

Cross-border fertility care—International Committee Monitoring Assisted Reproductive Technologies global survey: 2006 data and estimates

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Objective: To collect data on the prevalence and reasons for cross-border fertility care (CBFC).

Design: Retrospective survey conducted by the International Committee Monitoring Assisted Reproductive Technologies.

Setting: Forty-nine countries who have previously participated with the International Committee Monitoring Assisted Reproductive Technologies.

Patient(s): Number of CBFC patients per country.

Intervention(s): Questionnaire.

Main Outcome Measure(s): Number of CBFC patients and reason for travel.

Result(s): The majority of replies were comprised of estimates for incoming and outgoing patients having CBFC. The main reasons for leaving a home country for CBFC included treatment anonymity and legality issues, whereas incoming patients most often traveled due to efficacy and access.

Conclusion(s): Few countries are able to quantify numbers of patients having CBFC, although our data suggest that incoming treatment seekers are more easily numerated due to clinic registration procedures. Standardization of data collection and creation of national databases are needed to collect quantitative information that will help reproductive caregivers to provide support for patients having CBFC. (Fertil Steril® 2010;94:e4–e10. ©2010 by American Society for Reproductive Medicine.)

Key Words: ICMART, cross-border fertility care, survey

The longing for, or even the necessity of, having children has prompted barren couples to travel across borders to other settings or countries to seek help, when this has not been available at home. A thousand years ago infertile people in Nordic countries traveled to the Viking Capital of Uppsala to pay tribute to Freja, the Goddess of Fertility. There are many similar examples from around the world. What Freja and her colleagues seem to have realized is that many barren relationships are not entirely infertile, but rather subfertile. A proportion of these couples will eventually become pregnant and then parents, after tender loving care, or paying tribute to a Goddess, or even after no intervention at all.

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Modern cross-border fertility care (CBFC) is possibly done for better reasons—but the phenomenon, to seek help elsewhere, is the same.

BACKGROUND

Traditionally, infertility was thought of (especially by those who were fertile themselves), as sent by the Gods, possibly as punishment, or representing a personal fate, or just bad luck. There was nothing to do about it, and people believed that it should be accepted as a fact of life. Later (in fact quite recently), infertility came to be regarded as a disease. At present we realize that it is a multifactorial phenomenon with disease, older age, and lifestyle factors contributing. Infertility is today regarded as a global public health issue.

The possibility of actually preventing, detecting, and treating infertility is a relatively novel phenomenon. In the early 1900s, surgery was tried (e.g., for patients with polycystic ovary syndrome (PCOS) and for anterior fixation of the uterus) and pioneer work with laparoscopy and hysteroscopy was started. This was done at relatively high risk, with rudimentary anesthesia and no antibiotics.

It was not until after the Second World War that “Western medicine” acquired techniques and skills such as the use of antibiotics, hormone analysis and treatment, ultrasound, microsurgery and, ultimately, assisted reproductive technologies (ART) including IVF (1978) and intracytoplasmic sperm injection (ICSI) (1992).

Prevalence of Infertility and Access to Medical Care

According to a recent international estimate of the prevalence of infertility (1), some 9% (reported as *current infertility*) or 16% (reported as *lifetime infertility*) of couples of fertile age groups are affected. There is geographic variation, mostly by differences in primary versus secondary infertility, but in general, infertility occurs in all countries at a similar magnitude. Psychosocial consequences for couples, and especially for women, tend to be much worse in less developed countries.

Modern diagnostic and treatment services are available in most countries, but the inequity of actual access is huge, both among countries and within, and also among developed and less developed countries and regions. The major reason for this inequity of access is the level of economic resources, but also priority differences in the allocation of public resources.

In addition, legal regulations vary from a total ban as in Costa Rica to no legal restrictions or the absence of laws regulating ART. At present many countries have legal regulations in place but they differ considerably from being quite restrictive, as in Germany and Italy, to quite permissive, as in Spain and the Scandinavian countries.

As of the present, the International Committee Monitoring Assisted Reproductive Technologies (ICMART), estimates that about 3.5 million children have been born worldwide after IVF–ICSI treatments (2). Assuming that the proportion of women requiring ART is rather similar (with certain exceptions) in different countries, the geographic distribution of these children indicates a very pronounced inequity in access to treatment.

The inequity of the safety of and access to procedures are the two major current challenges for ART. Safety in this context refers to the medical and the psychosocial safety of the children born, but it also applies to the safety of women treated.

The safety concerns include the possibility of women of a much more advanced age being treated abroad, with a much higher obstetric risk. In terms of third-party gametes, screening of gamete donors may be less rigorous. Multiple embryo transfer may occur in the absence of oversight, and multiple pregnancy, particularly higher-order multiple pregnancy, might occur more often. When returning home for pregnancy care and delivery, these women and their children may have a higher risk profile than other women, and at a higher cost. Patient knowledge of safety of CBFC is essential for making an informed decision to travel abroad and professional knowledge of procedures and practices abroad are necessary for provision of optimal obstetric care at home. Access to national data on safety is abundant in a few countries but very scarce in many countries and virtually nonexistent in most. These major challenges are also of great importance to the issue of CBFC.

CURRENT DATA ON CROSS-BORDER FERTILITY CARE

As in the past, at present people who believe that they do not have access to the kind of treatment they need, or rather a proportion of such people (with a different proportion in different settings), cross borders to search for it. It is expected that all countries will experience some level of CBFC. However, if the level increases significantly or if health and safety is compromised, this could serve as a warning signal to the country that national services are not meeting the needs of the population.

At present, data on the volume and the diversity of reasons and also on medical and psychosocial consequences of CBFC is very often lacking, at least on a national level. The phenomenon is, however, recognized and discussed in the professional literature (3) and also by patient groups. An example is a guide from iCSi (Inter-

national Consumer Support for Infertility) with information and advice to couples (4).

Initiatives to understand this situation and fill this data gap has recently started, for Europe by the European Society of Human Reproduction and Embryology (ESHRE), globally by ICMART, and internationally also by Canada, now organizing the first international invitational forum on CBFC in Ottawa in January 2009.

The onset of active monitoring of CBFC is necessary for medical and political reasons. The medical well-being of patients and offspring can only be protected when relevant data on CBFC is collected in both the home country and the country where treatment is received. In addition, there are political ramifications of citizens crossing borders to receive treatments deemed illegal or restricted in their homeland. Respect for individual autonomy as well as respect for political and social value systems should be considered.

ICMART's Global Data Collection Project on CBFC

The ICMART has received funding from the newly established Canadian governmental agency Assisted Human Reproduction Canada (AHRC) to conduct a retrospective global data collection on CBFC for 2006. ICMART also receives financial support from the following organizations: American Society for Reproductive Medicine (ASRM), European Society for Human Reproduction and Embryology (ESHRE), Fertility Society of Australia (FSA), Latin American Network for Reproductive Medicine (RED), Middle East Fertility Society (MEFS) and Society for Assisted Reproductive Technology (SART).

MATERIALS AND METHODS

Forms for national or regional data collection were developed in two sections; one for data collection on CBFC going out of a country, and another on CBFC coming into a country. Detailed questions concerned the couple's destination, country of origin, services sought, volume per year, and reasons for traveling (legal, cost, quality, other reasons) were asked. An introductory letter explained the background for this questionnaire and the process of filling in the form. Importantly, it stressed the fact that possibly not much of actual data were available and that, if that were the case, an estimate was requested.

The forms were sent by e-mail in mid-2008 to existing contributors in ICMART's ongoing data collection efforts. Currently 49 countries participate in international data collection for the publication of IVF World Reports (5). The list of contributors to ICMART is available in the online Supplemental Data for those reports, and the forms for the surveys used in this study are included as [Appendices](#) to this article (5). In addition, the ICMART committee members from regions around the world were asked to contribute. Overlap in reporting from these two sources was checked for and eliminated. The data collected are largely estimates and reflect general trends rather than concrete numbers.

The ICMART data collection on CBFC is retrospective, register based on a national level with summary data only. No individual data was collected. Hence, Institutional Review Board (IRB) approval was not required. There is no conflict of interest to disclose.

RESULTS

Responses were received from 23 countries with estimates from 20 of these countries (18 were country estimates, including one from a private organization in Italy, and 2 from individual clinics). It turned out to be cumbersome for virtually all contributors to provide any solid data and also, for some, to provide estimates. In almost

TABLE 1

Cross-border fertility care: travel to other countries, estimates from 2006 ICMART survey.

| Travel from | Destination | Services | Treatments | Reasons | Information origin |
|---------------|--|--------------------------|------------|------------------------------------|--|
| Africa | | | | | |
| Egypt | Spain | OD-anon | 20 | Legal | One clinic |
| | Europe, other | OD | ? | Legal | |
| Asia | | | | | |
| India | USA, Europe | Standard IVF | 25 | Efficacy | Country estimate |
| | USA, Thailand | Sex selection | ? | Legal | |
| Japan | USA + | All types | ? | Legal | Country estimate |
| Latin America | | | | | NA |
| North America | | | | | Under investigation |
| Europe | | | | | |
| Denmark | Spain, Russia, Czech Republic, Greece, Baltic States | OD-anon | 100 | Legal 70%; access 20%; quality 10% | Country estimates |
| Hungary | USA | Surrogacy | ? | Legal | Country estimate |
| Italy | Spain | OD, DS, embryo cryo, PGD | 1,365 | Legal, access | Country estimate by a private organization |
| | Switzerland | | 740 | | |
| | Belgium | | 775 | | |
| | United Kingdom | | 100 | | |
| | Austria/ Czech | | 500 | | |
| | Slovenia | | 100 | | |
| | Greece | | 150 | | |
| Macedonia | Czech Rep. | OD-anon | 50 | Legal | Country estimate |
| | Belgium | ICSI-TESE | 15 | Efficacy | |
| Portugal | Spain | OD-anon | ? | Legal | Country estimate |
| | Russia | OD-anon | ? | Legal | |
| Spain | | | | | NA |
| Sweden | Denmark | DS singles, DS anon | 200 | Legal | Country estimate |
| | Finland, Russia, Baltic States | OD | 200 | Access (to older women) | |
| Switzerland | Austria | Standard | 400 | Legal | Country estimate |
| | Spain | Single, OD | 300 | | |
| | Eastern Europe | OD-anon | 50 | | |

Note: DS = donor sperm; OD = oocyte donation; anon = anonymous; PGD = preimplantation genetic diagnosis; ICSI = intracytoplasmic sperm injection; TESE = testicular sperm extraction; ICMART = International Committee Monitoring Assisted Reproductive Technologies.

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all countries that replied there seemed to be CBFC going on, but the reasons and the volume of activities were obviously difficult to estimate. Therefore, the given estimates must be interpreted with caution.

Estimates for Travel to Other Countries

With respect to estimates of outgoing reproductive care seekers, 11 countries reported, 8 of them European (Table 1). Patients in Europe were estimated to travel mostly to other countries within Europe (with the exception of Hungarian couples, who were reported to travel to the United States). Non-Europeans, on the other hand, mostly traveled outside of their own continent. Treatment anonymity dominated among services sought, but there were also other services reported, such as sex selection from India. Legal reasons to travel also dominated, but efficacy and access were mentioned.

A total of 5,090 treatments cycles were estimated to have been performed abroad in more than 25 countries on couples from these 11 countries. The largest number of treatments was estimated to have been performed on patients from Italy, with a total of 3,730 treatments (1,365 of these performed in Spain, with the remainder

spread among six other countries). Unlike all other estimates, the Italian estimate comes from a private organization, “Osservatio Turismo Procreativo,” performing a data collection from other countries.

Estimates for Travel into a Country

With respect to recipient countries of reproductive care seekers, 15 countries reported, including 5 countries from Latin America and 7 from Europe (Table 2). Patients came from more than 38 countries, most of them from the nearby region, but some from far away, such as couples from the United States traveling into India, and from Africa traveling into Portugal.

More than 7,000 couples were estimated/reported, and the majority of these (4,000) were from Spain. Access and efficacy, rather than legal reasons, dominated the reasons for travel into other countries.

DISCUSSION

Information came from 23 of the 49 countries contacted, all currently active contributors to annual data collection for the ICMART World Report on IVF (5). As was anticipated, the global retrospective ICMART data collection effort presented little, if any, solid

TABLE 2**Cross-border fertility care: travel from other countries, estimates from 2006 ICMART survey.**

| Travel to | Country of origin | Services provided | Treatment numbers | Reasons | Information origin |
|--|--|---|---|------------------------|----------------------|
| Africa | | | | | |
| Egypt | Arab Gulf States, Palestine, Sudan, Libya, Syria | Standard, PGD | 200 | Efficacy, access | Country estimates |
| Asia | | | | | |
| India | USA | All services but for single women and gestational carrier | 75 | Access | |
| | Bangladesh | = | 48 | | |
| | Sri Lanka | = | 46 | | |
| | Afghanistan | = | 27 | | |
| | 18 other states | = | 52 | | |
| Japan | | | | | NA |
| Latin America | | | | | |
| Argentina, Brasil, Chile, Colombia, Mexico | Latin America, other countries | Standard, OD, PGD | 28 centres reported approximately 3-8% of cycles. | Legal, quality, access | Latino American RED |
| North America | | | | | Under investigation |
| Europe | | | | | |
| Denmark | Sweden Norway, Germany United Kingdom | DS anon, IUI or IVF | 1,400 | Legal 80%; access 20% | Country estimate |
| Italy | No countries | | 0 | | Country estimate |
| | Serbia | Standard | 60 | Efficacy | Country estimate |
| Macedonia | Kosovo | Standard | 100 | Access | |
| Portugal | Guinea-Bissau | Standard | ? | Access | Country estimate |
| | Cap Verde | Standard | ? | Access | |
| Russia | Western countries | 19 patients of 5,361 total | NA | Quality | Data from one clinic |
| | Former Soviet Union | 500 patients of 5,361 | NA | Quality | |
| Switzerland | Italy | Standard | 700 | Legal | Country estimate |
| | Germany | Standard | 50 | Legal, access | |
| Spain | Italy, France, Germany | OD, DS, single | 4,000 | Legal, efficacy | Country estimate |

Note: DS = donor sperm; OD = oocyte donor; anon = anonymous; standard = standard IVF; PGD = preimplantation genetic diagnosis; ICMART = International Committee Monitoring Assisted Reproductive Technologies. Equals sign indicates text is same as above.

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data. This possibly explains why relatively few countries chose to respond. In fact, very little retrospective solid data seem to exist. Prospective data collection efforts are thus needed. Such investigations are currently ongoing in Europe.

The incoming estimates are certainly only mere estimates. They suggest that CBFC is a worldwide phenomenon caused by legal regulation (as estimated mostly for travel out of a country; Table 1), and by better access, quality, and efficacy (as estimated mostly for travel into a country; Table 2). This difference is possibly not factual (as these should be the same couples) but rather come from selection bias caused by the incomplete response.

The majority of CBFC estimates came from the countries where treatment was provided. To collect data on couples traveling to other countries is more difficult than to collect data on couples coming to the clinics, who are actually registered as coming from abroad. However, these couples are usually not reported to national registers as being foreigners. Their data are included among all other couples treated. Also, these couples are often lost to follow-up on their pregnancies, as they return home to deliver in their country of origin.

Whereas couples traveling out of one country certainly are the same couples traveling into other countries of their choice for treatment, the possibility of registering them as “reproductive travelers” is much greater in the country they visit than in their country of origin. The reason for cross-border fertility travel often is to be found in the patient’s own country, and an interest in the outcome of treatment is possibly greater in the country of origin.

Therefore data on CBFC are collected more easily in the country of treatment, but actually may be more important in the country of origin. If that is so, it is necessary for national data from several countries within a region, and even further afield, to be reported. Optimally, comprehensive international data from all countries providing CBFC are needed. Importantly, there are also implications when professionals and countries providing health care are dissociated from professionals and countries dealing with the consequences of such interventions, although this is not unique to reproductive care. When any medical procedure is considered, it is important that the physicians involved have complete knowledge of the medical history as well as the ability to track the patient’s outcome. Patient education on the risks of travel for medical purposes is required to ensure patients provide pertinent health information to their physician when returning to their home country.

Few countries are currently able to quantify the number of patients having CBFC, although our data suggest that incoming treatment seekers are more easily numerated due to clinic registration procedures. Future national and international data collection needs to be simple and transparent. It should be integrated to the already existing four-level data collection system for ART, where data is collected by the clinics and then reported to national and to regional (e.g., Europe, Latin America, and North America) ART registers and finally to the ICMART global register. Standardization of data collection and creation of national databases are needed to collect quantitative information that will help reproductive caregivers to provide support for patients having CBFC.

RECOMMENDATIONS

1. Data collection efforts should be standardized and implemented to prospectively monitor CBFC developments by reporting accurate data on use of, and reasons for, CBFC for all countries affected by this phenomenon. It should be integrated into the already existing national and international data collection system for ART.
2. Physicians must adhere to local/national regulations but also recognize and fulfill their professional obligations to meet patient needs for support and relevant information, based on relevant data collection and reporting.
3. Based on the collection of data, patients should be well informed regarding opportunities, risks, and regulations before embarking on CBFC. Information and guidance may come from national services, individual physicians, or patient organizations. Relevant information depends on relevant data being collected.
4. Countries should review on a regular basis the regulatory frameworks and accessibility of fertility treatments as the values and beliefs within their society change.

In conclusion, at present, few countries have data on numbers or reasons of CBFC. Estimates presented in this ICMART retrospective survey suggest that incoming individuals or couples to a country are more easily numerated than those going out of the country. Standardization for future national databases on CBFC is needed to provide support for patients in need of CBFC.

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August 29, 2008

Dear Colleague,

Thank you for your previous contributions to the global IVF data collection system, organized by ICMART.

ICMART is currently seeking global information on so called “Cross-border fertility care”, the activity when couples go abroad for ART treatments. This phenomenon occurs in many parts of the world, but the extent of this practice is variable and the reasons differ. It can function as a “safety valve” for couples who need ART, but who don’t have access to it at home, possibly due to legal restrictions, high costs, limited access or low efficacy / quality of services. However, cross-border fertility care may also occur because of negative socio-economic conditions, language problems, follow-up loss and sub-optimal pregnancy care. Furthermore, it is usually available only to the well-off and may signify domestic shortcomings.

Solid data regarding this phenomenon are almost completely lacking. Some regions are now in the process of trying to collect data, for example Europe through ESHRE. Because this is a world-wide phenomenon, ICMART has decided to undertake a two-step strategy to try and collect data when available but otherwise estimates, world-wide.

The first step is this letter, in which we ask you to send us data, should you have any, or otherwise your personal estimates of cross-border fertility care activities in your country or your region. Please give your data / your estimates on section A and B of the attached FORM on:

1. Destinations of travel (Section A of the FORM for travel to other countries, Section B for travel from other countries into your country)
2. Nature of services for which travel occurs (e.g. donor egg, cryopreservation)
3. Volume (number of patients and number of cycles for each service)
4. Reasons for the need for cross-border travel for each service

We have attached an example form for your reference.

We also ask you to try to identify individual centres that treat patients from other countries. In a second step we will ask such centres to send us specific data.

Thank you very much for your expertise and assistance. We appreciate your participation in this project very much. We look forward to your response as soon as convenient for you!

Yours truly,

Karl Nygren, MD
ICMART Chair

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CROSS BORDER REPRODUCTIVE CARE QUESTIONNAIRE

**SECTION A: INFORMATION ON PATIENTS TRAVELLING TO OTHER COUNTRIES
FOR TREATMENT PROCEDURES DURING THE YEAR 2006**

Name of Country (reporting):
 Contact Person (Mr/MD/PhD/Other):
 Institution:
 Address :
 Telephone : Fax : Email:

| DESTINATION (countries to which couples travel for treatment) | SERVICES PROVIDED BY THE COUNTRY OF DESTINATION | VOLUME PER YEAR according to the service provided | REASONS FOR TRAVELLING TO COUNTRY OF DESTINATION (*) |
|--|---|---|--|
| | a) Standard IVF or ICSI b) Gestational carrier c) Surrogacy d) Single women e) Donor egg—known f) Donor egg—anonymous g) Donor sperm h) Other (please specify) | a) Number of Patients for each Service (both a "couple" or a single patient are counted as one "Patient") b) Number of Cycles for each Service | a) Legal/Regulatory restrictions b) Cost/Access limitations c) Quality/Efficacy d) Other (please specify) |
| | | | |
| | | | |
| | | | |

(*) expressed as an approximate percentage of the total Number of Patients reported in previous column. More than one reason may be listed.

**Please return this Questionnaire to: Karl Nygren, M.D., ICMART Chairman Fax: + 46 8 101621 or
 Email: karl-gosta.nygren@telia.com**

**SECTION B: PATIENTS COMING FROM OTHER COUNTRIES
FOR TREATMENT PROCEDURES PERFORMED DURING THE YEAR 2006**

Name of Country (reporting):
 Contact Person (Mr/MD/PhD/Other):
 Institution:
 Address :
 Telephone : Fax : Email:

| COUNTRY OF ORIGIN (countries from which couples come for treatment in your country) | SERVICES PROVIDED BY THE COUNTRY OF DESTINATION (YOUR COUNTRY) | VOLUME PER YEAR according to the service provided | REASONS FOR COMING TO YOUR COUNTRY (*) (where they will receive treatment) (*) |
|--|---|---|--|
| | a) Standard IVF or ICSI b) Gestational carrier c) Surrogacy d) Single women e) Donor egg—known f) Donor egg—anonymous g) Donor sperm h) Other (please specify) | a) Number of Patients for each Service (both a "couple" or a single patient are counted as one "Patient") b) Number of Cycles for each Service | a) Legal/Regulatory restrictions b) Cost/Access Limitations c) Quality/Efficacy d) Other (please specify) |
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(*) expressed as an approximate percentage of the total number of Patients reported in previous column. More than one reason may be listed.

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