The following full text is a publisher’s version.

For additional information about this publication click this link.
http://hdl.handle.net/2066/196278

Please be advised that this information was generated on 2019-09-03 and may be subject to change.
Survey of Third-Party Parenting Options Associated With Fertility Preservation Available to Patients With Cancer Around the Globe

Alexandra S. Rashedi
Saskia F. de Roo
Lauren M. Ataman
Maxwell E. Edmonds
Adelino Amaral Silva
Anibal Scarella
Anna Horbaczewska
Antoinette Anazodo
Ayse Arvas
Bruno Ramalho de Carvalho
Cassio Sartorio
Catharina C.M. Beerendonk
Cesar Diaz-Garcia
Chang Suk Suh
Cláudia Melo
Claus Yding Andersen
Eduardo Motta
Ellen M. Greenblatt
Ellen Van Moer
Elnaz Zand
Fernando M. Reis
Flor Sánchez
Guillermo Terrado
Jhenifer K. Rodrigues
Joao Marcos de Meneses e Silva
Johan Smitz
Jose Medrano
Jung Ryeol Lee
Katharina Winkler-Crepaz
Kristin Smith

Purpose In the accompanying article, “Analysis of Fertility Preservation Options Available to Patients With Cancer Around the Globe,” we showed that specific fertility preservation services may not be offered at various sites around the world because of cultural and legal barriers. We assessed global and regional experiences as well as the legal status of third-party reproduction and adoption to serve as a comprehensive international data set and resource for groups that wish to begin oncofertility interventions.

Methods We provide data on the legalities of third-party assisted reproductive technologies and other family-building options in the 28 oncofertility-practicing countries surveyed.

Results We found regional and country differences that will be important in the development of tailored resources for physicians and for patient brochures that are sensitive to these local restrictions and cultural norms.

Conclusion Because many patients first consult Web-based materials, the formal assessment of the availability of these options provides members of the global oncofertility community with data to which they might otherwise not have ready access to better serve their patients.

J Glob Oncol 00. © 2017 by American Society of Clinical Oncology

INTRODUCTION

Fertility management in the cancer setting (ie, oncofertility) is challenging for a variety of technical reasons that are associated with timing of cancer treatment, the invasive nature of some options, and the required links between cancer and fertility care. In addition to these practice management and biologic hurdles, we identified the legal status of adoption and third-party reproduction as a barrier. We then assessed the specific roadblocks that exist in surveyed countries. The goal of this analysis is to deliver authoritative information to emerging practices that may receive information about the field from a variety of Web resources and that may be unaware of local barriers to the spectrum of options.

METHODS

The survey design, data collection, and analysis are described in the accompanying article. Survey respondents were asked about barriers to counseling patients on and providing them with all existing parenting options in the face of a cancer diagnosis, gonadotoxic treatment, and possible consequent infertility. Answers provided specifics on challenges faced at their center and/or within their country, which motivated us to conduct additional research and present detailed data about the legality of surrogacy, adoption; and egg, sperm, and embryo donation. We listed the information in tables and conducted a literature search to fill in the gaps in the original data and to validate the information provided. All authors approved the information presented in the Data Supplement.

RESULTS

A significant barrier to oncofertility care noted in the survey responses was the presence of legal, cultural, and regulatory restrictions. Adoption and third-party assisted reproductive technology (ART), including surrogacy and egg, sperm, and embryo donation, were consistently identified as associated with these restrictions. We assessed the prevailing laws in each country with regard to surrogacy, adoption; and egg, sperm, and embryo donation (Data Supplement).
Surrogacy (Gestational)

Of the 28 countries surveyed, altruistic surrogacy is explicitly legal in 12, whereas nine outlaw it. Specific restrictions apply to whom may access surrogacy in six countries, whereas in six other countries, all people may access it no matter their sexual orientation or marital status. Surrogacy is unregulated by law in 19 countries (Data Supplement), and altruistic surrogacy arrangements occur in nine of these countries without regulation. Commercial surrogacy is explicitly prohibited in 11 countries. In Iran, for example, both altruistic and commercial surrogacy are practiced, but no regulation of these arrangements exists. In the United Kingdom and Australia, advertisement for surrogacy is illegal, which is also true in Canada where brokers and advertisement are illegal. In four countries, surrogacy is accessible to both citizens and foreigners (Iran, Belgium, Russia, and Canada). The laws that govern the practice of surrogacy greatly differ among states in Mexico, the United States, and Australia.

Adoption

In almost all countries surveyed, adoption is explicitly legal, except in Egypt, where it is prohibited (Data Supplement). In six of these countries, legislation allows homosexual married couples to adopt. In other countries, such as Chile, adoption for homosexual couples is illegal; however, because single persons may adopt, homosexual couples may apply, but only one person is recognized as the legal parent. In India, Iran, Turkey, Denmark, Portugal, the Netherlands, and Argentina, couples (either heterosexual or homosexual) must have lived together for a certain number of years at the time of adoption. In four countries, adoption is only available to heterosexual married couples. In some countries, adoption is highly restricted; in Iran, for example, neither person in a couple who seeks to adopt can have a chronic, contagious, or terminal disease.

Egg, Sperm, and Embryo Donation

Egg donation is legal in 19 of the 28 countries surveyed (Data Supplement). In four countries, egg donation is illegal, and in five countries, it is unregulated. In a majority of countries (n = 22), egg donation is accessible to heterosexual married couples. In 12 countries, it is also accessible to homosexual married couples, and in 17 countries, it is accessible to unmarried persons.

Similar results are reported for sperm donation, which is legal in 20 of the countries surveyed, illegal in three, and unregulated in five. Sperm donation is accessible to heterosexual married couples in 23 countries, to homosexual married couples in 12, and to unmarried couples in 18. In some countries, such as Iran, sperm donation is only available when medically necessary (in cases of infertility).

Embryo donation is explicitly legal in 13 countries surveyed but is illegal in nine and unregulated in six. Embryo donation is accessible to heterosexual couples in 17 countries, to homosexual married couples in seven, and to unmarried couples in 12. In 10 countries, anonymous gamete or embryo donation is permitted. In South Korea, embryo donation is only permitted for research purposes, and such research studies must be approved by the institutional review board and related to certain disease categories, such as infertility, contraception, and certain rare or incurable diseases. In Belgium and Denmark, both anonymous and non-anonymous donations of gametes and embryos are legal, but nonanonymouse embryo donation is illegal in Belgium.

DISCUSSION

The survey responses indicated various legal challenges about specific procedures. One notable cultural and legal barrier to oncofertility care was related to the use of surrogacy. The survey findings agree with those reported in a study by Wennberg et al in Sweden in which women’s attitudes toward ARTs were neutral or favorable, except for surrogacy. In addition, we found significant hurdles to third-party procedures, such as age restrictions and requirements of medical indications to allow treatment, which also proves consistent with previous studies. These data highlight the importance of more-explicit investigations into these questions, particularly their sociologic etiologies, legal implications, and variations among world countries and regions.

During the development of the survey questions, we believed it crucial to ask about third-party ARTs, namely surrogacy and adoption, along with egg, sperm, and embryo donation. The rationale for including surrogacy early in the initial fertility consultation is that women who are sterile as a result of cancer may also have uterine dysfunction and a higher risk of recurrent miscarriage. Thus, providers should consider a conversation with patients about their ability to carry offspring after cancer treatment, including the possibility that third-party alternatives might be necessary in the setting of uterine dysfunction. The mention of surrogacy and adoption options provides patients with full knowledge of all
possibilities that they may pursue after treatment, regardless of their remaining fertility function.\textsuperscript{6} For patients who did not preserve fertility before treatment, adoption is another option for family building.

India is a prime example of the potential negative impact of regional differences in laws and social restrictions with regard to surrogacy, particularly with surrogacy tourism. Before commercial surrogacy was banned countrywide for foreigners in 2016,\textsuperscript{8} profits often were collected by middle men and agencies rather than by the women who worked as surrogates,\textsuperscript{9} which supports the argument for a standard set of policies to favor altruistic surrogacy and adoption and to prevent exploitation of surrogates. Such a policy might be recommended by global health organizations, such as the WHO. In addition, surrogacy customs and laws should be made comprehensive, easily interpretable, and translational to avoid exploitive surrogacy tourism in poorer communities where women may be willing to compromise their beliefs and health for monetary gain or are pressured to do so by others.\textsuperscript{3,10}

Adoption is another service the survey identified to be associated with cultural and legal barriers. At first glance, adoption is legal in most countries, but couples do not often pursue it, as indicated in the open-ended survey responses. The Hague Adoption Convention, an international agreement that established the ethics and proper practices for intercountry adoption, has been upheld by 98 countries since its founding in 1993.\textsuperscript{11} This agreement provides the legal precedent for providers to begin the conversation with young patients or families. A similar convention was recently convened by the Hague Conference on Private International Law on the private international legal issues that surround the status of children, including issues that arise from international surrogacy arrangements. This meeting established that contemporary global standards should be developed to avoid the exploitation of vulnerable populations and will reconstruct to discuss the development of these standards.\textsuperscript{12,13}

Individuals who survive cancer are not specifically legally prohibited from adoption; however, patients with cancer have documented difficulty in adopting.\textsuperscript{14} When evaluating this issue formally, we found that adoption services were not up to date on the latest survivorship data. Thus, perception rather than legal issues may remain the greatest barrier to adoption for this cohort.

Although fertility preservation procedures were not as commonly identified as being associated with cultural barriers over third-party assisted reproduction options, we identified unique regional instances. Specifically, the Banco de Sêmen do Rio de Janeiro stated that the lack of compensation for sperm donors is a huge barrier to providing this service to patients. Cultural customs play a significant role in the regulation of third-party ARTs, which are explicitly observed in two of the surveyed countries, Egypt and Tunisia. Both countries completely outlaw egg, sperm, and embryo donation. In addition, Tunisian representatives from the ART center at the Aziza Othmana Hospital of Tunis cited the perceived loss of virginity as a great factor in female patients’ hesitation to undergo transvaginal procedures, such as oocyte retrieval, a procedure required for oocyte cryopreservation. Such cultural barriers likely will be more challenging to surmount because of the ingrained quality of these conventions. Fortunately, the repurposing of a technique abandoned in the 1980s for this new indication, the perurethral transvesical route where oocytes are retrieved through the bladder,\textsuperscript{15} allows oncofertility to advance as a field and improves access for patients in a world where these barriers are the current reality and may take decades to overcome.

In conclusion, tremendous differences in cultural norms; legislation; and accessibility of surrogacy, adoption, and ART options exist around the world. Even between neighboring countries, differences are apparent. These variations point to the need for consolidating this information; clarification of the governing laws and attitudes in oncofertility-practicing countries thereby will help both providers and patients to provide global understanding about third-party parenting options for patients who have undergone gonadotoxic cancer treatment and have compromised fertility as a result.

DOI: https://doi.org/10.1200/JGO.2017.009944
Published online on jgo.org on June 30, 2017.

AUTHOR CONTRIBUTIONS


Copyright © 2018 American Society of Clinical Oncology. All rights reserved.
Almeida Campos-Junior, Peter Mallmann, Ricardo Azambuja, Ricardo M. Marinho, Richard A. Anderson, Robert Jach, Roberto de A. Antunes, Satish Kumar Adiga, Seido Takae, Seok Hyun Kim, Silvana Chedid Grieco, Tatsuro Furui, Teresa Almeida-Santos, Willianne Nelen, Yasmin Jayasinghe, Yodo Sugishita, Teresa K. Woodruff

**Provision of study materials or patients:** Teresa K. Woodruff

**Administrative support:** Alexandra S. Rashedi, Lauren M. Ataman


**Manuscript writing:** All authors

**Final approval of manuscript:** All authors

**Accountable for all aspects of the work:** All authors

**AUTHORS’ DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST**

The following represents disclosure information provided by authors of this manuscript. All relationships are considered compensated. Relationships are self-held unless noted. I = Immediate Family Member, Inst = My Institution. Relationships may not relate to the subject matter of this manuscript. For more information about ASCO’s conflict of interest policy, please refer to www.asco.org/rwc or ascopubs.org/jco/site/ifc.

Alexandra S. Rashedi

**Employment:** Cigna (I)

**Stock or Other Ownership:** Cigna (I)

Saskia F. de Roo

No relationship to disclose

Lauren M. Ataman

No relationship to disclose

Maxwell E. Edmonds

No relationship to disclose

Adelino Amaral Silva

No relationship to disclose

Anibal Scarella

No relationship to disclose

Anna Horbachewksa

No relationship to disclose

Antoinette Anazodo

Research Funding: Merck Serono

Ayse Arvas

No relationship to disclose

Bruno Ramalho de Carvalho

No relationship to disclose

Cassio Sartorio

**Employment:** Vida Centro de Fertilidade

**Leadership:** Vida Centro de Fertilidade

**Stock or Other Ownership:** Vida Centro de Fertilidade

Catharina C.M. Beerendonk

Travel, Accommodations, Expenses: Goodlife

Cesar Diaz-Garcia

No relationship to disclose

Chang Suk Suh

No relationship to disclose

Claudia Melo

No relationship to disclose

Claus Yding Andersen

No relationship to disclose

Eduardo Motta

No relationship to disclose

Ellen M. Greenblatt

Consulting or Advisory Role: Ferring Pharmaceuticals, EMD Serono

Travel, Accommodations, Expenses: EMD Serono

Ellen Van Moer

No relationship to disclose

Einaz Zand

No relationship to disclose

Fernando M. Reis

Honorary: Politec Saude (I)

Consulting or Advisory Role: Politec Saude (I)

Speakers’ Bureau: UCB (I)

Travel, Accommodations, Expenses: Abbott Laboratories (I)

Flor Sánchez

Patents, Royalties, Other Intellectual Property: patent pending

Guillermo Terrado

No relationship to disclose
Jhenifer K. Rodrigues
No relationship to disclose

Joao Marcos de Meneses e Silva
No relationship to disclose

Johan Smitz
Speakers’ Bureau: Ferring Pharmaceuticals
Travel, Accommodations, Expenses: Ferring Pharmaceuticals

Jose Medrano
No relationship to disclose

Jung Ryeol Lee
No relationship to disclose

Katharina Winkler-Crepaz
No relationship to disclose

Kristin Smith
No relationship to disclose

Ligia Helena Ferreira Melo e Silva
No relationship to disclose

Ludwig Wildt
No relationship to disclose

Mahmoud Salama
No relationship to disclose

Maria del Mar Andrés
No relationship to disclose

Maria T. Bourlon
Leadership: Medivation, Astellas Pharma
Honoraria: Medivation, Astellas Pharma

Mario Vega
No relationship to disclose

Mauricio Barbour Chehin
No relationship to disclose

Michel De Vos
No relationship to disclose

Mohamed Khrouf
No relationship to disclose

Nao Suzuki
No relationship to disclose

Osama Azmy
No relationship to disclose

Paula Fontoura
No relationship to disclose

Paulo Henrique Almeida Campos-Junior
No relationship to disclose

Peter Mallmann
No relationship to disclose

Ricardo Azambuja
No relationship to disclose

Ricardo M. Marinho
No relationship to disclose

Richard A. Anderson
Consulting or Advisory Role: Roche, HRA Pharma, NeRe Pharmaceuticals

Speakers’ Bureau: Roche, Beckman Coulter, IBSA Institut Biochimque
Research Funding: Ferring Pharmaceuticals
Travel, Accommodations, Expenses: IBSA Institut Biochimque

Robert Jach
No relationship to disclose

Roberto de A. Antunes
Consulting or Advisory Role: Merck Serono
Travel, Accommodations, Expenses: Merck Serono, MSD

Rod Mitchell
No relationship to disclose

Rouhollah Fathi
No relationship to disclose

Satish Kumar Adiga
No relationship to disclose

Seido Takae
No relationship to disclose

Seok Hyun Kim
No relationship to disclose

Sergio Romero
Patents, Royalties, Other Intellectual Property: patent pending

Silvana Chedid Grieco
No relationship to disclose

Talya Shaulov
No relationship to disclose

Tatsuro Furui
No relationship to disclose

Teresa Almeida-Santos
Consulting or Advisory Role: Merck, MSD
Research Funding: Merck Serono

Willianne Nelen
No relationship to disclose

Yasmin Jayasinghe
No relationship to disclose

Yodo Sugishita
No relationship to disclose

Teresa K. Woodruff
Research Funding: Ferring Pharmaceuticals (Inst)

ACKNOWLEDGMENT
We thank Louise Johnson, the chief executive officer of the Victorian Assisted Reproductive Treatment Authority, for information about assisted reproductive technology laws in Australia.
Affiliations
Alexandra S. Rashedi, Lauren M. Ataman, Maxwell E. Edmonds, Kristin Smith, and Teresa K. Woodruff, Northwestern University, Chicago, IL; Saskia F. de Roo, Catharina C.M. Beerendonk, and Willianne Nelen, Radboud University Medical Center, Nijmegen, the Netherlands; Adelino Amaral Silva, GENESIS—Center for Assistance in Human Reproduction; Bruno Ramalho de Carvalho, BÔNVENA—Reproductive Medicine, Brasília; Cassio Saturno, Vida Centro de Fertilità; Paula Fontoura, Banco de Sêmen do Rio de Janeiro; Roberto de A. Antunes, Fertipraxis—Center of ReproductionHumans, Rio de Janeiro; Eduardo Motta, Federal University of São Paulo; Maurice Barbour Chehin, University of Santo Amaro; Silvana Chedid Grieco, IIV São Paulo—Chedid Grieco, São Paulo; Fernando M. Reis and Jhenifer K. Rodrigues, Universidade Federal de Minas Gerais; Ricardo M. Marinho, Pré-Criar Medicina Reprodutiva, Minas Gerais; Joao Marcos de Meneses e Silva and Ligia Helena Ferreira Melo e Silva, Hemorrendo do Ceará, Fortaleza; Paulo Henrique Almeida Campos-Junior, Federal University of São João del-Rei, São João del-Rei; Ricardo Azambuja, Fertilitat Centro de Medicina Reprodutiva, Porto Alegre, Brazil; Anibal Scarello, Universidade de Valparaiso, Valparaiso, Chile; Anna Horbachewska and Robert Jach, Jagielonian University Medical College, Kraków, Poland; Antoinette Anazono, University of New South Wales, Sydney, New South Wales; Yasmin Jayasinghe, Royal Women’s Hospital, Melbourne, Victoria, Australia; Ayse Arvas, Onkofertiit Türkije, Istanbul, Turkey; Cesar Diaz-Garcia, University of Valencia; Jose Medrano and María del Mar Andrés, Instituto de Investigación Sanitaria La Fe, Valencia, Spain; Chang Suk Suh and Jung Ryel Lee, Seoul National University College of Medicine; Seok Hyun Kim, Seoul National University Hospital, Seoul, South Korea; Cláudia Melo, University of Coimbra; Teresa Almeida-Santos, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal; Claus Yding Andersen, University of Copenhagen, Copenhagen, Denmark; Ellen M. Greenblatt, University of Toronto, Toronto, Ontario; Tatyia Shaulov, University of Montreal Hospital Centre, Montreal, Quebec, Canada; Ellen Van Moer and Johan Smits, Universitair Ziekenhuis Brussel, Jette; Michel De Vos, Vrije Universiteit Brussel, Brussels, Belgium; Elnaz Zand and Rouollahl Fathi, Royan Institute for Reproductive Biomedicine, Tehran, Iran; Flor Sánchez and Sergio Romero, Centro de Estudios e Investigaciones en Biología y Medicina Reprodutiva, Lima, Peru; Guillermo Terrado, Pregna Medicina Reprodutiva, Buenos Aires, Argentina; Katharina Winkler-Crepaz and Ludwig Wildt, Medical University of Innsbruck, Innsbruck, Austria; Mahmoud Salama and Osama Azmy, National Research Center, Cairo, Egypt; María T. Bourlon, Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubrún, Mexico City, Mexico; Mario Vega, IVF Centro de Reproduccion, Panama City, Panama; Mohamed Khrouf, Université de Tunis El Manar, Tunis, Tunisia; Nao Suzuki, Seido Takae, and Yodo Sugishita, Sh mikari University School of Medicine, Kawasaki; Tatsuro Furu, Gifu University School of Medicine, Gifu, Japan; Peter Mallmann, University of Cologne, Cologne, Germany; Richard A. Anderson and Rod Mitchell, University of Edinburgh, Edinburgh, United Kingdom; and Satish Kumar Adiga, Manipal University, Manipal, India.

Support
Supported by the Center for Reproductive Health After Disease (P50HD076188) from the National Institutes of Health National Center for Translational Research in Reproduction and Infertility.

REFERENCES

Copyright © 2018 American Society of Clinical Oncology. All rights reserved.