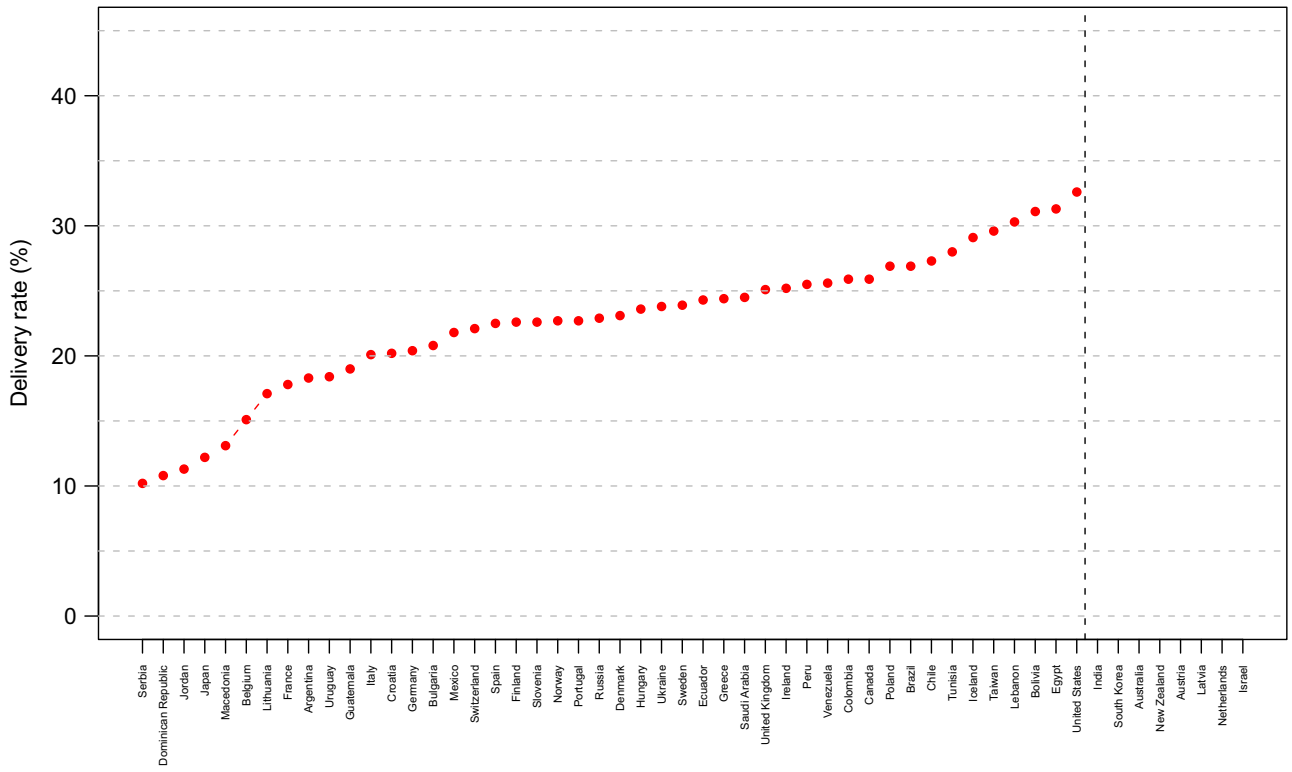
FIGURE 1

Delivery rate per aspiration.



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DISCUSSION

The present ICMART World Report gives a broad overview of world data on ART practice, efficacy, and safety for 2003. The validity of some of the data remains uncertain, and therefore comparisons need to be somewhat cautious (14, 15).

Methodologic Issues

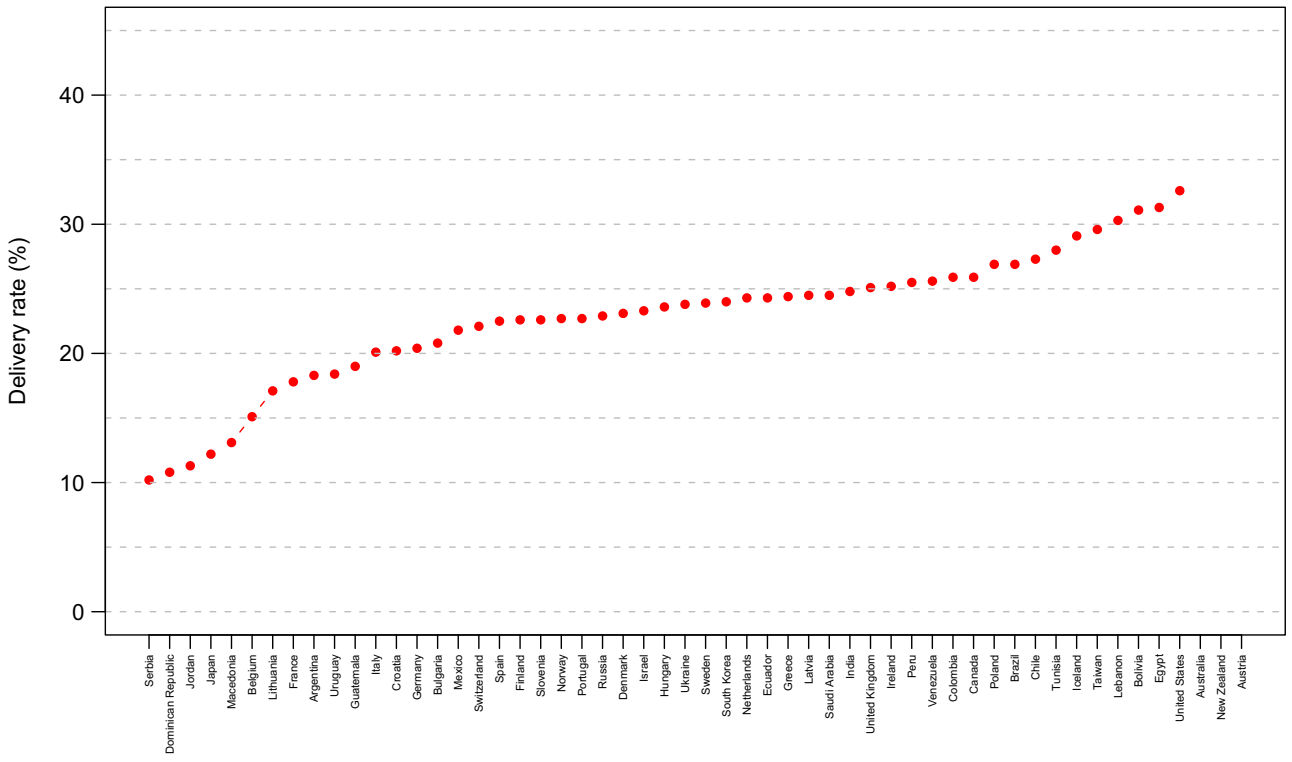
As with previous World Reports, this report for 2003 does not cover all countries or clinics. The data are not always complete, some countries have mandatory reporting and others not, and the data are often not formally validated. Although these and other factors make data analysis challenging, the situation is improving. The number of participating countries is increasing and has now reached 54. Europe, the Americas and Australia/New Zealand are well covered, whereas from Asia only Japan and Korea provide comprehensive data. ICMART, in official relations with the World Health Organization (WHO), is continuously making efforts to help countries build and improve their national registries and to report to ICMART. For 2003, almost 50% of all participating countries had >95% reporting of cycles in their respective countries. We hypothesized that ART was less frequent in the nonreporting countries and would contribute 10%–20% of the world ART activity, assuming that missing clinics had the same level of activity and results as the reporting clinics. ICMART estimates that the current report covers 60%–70% of ART activity in the world. Submitted data are not always complete, but the major variables of procedures, pregnancies, deliveries, and babies are the same in all the registries. In several instances results have been imputed. When this was done the result was identified as such. Imputing numbers clearly has advantages and disadvantages. It gives a more comprehensive overview most of the time, but may lead to aberrant data that do not reflect the country's experience, e.g., the imputed number of cycles in Jordan is higher than it almost certainly actually is, because only two large programs reported their data. ICMART is analyzing the data to improve its ability to impute data optimally and report representative numbers if actual numbers are not available. The 2002 ICMART-WHO glossary of definitions has recently been revised, and the renewed and expanded version has been published. This should improve comparability of data among countries and regions (8–12).

An additional way to evaluate ART efficacy is to use a cumulative PR, adding together pregnancies achieved from both fresh transfers and additional FETs resulting from the same aspiration. The ICMART cumulative pregnancy rate is not methodologically perfect because we add pregnancies from fresh and frozen/thaw transfers in the same year, regardless of whether they come from the same aspiration or the same woman. This calculation approximates the correct result if the proportions of aspirations and FETs remain constant over time, but it may slightly underestimate the actual rate if there is a relative increase in FET. With this calculation/assumption, the cumulative DR increased from 25.7% to 26.4%. Also, the proportion of FET cycles per country varies according to the proportion of single embryo transfer (SET) as well as cryopreservation rates and other socioeconomic and policy issues.

Maternal complications and congenital anomalies were poorly reported owing to the lack of standardized terminology and

FIGURE 2

Delivery rate per aspiration (imputed when complete data not available).



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diagnosis, to the sometimes high rate of loss to follow-up and because a certain proportion of anomalies are not discovered until after the time covered by the reporting period. Therefore, data on birth defects need other data collection strategies.

Availability

The access to ART treatments in 2003, as in previous years, varied greatly in different countries and ranged in the present report from 5 per million in the Dominican Republic to 3,670 per million in Israel. This inequity in access to ART among regions and countries is also evident within many countries. A certain amount of cross-border fertility care exists, but according to a recently performed ICMART international surveillance very few data are available (16). ICMART is planning to include at least some data on cross-border fertility care in its future data collections. The trends of increasing participation to the current level of 54 countries, 1,709 clinics and >433,427 treatment cycles continued. Europe reported an increasing proportion of all treatments, up from 56% for 2002 to 61% for 2003. Among treatment modalities the proportion of ICSI remained at 57% compared with 2002, but regions differed greatly, with the Middle East highest at 96% ICSI. FET increased marginally to 23.8%, again with large variations among countries.

Efficacy

As in previous years, the DRs for IVF and ICSI were similar at ~23%. There was a small increase of the DR for ICSI from 22.4% to 23.3% and for FET from 15.3% to 17.1%. The increase for FET is interesting and potentially important, now that cumulative DR (fresh and frozen rates added together) is a new way of describing efficacy. The DR for fresh IVF and ICSI combined was 22.9% and the cumulative DR 26.3%. For countries with a large proportion of FET, such as Finland, the difference between these two ways of describing efficacy is even more evident, with a DR fresh of 23% and a DR cumulative of 32%.

The USA had the highest rates, with a DR fresh of 33% and a DR combined of 38% (Figs. 1 and 2) Women's age is an important factor (Supplemental Fig. 5). In the USA, the proportion of women >40 years old was higher than in Europe but lower than in Australia/New Zealand and Asia. Again, the DR per aspiration was not directly increased by increasing the mean number of embryos transfered (Fig. 3).

Spontaneous miscarriages occurred more frequently after FET, which may reflect differences in women's age and/or other unknown factors.

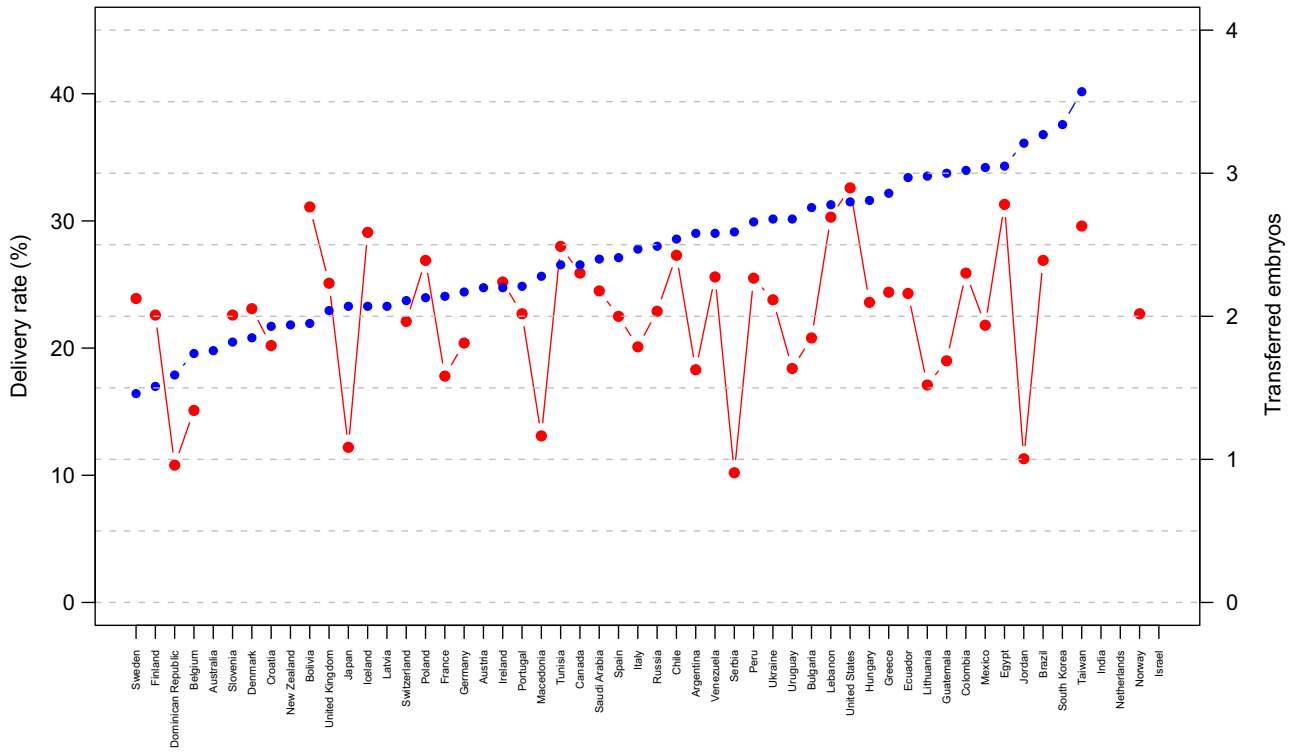
The number of babies reported to have been born after ART again increased by >26,000 babies since year 2000 to >173,424 babies. The ICMART estimation of the total number of ART babies born in 2003 reached 232,980.

Safety

The number of embryos transfered per procedure is the major determinant of the iatrogenic increase of multiple pregnancy and multiple delivery leading to an increased risk of prematurity and its consequences in addition to the already elevated risk caused by the infertility risk factors of the women treated (Supplemental Fig. 6). The ultimate clinical policy to avoid this is SET, which increased worldwide in 2003 to 15% of all cycles, some elective and some because only one good-quality embryo was available for transfer. The

FIGURE 3

Delivery rate per aspiration (*red*) according to the mean number of embryos transfered (*blue*).



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ongoing transition toward SET was far from uniform, however, being highest in Sweden at 54.5%.

As a consequence, DRs of both twins and triplets decreased, again with huge differences among countries. Triplet deliveries overall were reduced to 2%, and 23 countries reported <1% triplets. Not surprisingly, data on prematurity and perinatal death demonstrated large variation among regions, with prematurity in Australia/New Zealand lower, at 21%, compared with the Middle East, higher at 44%. Data from Europe on prematurity are not available through the European IVF Monitoring registry.

Ovarian hyperstimulation syndrome was reported in 1% of treatments, similar to previous levels. Data on birth defects are often not reported or are incomplete.

CONCLUSION

This ICMART World Report on ART treatments in 2003 continues to show inequity of access to ART treatments worldwide. Large differences in clinical practice, notably in the number of embryos transfered and consequently the multiple pregnancy and delivery rates, persist. Generally, however, developments reported here are positive: Availability increased, with more clinics in more countries reporting on more cycles. Efficacy also increased slightly. The use of SET and FET increased and multiple pregnancy and deliveries decreased. The next ICMART World Report plans to describe trends over a more extended time period. The total number of babies born through ART worldwide in the year 2003 is estimated to be 232,380.

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SUPPLEMENTAL MATERIAL

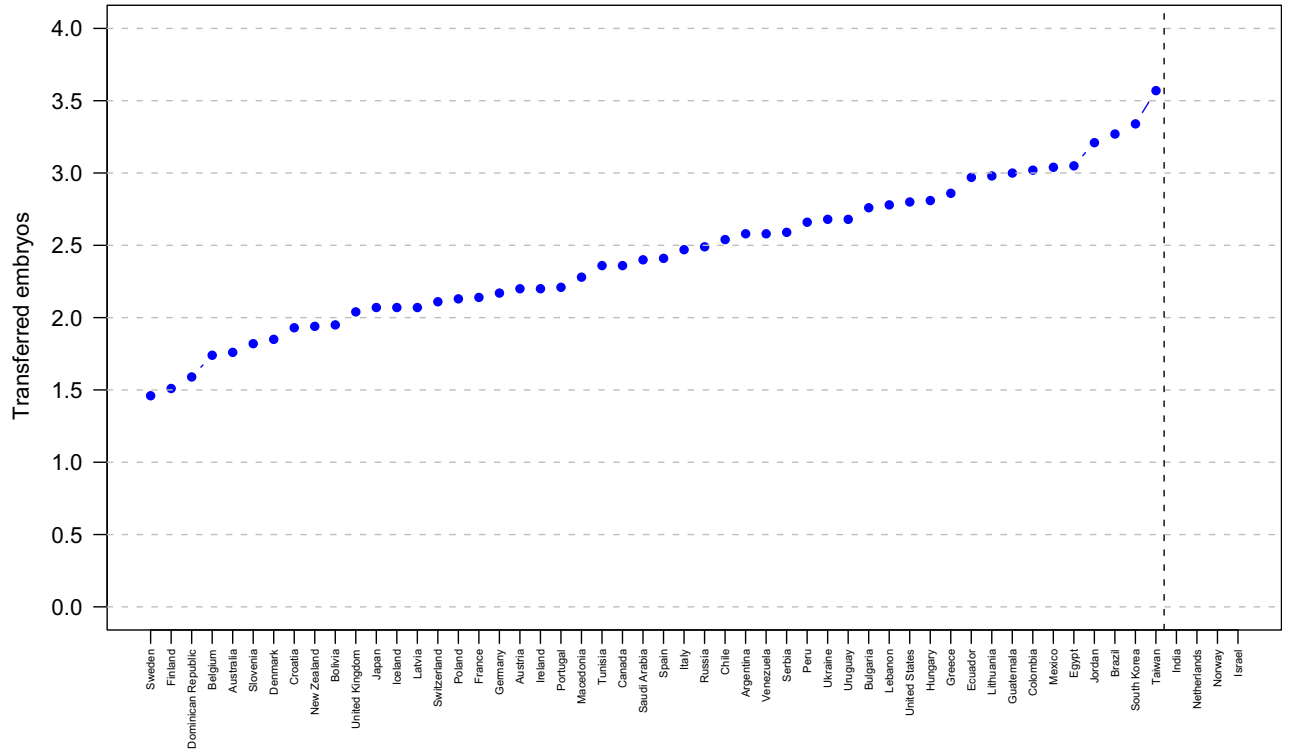
A list of Supplemental Tables 1–6, and Supplemental Figures 1–6 are available online.

CONTRIBUTING CLINICS

Australian and New Zealand Assisted Reproduction Database (ANZARD), Fertility Society of Australia/Australian Institute of Health and Welfare National Perinatal Statistics Unit, European IVF Monitoring (EIM) Consortium, Latin American Network for Reproductive Medicine (RED), Society for Assisted Reproductive Technology (SART)/Centers for Disease Control (CDC), Middle East IVF registry, and all of the participating individual countries.

SUPPLEMENTAL FIGURE 1

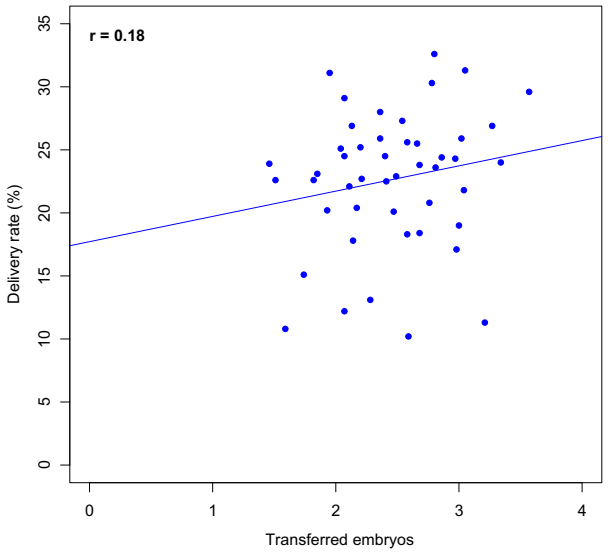
Number of embryos transfered.



Nygren. ICMART world report on ART 2003. Fertil Steril 2011.

SUPPLEMENTAL FIGURE 2

Delivery rate versus mean number of embryos transfered.



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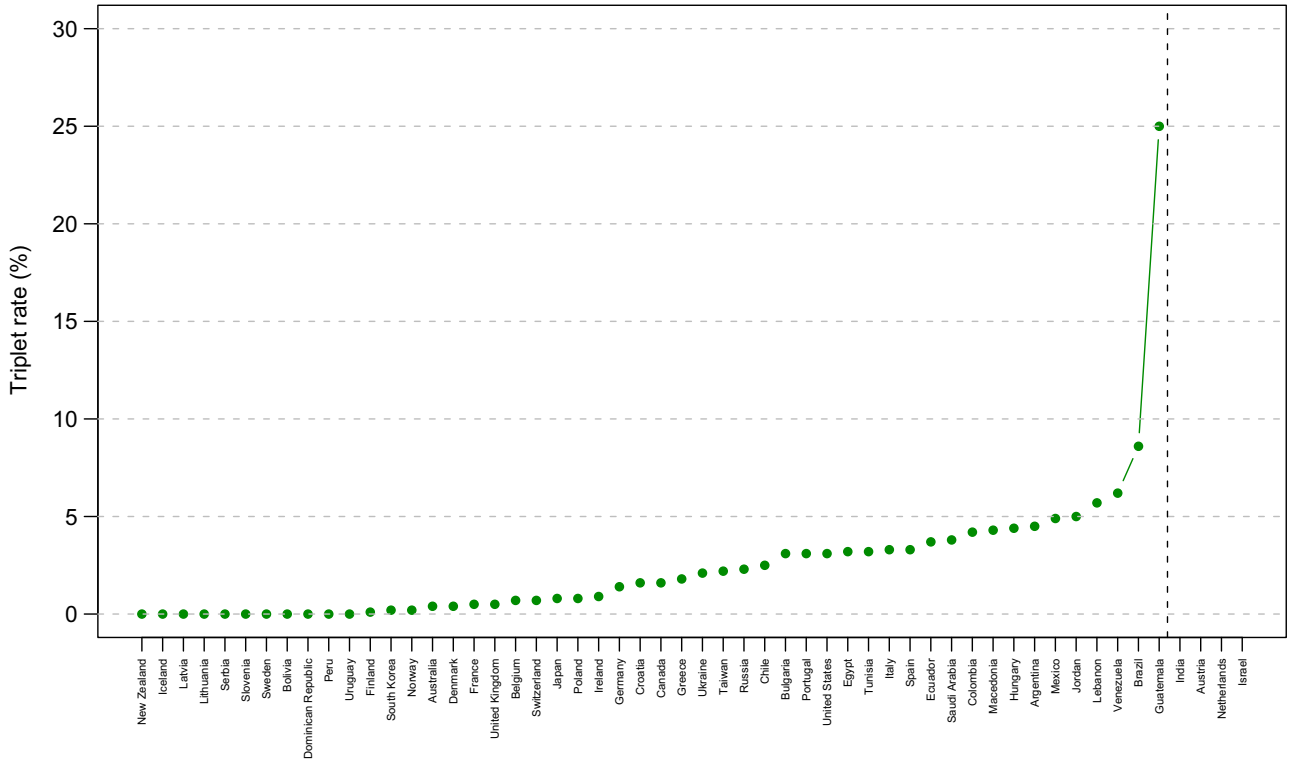
SUPPLEMENTAL FIGURE 3

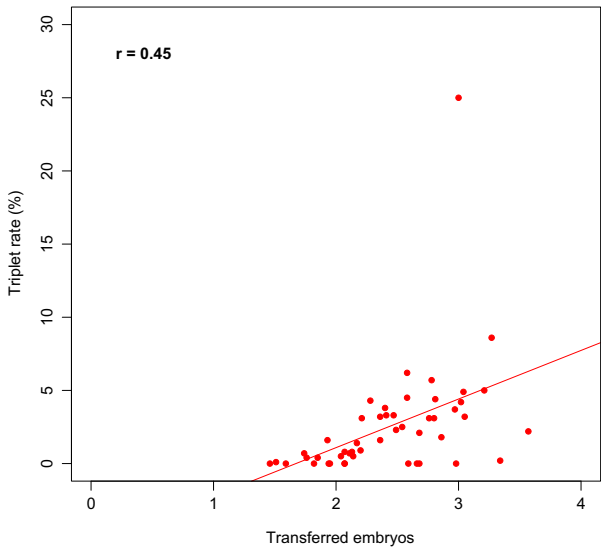
Triplet rate per delivery.



Nygren. ICMART world report on ART 2003. Fertil Steril 2011.

SUPPLEMENTAL FIGURE 4

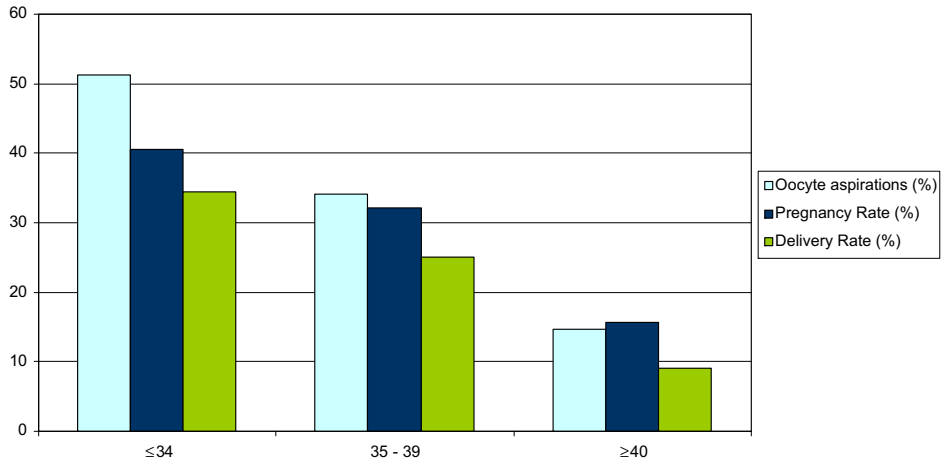
Triplet rate versus mean number of embryos transfered.



Nygren. ICMART world report on ART 2003. Fertil Steril 2011.

SUPPLEMENTAL FIGURE 5

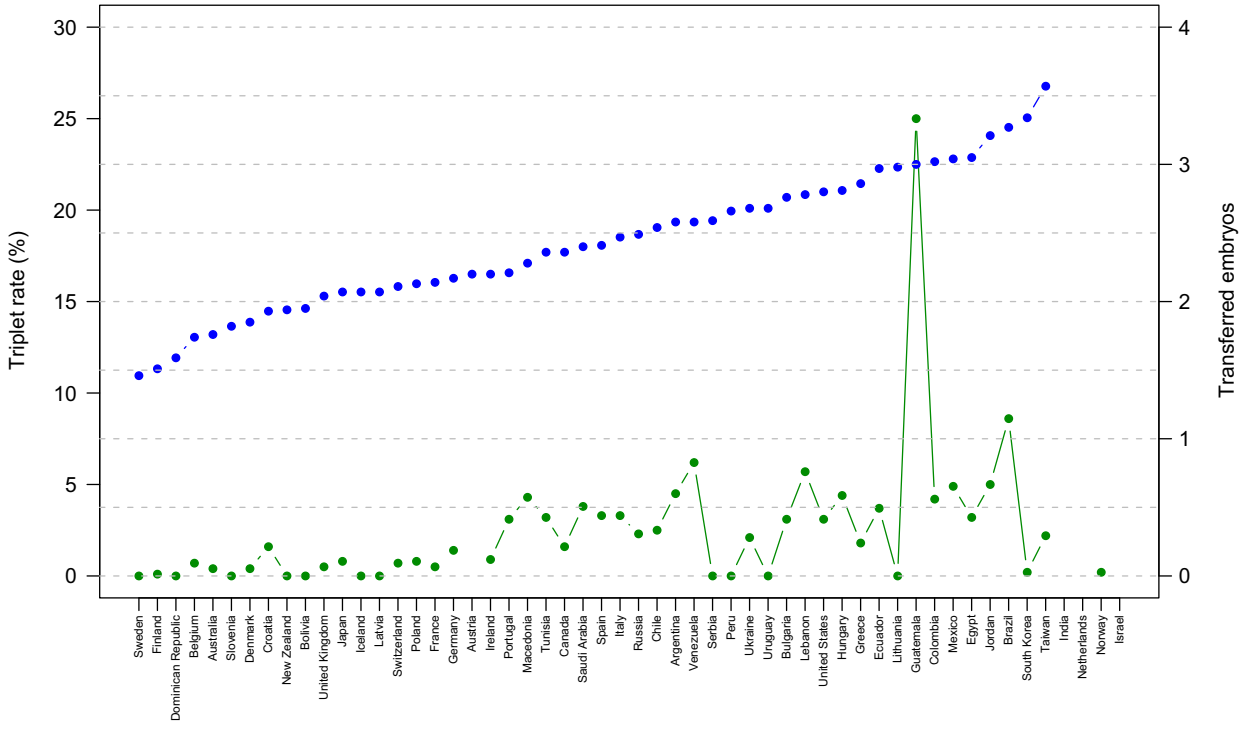
Oocyte aspiration results (pregnancy and delivery rates) according to women's age.



Nygren. ICMART world report on ART 2003. Fertil Steril 2011.

SUPPLEMENTAL FIGURE 6

Triplet rate per aspiration (*green*) according to the mean number of embryos transfered (*blue*).



Nygren. ICMART world report on ART 2003. Fertil Steril 2011.

SUPPLEMENTAL TABLE 1

Total number of ART clinics, clinic size by percentage distribution of number of cycles per year, and percentage of all clinics reporting to ICMART, by country and region for year 2003.

Country/region	Clinics, total (n)	% of centers performing no. of cycles per year					Participating clinics	
		<100	100–199	200–499	500–999	>1,000	n	%
India	85	42.0	20.3	33.3	2.9	1.4	69	81.2
Japan	590	58.4	16.8	17.4	3.7	3.7	190	32.2
South Korea	91	56.3	8.3	16.7	8.3	10.4	48	52.7
Taiwan[a]	71	73.9	14.5	10.1	1.4	0.0	69	97.2
Australia[a]	26	7.7	11.5	26.9	23.1	30.8	26	100
New Zealand[a]	4	0.0	0.0	50.0	25.0	25.0	4	100
Austria[a]	23	NA	NA	NA	NA	NA	23	100
Belgium[a]	18	0.0	11.1	11.1	44.4	33.3	18	100
Bulgaria	14	50.0	50.0	0.0	0.0	0.0	8	57.1
Croatia[a]	7	42.9	0.0	28.6	28.6	0.0	7	100
Denmark[a]	21	14.3	14.3	19.0	42.9	9.5	21	100
Finland[a]	17	0.0	17.6	52.9	17.6	11.8	17	100
France[a]	92	7.4	7.4	31.6	37.9	15.8	92	100
Germany[a]	116	7.8	10.3	24.1	23.3	34.5	116	100
Greece	44	18.2	22.7	31.8	18.2	9.1	22	50.0
Hungary	11	0.0	0.0	83.3	0.0	16.7	6	54.5
Iceland[a]	1	0.0	0.0	100	0.0	0.0	1	100
Ireland	5	0.0	0.0	50.0	25.0	25.0	4	80.0
Italy	207	14.2	9.7	72.7	2.2	1.1	124	59.9
Latvia[a]	3	33.3	66.7	0.0	0.0	0.0	3	100
Lithuania	3	100	0.0	0.0	0.0	0.0	1	33.3
Macedonia[a]	1	0.0	0.0	100	0.0	0.0	1	100
Netherlands[a]	13	0.0	0.0	7.7	23.1	69.2	13	100
Norway[a]	10	10.0	0.0	50.0	40.0	0.0	10	100
Poland	17	28.6	35.7	28.6	7.1	0.0	14	82.4
Portugal	19	35.3	23.5	35.3	5.9	0.0	17	89.5
Russia	41	25.0	25.0	27.8	19.4	2.8	36	87.8
Serbia	10	30.0	60.0	10.0	0.0	0.0	1	10.0
Slovenia[a]	3	0.0	0.0	33.3	33.3	33.3	3	100
Spain	187	27.3	27.3	27.3	11.4	6.8	66	35.3
Sweden[a]	15	6.7	0.0	33.3	40.0	20.0	15	100
Switzerland[a]	19	15.8	31.6	42.1	5.3	5.3	19	100
Ukraine	14	22.2	44.4	11.1	22.2	0.0	9	64.3
United Kingdom[a]	74	9.5	12.2	40.5	24.3	13.5	74	100
Argentina	25	36.8	21.1	31.6	10.5	0.0	19	76.0
Bolivia	2	100	0.0	0.0	0.0	0.0	1	50.0
Brazil	53	44.9	26.5	20.4	6.1	2.0	48	90.6
Chile[a]	8	50.0	25.0	12.5	12.5	0.0	8	100
Colombia	13	50.0	37.5	12.5	0.0	0.0	8	61.5
Dominican Republic[a]	1	100	0.0	0.0	0.0	0.0	1	100
Ecuador[a]	3	100	0.0	0.0	0.0	0.0	3	100
Guatemala[a]	1	100	0.0	0.0	0.0	0.0	1	100
Mexico	NA	40.0	30.0	30.0	0.0	0.0	20	NA
Peru	2	0.0	0.0	100	0.0	0.0	1	50.0
Uruguay	2	0.0	100	0.0	0.0	0.0	1	50.0
Venezuela[a]	6	33.3	50.0	16.7	0.0	0.0	6	100
Egypt	54	33.3	14.3	42.9	4.8	4.8	18	33.3
Jordan	17	NA	NA	NA	NA	NA	2	11.8
Lebanon	13	NA	NA	NA	NA	NA	2	15.4
Saudi Arabia	14	NA	NA	NA	NA	NA	3	21.4
Tunisia	7	14.3	28.6	14.3	42.9	0.0	1	14.3
Israel[a]	24	0.0	4.2	25.0	41.7	29.2	24	100
Canada[a]	24	16.7	8.3	37.5	29.2	8.3	24	100
United States	437	28.0	25.1	31.3	9.4	6.2	371	84.9
Asia	837	58.0	16.0	18.9	3.7	3.5	376	44.9
Australia/New Zealand	30	6.7	10.0	30.0	23.3	30.0	30	100

Nygren. ICMART world report on ART 2003. Fertil Steril 2011.

SUPPLEMENTAL TABLE 1

Continued.

Country/region	Clinics, total (n)	% of centers performing no. of cycles per year					Participating clinics	
		<100	100–199	200–499	500–999	>1,000	n	%
Europe	1,005	14.1	13.5	46.1	15.6	10.7	741	73.7
Latin America	>116	44.9	27.1	22.0	5.1	0.8	117	83.6
Middle East	105	28.6	17.9	35.7	14.3	3.6	26	24.8
Middle East (Israel)	24	0.0	4.2	25.0	41.7	29.2	24	100
North America	461	27.3	24.1	31.6	10.6	6.3	395	85.7
Total	>2,578	27.2	16.9	35.6	12.0	8.2	1,709	65.5

[a] Countries in which >95% of the centers reported to the national registry.

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SUPPLEMENTAL TABLE 2

FET cycles: number of transfered embryos, efficacy, and multiplicity for year 2003.

Country/region	Thaw cycles[b]	Transfer cycles[b]	No. of transfered embryos (%)					Efficacy			Multiplicity	
			1	2	3	≥4	Average	PR/FET (%)	DR/FET (%)	Babies/FET (%)[a]	Twin (%)	Triplet+ (%)
India	1,573	1,411	NA	NA	NA	NA	NA	18.3	13.7	16.0	NA	NA
Japan	9,311	8,895	44.3	34.3	18.9	2.5	1.80	30.9	21.0	26.2	11.4	0.3
South Korea	2,101	2,008	9.2	20.1	32.7	38.0	3.17	31.7	23.8	27.8	26.7	0.0
Taiwan	398	395	6.9	18.1	21.9	53.2	3.48	32.2	22.5	31.6	32.6	0.0
Australia	11,763	10,786	37.9	59.2	2.7	0.1	1.65	20.2	15.0	17.6	12.3	0.1
New Zealand	943	861	34.6	61.6	3.7	0.1	1.69	22.0	16.8	20.2	13.1	0.7
Austria	51	46	NA	NA	NA	NA	NA	21.7	0.0	NA	NA	NA
Belgium	4,099	3,028	30.5	53.7	14.7	1.1	1.86	16.1	11.4	14.3	14.8	1.2
Bulgaria	47	42	11.9	26.2	50.0	11.9	2.62	11.9	0.0	NA	NA	NA
Croatia	600	514	24.1	54.5	21.4	0.0	1.97	18.9	16.5	18.5	10.0	0.0
Denmark	1,519	1,260	20.8	45.5	33.7	0.1	2.13	16.6	12.9	15.3	17.2	0.7
Finland	2,841	2,548	42.8	56.3	0.9	0.0	1.58	22.4	16.5	18.4	10.5	0.5
France	12,423	11,099	26.9	50.9	20.2	2.0	1.97	16.3	12.7	14.1	13.4	0.5
Germany	15,241	13,598	15.6	56.8	27.6	0.0	2.12	16.4	11.5	13.3	13.8	0.9
Greece	892	830	9.3	21.1	40.1	29.5	2.90	33.0	27.2	35.9	25.9	2.5
Hungary	206	201	4.0	19.4	38.3	38.3	3.11	12.9	7.5	7.5	0.0	0.0
Iceland	85	85	21.2	58.8	20.0	0.0	1.99	31.8	23.5	42.4	20.0	0.0
Ireland	359	319	17.6	60.2	22.3	0.0	2.05	26.6	20.1	23.2	15.6	0.0
Italy	3,092	2,882	11.1	57.5	27.3	4.1	2.24	19.7	15.6	17.8	13.9	0.3
Latvia	38	38	23.7	47.4	28.9	0.0	2.05	13.2	2.6	10.5	0.0	0.0
Lithuania	13	7	NA	NA	NA	NA	NA	NA	0.0	0.0	NA	NA
Macedonia	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Netherlands	1,970	1,767	NA	NA	NA	NA	NA	21.4	0.0	NA	NA	NA
Norway	514	406	NA	NA	NA	NA	NA	21.2	18.0	20.4	13.7	0.0
Poland	1,071	952	10.9	55.8	28.8	4.5	2.27	16.5	14.2	17.8	25.2	0.0
Portugal	364	337	11.2	41.8	41.2	5.9	2.42	21.1	14.2	18.4	24.4	2.4
Russia	1,110	1,023	12.4	44.1	26.1	17.4	2.48	22.6	17.0	19.0	9.5	1.1
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	506	419	36.6	54.5	8.9	0.0	1.72	14.6	11.5	13.1	14.6	0.0
Spain	1,972	1,584	19.4	35.8	33.1	11.7	2.37	23.4	17.9	23.7	17.1	0.0
Sweden	2,405	1,964	49.3	50.4	0.3	0.0	1.51	25.1	19.6	22.0	12.0	0.0
Switzerland	2,460	2,188	22.2	64.2	13.6	0.0	1.91	18.6	14.1	16.6	17.4	0.0
Ukraine	197	195	7.2	32.3	37.9	22.6	2.76	22.1	17.4	20.0	13.3	0.0
United Kingdom	6,858	6,029	15.8	69.8	14.5	0.0	1.99	20.5	18.2	21.2	15.5	0.6
Argentina	395	354	10.2	33.3	39.8	16.7	2.67	12.1	8.8	10.2	16.1	0.0
Bolivia	6	5	40.0	20.0	40.0	0.0	2.00	0.0	0.0	0.0	NA	NA
Brazil	1,143	1,025	8.0	23.1	32.0	36.9	3.08	17.2	13.2	16.8	20.0	3.7
Chile	225	202	11.9	39.6	34.7	13.9	2.52	21.8	15.8	19.3	9.4	6.3
Colombia	42	38	18.4	26.3	26.3	28.9	2.76	26.3	21.1	26.3	0.0	12.5
Dominican Republic	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Nygren. ICMART world report on ART 2003. Fertil Steril 2011.

SUPPLEMENTAL TABLE 2

Continued.

Country/region	Thaw cycles[b]	Transfer cycles[b]	No. of transfered embryos (%)					Efficacy			Multiplicity	
			1	2	3	≥4	Average	PR/FET (%)	DR/FET (%)	Babies/FET (%)[a]	Twin (%)	Triplet+ (%)
Ecuador	5	4	0.0	0.0	25.0	75.0	3.75	75.0	50.0	100.0	100.0	0.0
Guatemala	2	2	0.0	0.0	0.0	100.0	4.00	0.0	0.0	0.0	NA	NA
Mexico	275	247	11.3	27.1	33.6	27.9	2.83	19.4	12.1	14.2	16.7	0.0
Peru	28	25	0.0	36.0	44.0	20.0	2.84	20.0	12.0	12.0	0.0	0.0
Uruguay	17	15	0.0	13.3	46.7	40.0	3.33	13.3	13.3	26.7	100.0	0.0
Venezuela	119	107	7.5	24.3	16.8	51.4	3.34	16.8	12.1	13.1	7.7	0.0
Egypt	495	444	18.9	30.2	29.1	21.8	2.61	24.3	17.6	21.4	14.3	0.0
Jordan	151	93	19.8	18.8	27.1	34.4	2.88	9.7	2.2	2.2	0.0	0.0
Lebanon	10	9	22.2	77.8	0.0	0.0	1.78	22.2	11.1	11.1	0.0	0.0
Saudi Arabia	42	20	30.0	70.0	0.0	0.0	1.70	15.0	10.0	15.0	50.0	0.0
Tunisia	119	118	8.5	48.3	30.5	12.7	2.48	42.4	29.7	37.3	8.6	2.9
Israel	5,976	5,480	NA	NA	NA	NA	NA	22.3	17.6	NA	NA	NA
Canada	2,202	2,014	16.1	42.8	32.5	8.6	2.35	24.5	18.5	25.4	24.9	1.9
United States	17,111	15,352	10.8	35.1	33.5	20.6	2.70	35.1	27.3	35.0	23.3	1.9
Asia	13,383	12,709	36.7	31.2	21.5	10.6	2.10	29.7	20.7	25.5	13.8	0.3
Australia/New Zealand	12,706	11,647	37.7	59.4	2.8	0.1	1.65	20.4	15.2	17.8	12.3	0.2
Europe	>60,933	>53,361	21.8	54.8	21.2	2.3	2.04	18.6	13.8	16.6	14.6	0.6
Latin America	2,257	2,024	9.2	27.2	33.2	30.4	2.93	17.2	12.6	15.7	17.6	3.1
Middle East	817	684	17.6	33.5	27.8	21.1	2.59	25.1	17.3	21.2	12.6	1.0
Middle East (Israel)	5,976	5,480	NA	NA	NA	NA	NA	22.3	17.6	NA	NA	NA
North America	19,313	17,366	11.4	36.0	33.3	19.2	2.66	33.9	26.3	33.9	23.4	1.9
Total	>115,385	>103,271	23.3	48.3	21.5	6.9	2.14	22.9	17.1	21.1	16.9	0.9

[a] In countries in which the sum of singleton, twins, and triplets was less than the total number of deliveries, the numbers of unknown babies and lost-to-follow-up deliveries were estimated by applying the distribution of reported deliveries in these countries.

[b] Reported directly in the ICMART registry forms.

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SUPPLEMENTAL TABLE 3

Distribution [% (n)] of women's age (y) and combined IVF and ICSI for year 2003.

Country/region	All women (n)	Age ≤34	Age 35–39	Age ≥40
India	NA	NA	NA	NA
Japan	32,886	35.9 (11,802)	35.2 (11,592)	28.9 (9,492)
South Korea	13,503	62.0 (8,369)	24.9 (3,358)	13.2 (1,776)
Taiwan	4,747	64.1 (3,045)	28.3 (1,344)	7.5 (358)
Australia	17,233	44.9 (7,732)	34.0 (5,859)	21.1 (3,642)
New Zealand	1,680	46.5 (781)	41.9 (704)	11.6 (195)
Austria	NA	NA	NA	NA
Belgium	10,262	60.8 (6,237)	27.3 (2,806)	11.9 (1,219)
Bulgaria	814	63.3 (515)	26.3 (214)	10.4 (85)
Croatia	2,107	45.8 (965)	52.2 (1,099)	2.0 (43)
Denmark	9,292	57.1 (5,302)	32.9 (3,053)	10.1 (937)
Finland	4,438	55.5 (2,461)	30.1 (1,336)	14.4 (641)
France	48,006	55.1 (26,463)	30.8 (14,774)	14.1 (6,769)
Germany	73,187	60.0 (43,881)	33.5 (24,499)	6.6 (4,807)
Greece	7,738	43.0 (3,329)	36.5 (2,827)	20.4 (1,582)
Hungary	2,614	64.1 (1,675)	26.6 (695)	9.3 (244)
Iceland	285	58.2 (166)	31.6 (90)	10.2 (29)
Ireland	1,977	37.2 (736)	46.5 (919)	16.3 (322)
Italy	22,285	43.7 (9,737)	37.8 (8,420)	18.5 (4,128)
Latvia	109	65.1 (71)	26.6 (29)	8.3 (9)
Lithuania	69	49.3 (34)	21.7 (15)	29.0 (20)
Macedonia	351	55.8 (196)	28.5 (100)	15.7 (55)
Netherlands	NA	NA	NA	NA
Norway	NA	NA	NA	NA
Poland	3,032	63.4 (1,921)	24.4 (740)	12.2 (371)
Portugal	2,610	59.2 (1,546)	32.0 (835)	8.8 (229)
Russia	7,841	63.2 (4,953)	24.1 (1,889)	12.7 (999)
Serbia	191	34.0 (65)	34.0 (65)	31.9 (61)
Slovenia	2,138	53.7 (1,148)	30.6 (655)	15.7 (335)
Spain	10,766	49.8 (5,359)	40.5 (4,355)	9.8 (1,052)
Sweden	8,906	50.9 (4,536)	37.9 (3,374)	11.2 (996)
Switzerland	2,875	46.2 (1,329)	39.1 (1,124)	14.7 (422)
Ukraine	1,746	69.6 (1,215)	24.2 (422)	6.2 (109)
United Kingdom	34,873	47.6 (16,613)	39.3 (13,711)	13.0 (4,549)
Argentina	2,711	48.9 (1,325)	35.6 (965)	15.5 (421)
Bolivia	42	35.7 (15)	52.4 (22)	11.9 (5)
Brazil	6,989	48.0 (3,353)	33.7 (2,355)	18.3 (1,281)
Chile	747	53.1 (397)	35.1 (262)	11.8 (88)
Colombia	580	51.9 (301)	36.4 (211)	11.7 (68)
Dominican Republic	27	88.9 (24)	11.1 (3)	0.0 (0)
Ecuador	99	60.6 (60)	33.3 (33)	6.1 (6)
Guatemala	20	35.0 (7)	55.0 (11)	10.0 (2)
Mexico	2,044	56.0 (1,144)	34.7 (710)	9.3 (190)
Peru	219	47.9 (105)	46.6 (102)	5.5 (12)
Uruguay	127	37.0 (47)	38.6 (49)	24.4 (31)
Venezuela	553	42.1 (233)	43.6 (241)	14.3 (79)
Egypt	6,883	63.4 (4,367)	25.5 (1,753)	11.1 (763)
Jordan	2,648	62.7 (1,659)	24.4 (645)	13.0 (344)
Lebanon	657	44.7 (294)	38.2 (251)	17.0 (112)
Saudi Arabia	1,028	52.2 (537)	39.2 (403)	8.6 (88)
Tunisia	792	50.3 (398)	33.7 (267)	16.0 (127)
Israel	NA	NA	NA	NA
Canada	6,864	46.4 (3,182)	39.7 (2,725)	13.9 (957)
United States	78,041	45.8 (35,765)	35.9 (28,038)	18.2 (14,238)
Asia	>51,136	45.4 (23,216)	31.9 (16,294)	22.7 (11,626)
Australia/New Zealand	18,913	45.0 (8,513)	34.7 (6,563)	20.3 (3,837)
Europe	>258,512	54.3 (140,453)	34.1 (88,046)	11.6 (30,013)
Latin America	14,158	49.5 (7,011)	35.1 (4,964)	15.4 (2,183)
Middle East	12,008	60.4 (7,255)	27.6 (3,319)	11.9 (1,434)

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SUPPLEMENTAL TABLE 3

Continued.

Country/region	All women (n)	Age ≤34	Age 35–39	Age ≥40
Middle East (Israel)	NA			
North America	84,905	45.9 (38,947)	36.2 (30,763)	17.9 (15,195)
Total	>439,632	51.3 (225,395)	34.1 (149,949)	14.6 (64,288)

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SUPPLEMENTAL TABLE 4

Maternal complications and specific techniques for year 2003.

Country/region	OHSS		Oocyte retrieval			In vitro maturation	Fetal reduction	Maternal surrogacy
	n	%/cycle	Total (n)	Bleeding (n)	Infection (n)			
India	NA	NA	NA	NA	NA			
Japan	3	0.0	1	1	0	Yes		
South Korea	98	0.6	10	8	2	Yes	Yes	Yes
Taiwan	1,425	26.9	NA	NA	NA			
Australia	165	0.5	NA	NA	NA			
New Zealand	56	1.9	NA	NA	NA			
Austria	NA	NA	NA	NA	NA			
Belgium	158	1.0	225	15	16		Yes	
Bulgaria	56	6.4	8	3	NA		Yes	
Croatia	178	6.6	NA	15	2			
Denmark	NA	NA	NA	NA	NA			
Finland	42	0.5	15	5	10	Yes		
France	291	0.4	NA	30	95		Yes	
Germany	499	0.5	NA	582	NA		Yes	
Greece	73	0.7	0	5	0		Yes	
Hungary	28	1.0	3	2	1		Yes	
Iceland	5	1.2	1	0	1			
Ireland	23	1.1	0	0	0			
Italy	208	0.8	100	95	5			
Latvia	0	0.0	0	0	0			
Lithuania	0	0.0	0	0	0			
Macedonia	2	0.5	0	0	0		Yes	
Netherlands	NA	NA	NA	NA	NA			
Norway	40	0.8	0	0	0			
Poland	50	1.2	10	10	0			
Portugal	10	0.3	0	0	1			
Russia	291	2.7	18	18	0	Yes	Yes	
Serbia	3	1.6	2	2	0			
Slovenia	9	0.3	3	2	1		Yes	
Spain	91	0.5	13	10	2		Yes	
Sweden	NA	NA	NA	NA	NA		Yes	
Switzerland	31	0.6	0	1	0		Yes	
Ukraine	29	1.4	0	0	0		Yes	
United Kingdom	525	1.4	55	3	0		Yes	
Argentina	1	0.0	NA	NA	NA			
Bolivia	0	0.0	NA	NA	NA			
Brazil	12	0.1	NA	NA	NA			
Chile	0	0.0	NA	NA	NA			
Colombia	1	0.1	NA	NA	NA			
Dominican Republic	0	0.0	NA	NA	NA			
Ecuador	0	0.0	NA	NA	NA			
Guatemala	0	0.0	NA	NA	NA			
Mexico	3	0.1	NA	NA	NA			
Peru	0	0.0	NA	NA	NA			
Uruguay	0	0.0	NA	NA	NA			
Venezuela	0	0.0	NA	NA	NA			
Egypt	134	1.7	13	30	2	Yes	Yes	
Jordan	12	0.4	0	1	0			
Lebanon	6	0.8	1	1	0			
Saudi Arabia	28	2.3	4	4	0		Yes	
Tunisia	1	0.1	0	0	0		Yes	
Israel	NA	NA	NA	NA	NA			
Canada	147	1.5	NA	0	0	Yes	Yes	Yes
United States	1,093	0.9	1,452	23	26	Yes	Yes	Yes
Asia	>1,526	2.2	>11	>9	>2	2	1	1
Australia/New Zealand	221	0.6	NA	NA	NA	NA	NA	NA
Europe	>2,642	0.8	>453	>798	>134	2	14	NA
Latin America	17	0.1	NA	NA	NA	NA	NA	NA

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SUPPLEMENTAL TABLE 4

Continued.

Country/region	OHSS		Oocyte retrieval			In vitro maturation	Fetal reduction	Maternal surrogacy
	n	%/cycle	Total (n)	Bleeding (n)	Infection (n)			
Middle East	181	1.3	18	36	2	1	3	NA
Middle East (Israel)	NA	NA	NA	NA	NA	NA	NA	NA
North America	1,240	1.0	>1,452	23	26	2	2	2
Total	>5,827	1.0	>1,934	>866	>164	7	20	3

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SUPPLEMENTAL TABLE 5

Oocyte donation results for year 2003.

		Recipient									
		Transfers	Age	Embryos	Pregnancies/transfer (%)				Deliveries (%)		
Country/region	Donor asp. (n)	Total (n)	Fresh (%)	>40 y (%)	≥4 (%)	Fresh	FET	Total	DR/transfer	Multiple	Babies (n)
South Korea	331	292	NA	NA	62.7	44.9	NA	44.9	35.3	52.2	157
Taiwan	NA	121	78.5	38.0	68.6	56.8	42.3	53.7	42.1	52.9	81
Australia	621	1,084	47.2	55.8	0.6	34.4	21.3	27.5	18.9	21.5	253
New Zealand	70	125	52.0	65.6	0.0	46.2	16.7	32.0	24.8	19.4	37
Belgium	662	515	NA	NA	6.2	22.1	NA	22.1	6.2	21.9	40
Bulgaria	17	16	NA	NA	6.3	50.0	NA	50.0	31.3	20.0	6
Denmark	82	72	NA	NA	0.0	31.9	NA	31.9	27.8	25.0	25
Finland	420	810	NA	NA	NA	26.9	NA	26.9	21.5	28.2	223
France	NA	251	NA	NA	NA	14.3	NA	14.3	10.4	23.1	32
Greece	316	263	NA	NA	31.6	32.7	NA	32.7	24.7	40.0	91
Hungary	23	19	NA	NA	21.1	21.1	NA	21.1	15.8	0.0	3
Iceland	17	16	NA	NA	0.0	50.0	NA	50.0	50.0	25.0	10
Ireland	3	2	NA	NA	0.0	50.0	NA	50.0	50.0	0.0	1
Netherlands	45	37	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	60	59	NA	NA	5.1	28.8	NA	28.8	25.4	0.0	15
Portugal	15	13	NA	NA	0.0	53.8	NA	53.8	30.8	50.0	6
Russia	704	644	NA	NA	7.3	35.7	NA	35.7	15.7	20.8	123
Slovenia	13	17	NA	NA	NA	23.5	NA	23.5	17.6	33.3	4
Spain	2,711	2,374	NA	NA	5.6	55.2	NA	55.2	36.9	31.1	1,154
Sweden	17	19	NA	NA	0.0	36.8	NA	36.8	31.6	16.7	7
Ukraine	166	143	NA	NA	32.2	40.6	NA	40.6	31.5	35.6	61
United Kingdom	2,034	1,882	NA	NA	0.0	29.6	NA	29.6	26.4	26.4	630
Argentina	NA	518	91.7	NA	18.1	33.3	20.9	32.2	27.4	28.9	187
Bolivia	NA	7	100.0	NA	0.0	0.0	NA	0.0	0.0	NA	0
Brazil	NA	797	92.7	NA	46.8	37.2	19.0	35.9	26.2	39.7	317
Chile	NA	104	76.0	NA	10.6	30.4	32.0	30.8	23.1	33.3	32
Colombia	NA	171	95.3	NA	49.1	39.3	37.5	39.2	27.5	51.1	73
Ecuador	NA	42	83.3	NA	23.8	34.3	14.3	31.0	26.2	18.2	13
Guatemala	NA	6	100.0	NA	50.0	0.0	NA	0.0	0.0	NA	0
Mexico	NA	438	90.9	NA	41.8	41.2	25.0	39.7	31.3	33.6	190
Peru	NA	173	83.2	NA	4.6	50.7	41.4	49.1	42.8	41.9	109
Uruguay	NA	3	100.0	NA	0.0	33.3	NA	33.3	33.3	0.0	1
Venezuela	NA	120	80.0	NA	39.7	45.8	25.0	41.7	31.7	34.2	54
Lebanon	24	24	NA	41.7	29.2	0.0	NA	0.0	0.0	NA	0
Canada	NA	561	77.5	65.4	11.0	48.7	19.8	42.2	27.8	37.2	216
United States	NA	11,926	72.5	66.7	13.4	59.5	37.4	53.4	45.5	37.7	7,652
Asia	331	413	78.5	38.0	64.4	47.8	42.3	47.5	37.3	52.5	238
Australia/ New Zealand	691	1,209	47.7	56.8	0.5	35.7	20.9	28.0	19.5	21.2	290
Europe	7,305	7,152	NA	NA	5.8	37.8	NA	37.8	26.4	28.7	2,431
Latin America	NA	2,379	90.2	NA	34.2	38.0	25.6	36.8	28.7	36.3	976
Middle East	24	24	NA	41.7	29.2	0.0	NA	0.0	0.0	NA	NA
Middle East (Israel)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
North America	NA	12,487	72.7	66.6	13.3	59.0	36.7	52.9	44.7	37.7	7,868
Total	>8,351	23,664	73.5	65.5	13.7	47.9	33.8	45.3	36.1	35.4	11,803

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SUPPLEMENTAL TABLE 6

Preimplantation genetic diagnosis results for year 2003.

	Cycles			Pregnancies			Deliveries				
Country/region	Asp. (n)	Trans. (n)	Trans./asp. (%)	Total (n)	PR/asp. (%)	PR/trans. (%)	Total (%)	DR/asp. (%)	DR/preg. (%)	Multiple (%)	Babies (n)
Australia	553	461	83.4	111	20.1	24.1	81	14.6	73.0	7.4	87
New Zealand	1	1	100.0	1	100.0	100.0	1	100.0	100.0	0.0	1
Belgium	547	407	74.4	113	20.7	27.8	71	13.0	62.8	37.5	98
Bulgaria	2	2	100.0	0	0.0	0.0	NA	NA	NA	NA	NA
Finland	NA	21	NA	4	NA	19.0	3	NA	75.0	NA	3
Greece	101	91	90.1	24	23.8	26.4	19	18.8	79.2	12.5	21
Hungary	6	6	100.0	4	66.7	66.7	2	33.3	50.0	50.0	3
Italy	224	150	67.0	44	19.6	29.3	39	17.4	88.6	12.8	44
Netherlands	50	39	78.0	19	38.0	48.7	NA	NA	NA	NA	NA
Portugal	14	10	71.4	1	7.1	10.0	1	7.1	100.0	0.0	1
Russia	47	36	76.6	9	19.1	25.0	5	10.6	55.6	0.0	5
Spain	592	422	71.3	164	27.7	38.9	131	22.1	79.9	NA	NA
Ukraine	23	22	95.7	11	47.8	50.0	11	47.8	100.0	63.6	18
United Kingdom	227	176	77.5	54	23.8	30.7	51	22.5	94.4	22.9	65
Egypt	10	10	100.0	3	30.0	30.0	2	20.0	66.7	0.0	2
Jordan	212	173	81.6	22	10.4	12.7	12	5.7	54.5	36.4	16
Saudi Arabia	56	47	83.9	10	17.9	21.3	7	12.5	70.0	14.3	8
Canada	5	2	40.0	0	0.0	0.0	0	0.0	NA	NA	0
Asia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Australia/New Zealand	554	462	83.4	112	20.2	24.2	82	14.8	73.2	7.3	88
Europe	1,833	1,382	74.2	447	24.2	32.3	333	18.5	77.8	24.0	258
Latin America	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Middle East	278	230	82.7	35	12.6	15.2	21	7.6	60.0	25.0	26
Middle East (Israel)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
North America	5	2	40.0	0	0.0	0.0	0	0.0	NA	NA	0
Total	2,670	2,076	77.0	594	22.1	28.6	436	16.5	75.8	18.5	372

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