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Globalised quests for assisted conception: Reproductive travel for infertility and involuntary childlessness

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ABSTRACT

The global movement of people across international borders to undergo assisted reproductive treatment is common, although there is little accurate data. In this article, we synthesise findings from our own empirical research on reproductive travel in addition to a review of clinical, ethical, legal, and regulatory complexities from studies on reproductive travel since 2010. Motivations for travel include legal and religious prohibitions; resource considerations; lack of access to gametes and reproductive assistors; quality and safety concerns; and personal preferences. Higher risks to mothers and children are associated with multiple embryo transfer and subsequent multiple and higher order pregnancies and the average older age of women undertaking reproductive travel. The potential exploitation of other women as providers of oocytes or surrogacy services, the lack of equity in access to assisted reproduction and the ambiguous legal status of children conceived from international reproductive travel are important ethical considerations. A range of significant legal issues remain given variable and limited international regulation. Scholarship on this trade necessarily engages with issues of power and gender, social inequities, global capitalism and the private decision-making of individuals seeking to form families. Research gaps remain given recent changes in the organisation, demands and destinations of the trade.

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Introduction

Infertility remains a neglected reproductive health problem, even though it is estimated that as many as 186 million people suffer from infertility worldwide (Inhorn & Patrizio, 2015; Rutstein & Shah, 2004). Countries in the global South with the highest rates of infection-induced infertility are also those with the least access to assisted reproductive technologies (ARTs). In the global North, where infertility is often associated with age-related fertility decline and poor oocyte (egg) quality, ARTs may be readily available, but remain inaccessible to most infertile couples due to high costs and legal barriers. As a result of these obstacles, couples in both the global North and South may look beyond their national borders for infertility care, engaging in arduous quests for assisted conception (Inhorn, 2015). The same is true for single people and gay couples who want to become parents of biogenetically related offspring, but whose access to ARTs is limited by various forms of legal, religious, or bioethical restriction. Such individuals are not technically 'infertile', but nonetheless face 'involuntary childlessness' due to societal forms of reproductive discrimination.

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Given the problems of ART access, individuals and couples are increasingly travelling across national borders in search of assisted reproductive services. These include the following procedures: (1) in vitro fertilisation (IVF) to overcome female infertility (from blocked fallopian tubes, poor egg quality, and hormonal disorders); (2) intracytoplasmic sperm injection (ICSI), a variant of IVF designed to overcome male infertility; (3) third-party reproductive assistance (with donor eggs, sperm, and embryos) to overcome problems of poor egg and sperm quality; (4) cryopreservation (freezing) and storage of unused sperm, embryos, eggs, and ovarian tissue for later use; (5) mitochondrial transfer from a healthy human egg to the egg of another woman; (6) preimplantation genetic diagnosis (PGD) to determine if embryos have genetic defects; and (7) preimplantation genetic selection (PGS) to select embryos of a specific sex, or to select embryos that can grow into 'savior siblings' through the donation of their umbilical cord blood. While technically not considered an ART per se, gestational surrogacy (when a woman carries a non-genetically related pregnancy for other/s) is included in this review as it is dependent upon IVF technologies and has become an important aspect of cross border reproductive travel.

A number of different terms each with differing connotations have been used to describe this travel (Hudson & Culley, 2011; Hudson et al., 2011; Inhorn, 2015; Inhorn & Patrizio, 2009; Matorras, 2005; Pennings et al., 2008; Salama et al., 2018; Whittaker, 2009). Given the lack of agreement on nomenclature, we use the neutral terms 'reproductive travel', also shortened to 'reprotravel' (Inhorn, 2015) and 'reprotravellers', which may also describe the movements of reproductive assistors such as egg donors and surrogates across national borders.

The aim of this paper is to provide an updated cross-disciplinary overview of current developments and issues related to reproductive travel from clinical, public health, anthropological and bioethical perspectives. In her review of future research on cross border reproductive travel, Inhorn (2011a) commented that discussions in the scholarly literature on reproductive travel remained fragmentary, and she identified a number of pressing gaps in the literature. Likewise, Hudson et al. (2011) identified a number of gaps in the research on reproductive travel, including the need for better quantitative and qualitative data collection, and work on the views of patients, donors, surrogates and medical professionals. Since those reviews we have witnessed a growth in the medical, bioethical and legal literature on reproductive travel and greater understandings of its implications. A recent systematic review of medical literature by Salama et al. (2018) examines the clinical and practical implications of these. But a number of 'reprohubs' (Inhorn 2015) – locations in which clinics, health professionals, technologies, intended parents and reproductive assistors (such as oocyte providers and surrogates) come together – have developed in low and middle income countries including India, Thailand, Ukraine, Laos, South Africa, and Kenya where access to ART for poorer people is limited. Further, a number of major anthropological studies of reprotravel have been conducted in the United Arab Emirates (Inhorn, 2015); Czech Republic (Speier, 2016), Thailand (Whittaker, 2018), India (Deomampo, 2016; Pande, 2014; Rudrappa, 2015), as well as studies by Nahman (2013) on oocyte provision in Europe. In this review, we provide an up-to-date review of what is currently known about reproductive travel. The review undertaken reveals not only the burgeoning interest in reproductive travel, but the increased recognition of the need for empirical evidence: to measure the extent of the trade, its clinical implications, and to identify legal and bioethical issues that are arising. The review combines this literature with a growing number of qualitative and anthropological studies that report on the affective experiences of people undergoing treatments away from their home countries, the transnational nature of the industry and some of the vulnerabilities it creates.

The market for assisted reproductive services has matured in many settings; so, too, has the academic literature. From initial commentaries and debates on the definition and classifications of reproductive travel and its ethical dimensions, there has now been greater empirical work and work in a wider range of settings. Yet we find a number of issues remain to be addressed, such as: the incidence of reproductive travel; the clinical, legal and psychological outcomes of reproductive travel; the role and views of men both as intended fathers, partners of infertile women, and partners

of reproductive assistors; the organisation of the industry including the movements of medical staff (i.e. embryologists and fertility specialists) providing services across borders; the nature and social implications for the new emerging 'reprohubs' in Africa and Asia; the perspectives and experiences of gamete providers, surrogates and their partners; and the implications in the growth of new demands for cross border assisted reproductive services from East Asia, in particular China. Finally, there remains a paucity of scholarly work on policy implications and potential forms of regulation.

An exploration of reproductive travel reveals the increasingly globalised nature of assisted reproduction – the interaction of people and technologies from across different sites, and how these are negotiated and reassembled in different places. In expanding Appadurai's description and analysis of globalisation, Inhorn argues, 'reproductive tourism might be thought of productively as a more complex 'reproscape'– a kind of 'meta-scape' combining numerous dimensions of globalisation and global flows' (Inhorn, 2011a, pp. 89–90); these would include material technologies, infrastructure, institutions, collective and discursive relationships. In a world characterised by flows of people, communication and technologies, the formerly private realm of assisted reproduction has been de-territorialised and shifted to new spaces, 'reprohubs' in which people may pursue their quests to form families. As people travel and interact across national, jurisdictional, cultural and socio-economic boundaries in their quests to conceive a biologically related child, a range of social, ethical and clinical challenges emerge.

Methods

This article synthesises findings from the authors' own empirical research on reproductive travel undertaken in Southeast Asia (Whittaker, 2009, 2011a, 2011b, 2012, 2018), and the Middle East (Inhorn and Gurtin, 2011; Inhorn and Shrivastav, 2010; Inhorn, 2015, p. 1018), and long-term clinical experience and ethical research in Europe (Shenfield, 2016; Shenfield et al. 2010). The empirical studies involved interviews with those seeking assisted reproductive services, medical staff, various facilitators, and reproductive assistors (such as oocyte providers and surrogates). In addition to key informant interviews, observations in clinics and survey and secondary data collection were undertaken. In addition, this article also reviews the current literature on reproductive travel, especially that which has been published over the past 10 years since earlier reviews were undertaken. Relying on MEDLINE (2010–2019), ProQuest (2010–2019), Ovid Medline (2010–2019), and Science Direct (2010–2019), we used the terms 'reproductive technologies' in combination with the terms 'tourism' or 'travel' as well as the terms 'reproductive tourism', 'cross border reproductive care', and 'reproductive travel' to identify relevant scholarship. We did not exclude any geographical areas but we did exclude media reports, book reviews, brief commentaries and those papers that concentrated upon medical travel and only mentioned reproductive travel in passing. A total of 83 items from the fields of anthropology and sociology, ethics, law, science and technology studies and public health were identified once duplicates were removed. In addition, we searched the reference lists identified by this search strategy and selected recent work we judged relevant as well as eight monographs not identified in our search strategy. In this review, we give an overview of the major themes and findings of this current literature as well as the gaps in scholarship that remain.

The extent of global reproductive travel

Empirical evidence on the incidence of reproductive travel remains scant, as noted by Hudson et al. in their 2011 review of the literature. Accurate statistics on the numbers of people travelling for ARTs are unavailable, particularly for those travellers coming from countries in the global South (Nygren, Adamson, Zegers-Hochschild, & De Mouzon, 2010; Salama et al., 2018). Even in the global North, there are limited data on the extent of reproductive travel due to the absence of a global registry of IVF clinics and minimal international monitoring. The largest empirical study to date involved 46 IVF clinics in six countries in Europe (Belgium, Czech Republic, Denmark, Slovenia, Spain, and

Switzerland) undertaken by the European Society for Human Reproduction and Embryology (ESHRE) Taskforce on Cross Border Reproductive Care (Shenfield et al., 2010). Based on a questionnaire survey of 1230 patients for one month between October 2008 and March 2009, the study estimated a minimum of 24,000–30,000 cross-border cycles in Europe each year, involving between 11,000 and 14,000 patients. The International Committee Monitoring Assisted Reproductive Technologies (ICMART) surveyed clinics in 11 countries about 'outgoing' treatment cycles and estimated approximately 5000 cross-border IVF cycles undertaken in 25 other nations (Nygren et al., 2010). Fifteen 'recipient' countries reported that approximately 7000 couples travelled from 40 countries to receive treatment.

Survey results from North America estimate that approximately 4% of patients treated with IVF in the US were from other countries (Hughes & Dejean, 2010; Hughes, Sawyer, DeJean, & Adamson, 2016), whereas 6% of Canadian IVF patients left the country for treatment, mostly for anonymous donor eggs (80%). A recent detailed analysis of the extent and scope of reproductive travel to the US shows a doubling of reproductive travel over the seven-year reporting period from 2006 to 2013 (Levine et al., 2017). Using US Centers for Disease Control and Prevention's National ART Surveillance System (NASS) data, the study shows that 1.2% of all ART cycles were performed for non-US residents in 2006, but 2.8% of ART cycles were performed for non-US residents in 2013. Compared with US resident cycles, non-US residents made higher use of oocyte donation (10.6 versus 42.6%), gestational surrogacy (1.6 versus 12.4%), and preimplantation genetic diagnosis or screening (5.3 versus 19.1%). In other words, reproductive travel to the US not only increased over time but also involved more specialised ART services.

Current hubs of reproductive travel

Some countries have become 'hubs' for reproductive travel, yet the literature reveals that the preferred destinations for reproductive travel can change rapidly, particularly in response to public controversies over contentious services such as surrogacy (Whittaker, 2018). The availability of sophisticated medical infrastructure and expertise, favourable regulatory frameworks (or a lack of regulation), good tourist infrastructure, visas suitable for longer term stays, the availability of translators, lower wage structures and regional social and historical links all play important roles in determining the popularity of these sites. Certain states within the US remain popular destinations for reproductive travel and a consolidation of the industry there has occurred, despite the high costs involved and the differential legislative context of the US (Schurr, 2018). This is due in part to the perceived high success rates of assisted reproduction procedures in the US but also the legal availability of commercial surrogacy services, commercial oocyte donation and other technologies such as sex selection, and favourable regulatory frameworks in some states – particularly California and New Jersey (Deonandan, 2015). Furthermore, US websites provide a wealth of available information, including through online marketing (Berend, 2016; Harrison, 2016; Jacobson, 2016).

Within Europe, Belgium provides a wide range of assisted reproductive treatments, including for infertile men in need of ICSI (De Sutter, 2011; Pennings et al., 2009). For infertile women in need of donor eggs, Spain with its high number of ART clinics (Bergmann, 2011a; Marre, San Román, & Guerra, 2018; Matorras, 2005), and the Czech Republic with its relatively low costs and availability of white egg donors (Speier, 2015, 2016) are popular destinations. However, as shown in a number of recent studies, Europeans are travelling across the continent – for example, from the UK to Greece (Konsta, Konstantakopoulou, Siskou, Galanis, & Kaitelidou, 2017), Germany to Poland (Wilson, 2016), Sweden to Latvia or Estonia (Payne, 2015), and Norway to Finland (Homanen, 2018) – often to find 'biodesirable', 'matching' white donors. In Latin America, thriving centres also exist within Argentina (Smith, Behrmann, Martin, & Williams-Jones, 2010) and Mexico (Gonzalez-Santos, 2016), the latter appealing especially to reproductive travellers from the US and Canada (Walmsley, Cox, & Leggo, 2015). Travel for selective technologies such as sex selection, preimplantation genetic screening and diagnosis remains understudied and the extent of the use of such technologies

is unknown, yet evidence suggests access to such technologies also determines reproductive travel for a minority and in some destinations their use has become a standard in transnational care (Bhatia, 2018; Whittaker, 2011b).

Within Asia, India was the first country to become 'famous' for its ready supply of legal commercial gestational surrogates (Deomampo, 2013; Pande, 2010, 2011; Rudrappa, 2010). However, by 2014, India banned the use of surrogacy for international couples following a series of controversies involving children being left behind (and consequently stateless) by intended parents and concerns about the exploitation of surrogates (Huber, Karandikar, & Gezinski, 2018). Legislation was introduced in November 2016 and was approved in December 2018 that makes commercial surrogacy illegal and restricts altruistic surrogacy to medically verified infertile heterosexual Indian couples who have been married for five years. Surrogates are required to be a close relative to the intended parents, be married and already have one biological child.

A number of Asian hubs with little or no regulation grew as India progressively restricted access to surrogacy to gay couples and singles in 2012. Thailand became the Southeast Asian hub for international commercial surrogacy. International surrogacy was outlawed there in 2015 by the military government following the infamous Baby Gammy case in which an Australian couple was accused of abandoning their son with Down syndrome with his surrogate to raise (an Australian Court later found the couple had not intended to leave their son in Thailand) (Whittaker, 2011a, 2011b, 2012, 2018). Nepal banned international surrogacy for foreign couples in August 2015 following the earthquake in Nepal and controversy over Israeli babies being airlifted out of the country. Cambodia banned surrogacy in November 2016 over concerns over human trafficking. Now Laos has become a destination for low-cost surrogacy involving 'hybrid' arrangements in which surrogates from Thailand, Vietnam, China and elsewhere travel to clinics in Laos for embryo transfer and then leave to gestate and give birth elsewhere (Whittaker, 2018).

Increasingly, South Africa is becoming an important reproductive travel hub, not only for infertile African couples seeking assisted reproduction (Figueira de Faria, 2016), but also as a source of oocyte donors (Pande & Moll, 2018). South Africa is referred to for intended parents coming from European countries (Bergmann, 2011a, 2011b), as well as from African countries, including from Mozambique (Figueira de Faria, 2016) and Botswana (Bochow, 2015). Gerrits and Hörbst refer to transnational reprotravel to respectively Ghana, Mali and Uganda by people from neighbouring countries and by Ghanaian, Malian and Ugandan people living in the diaspora in the USA and European countries (Gerrits, 2016a,b, 2018; Hörbst, 2016; Hörbst & Gerrits, 2016).

In the Middle East, infertile Muslim couples are travelling to Iran and Lebanon, which are notable as the only two countries in the Muslim world where patients can access donor gametes and surrogacy, due to permission by religious authorities in these Shia-dominant countries (Inhorn, 2006, 2011b, 2012; Inhorn & Tremayne, 2016). Israel has the world's most generous state insurance subsidies to encourage reproduction as a form of nationalism and nation building (Nahman, 2013). It performs the highest number of ART cycles per capita (Birenbaum-Carmeli, 2016) and is also a notable hub for reproductive travel (Nahman, 2013, 2016b).

Reasons for reproductive travel

The existing literature provides a number of reasons why people travel for reproductive services (Blyth & Farrand, 2005; Culley et al., 2011; Ferraretti, Pennings, Gianaroli, Natali, & Magli, 2010; Hudson & Culley, 2011; Inhorn & Shrivastav, 2010; Pennings, 2004; Shenfield et al., 2010; Whittaker, 2012). Broadly speaking, these reasons can be grouped into four major categories: (1) legal and religious prohibitions; (2) resource considerations; (3) quality and safety concerns; and (4) personal preferences (Gürtin & Inhorn, 2011). However, more recent literature reveals how the trajectories of reproductive travellers vary greatly and patterns of travel differ, depending upon which major driver of reproductive travel is at play (Inhorn & Gurtin, 2011). The International Federation of Fertility Societies (2016) survey of 64 country respondents found a high proportion of respondents reported

travelling from other countries to seek treatments that were lower cost, higher quality, or not available in their home countries (73%, 80%, and 83%, respectively). Fewer respondents reported travelling to other countries for oocyte, embryo, or sperm donation (52%, 43%, and 45%, respectively) or for gestational or traditional surrogacy arrangements (22% and 9%, respectively). This suggests that most reproductive travellers are seeking standard infertility services (such as ICSI, IVF, and intrauterine insemination [IUI]). Legal restrictions on treatments and resource shortages (of either expertise or donor oocytes) appear to be major motivators in these global movements (Hudson et al., 2011). Differences in costs per cycle between countries are also a major factor in reproductive travel, particularly for those without any form of public or insurance coverage. Many reproductive travellers suggest that they would prefer to stay at home if safe, accessible, affordable and effective services were available in their own countries (Culley et al., 2011; Inhorn & Shrivastav, 2010).

The aforementioned survey of 46 European ART clinics by the ESHRE Task force on cross border reproductive care (Shenfield et al., 2010) found patients travelled across European borders for a range of services, including IUI (22.2%,) and ART (73%, with 4.9% seeking both IUI and ART). Specific treatments sought included PGD-PGS (3.2%), donor oocytes (22.8%), donor sperm (18.3%) and donor embryos (3.4%). The patterns of services sought by patient country of origin varied according to home country restrictions. Similarly, a study of 128 French patients seeking cross border reproductive care during the years 2010–2012 found that they travelled to ART clinics in three nearby European nations (Greece, Belgium, and Spain). Most of these French travellers were either same-sex couples, single women not eligible for assisted reproduction in France, or heterosexual couples seeking oocyte donation due to French shortages of donor eggs (Rozée Gomez & de la Rochebrochard, 2013). In the Belgian clinic, 89% of respondents had come for sperm donation, whereas 100% and 74% were seeking oocyte donation in Greece and Spain respectively. The choice of Greece as a destination was also influenced by financial factors due to the country's lower advertised ART costs.

An anthropological study of German patients in Spain and the Czech Republic found most were travelling for oocyte donation to circumvent prohibitions against egg donation under German law (Bergmann, 2011b). As with Germany, Italian law (40/2004) was notably restrictive, denying any third party donation; no preimplantation genetic diagnosis for people with existing genetic conditions; no cyropreservation and a maximum of three embryos to be produced which had to be implanted at one time (Zanini, 2011). This lead Italians to be one of the largest European groups of reproductive travellers (Riezzo, Neri, Bello, Pomara, & Turillazzi, 2016). However, over 30 legal challenges from patients and physicians alike have led the Italian Constitutional Court to declare many of the provisions of the legislation to be unconstitutional. In 2009 it overturned the maximum limit of three embryos and the consequent obligation to implant all three embryos produced. In April 2014, the Constitutional Court (n. 162/2014) declared the ban on donor insemination and gamete donation unconstitutional. In June 2015, it ruled that fertile couples who are carriers of transmissible genetic disease have the right to access PGD (Riezzo et al., 2016). This has significantly reduced the numbers of Italian reproductive travellers (Ahuja, 2015). In general, the majority of cross-border reproductive travel occurring within Europe is because of 'law evasion', as infertility patients attempt to overcome home-country legal restrictions by crossing over nearby country borders (Van Hoof, Pennings, & De Sutter, 2016).

Legal restrictions are not the only factor in reproductive travel within Europe. One of the largest empirical studies undertaken explored the experiences of UK residents who travelled abroad (Culley et al., 2011; Hudson & Culley, 2011). The average age of treatment seekers was 35.2 years and the majority had attempted one or more treatment cycles in the UK before travelling (78%). The most popular destination countries for the British sample were Spain and the Czech Republic, particularly for those seeking donor eggs. The decision to go abroad usually involved more than one factor. The most commonly mentioned reasons for travelling overseas included the shortage of donor gametes (particularly donor oocytes) in the UK (71%); the cost of UK treatment; better success rates overseas; and previously unsatisfactory care in the UK. People were generally satisfied with the

quality of care they received, although some expressed concerns with negative reactions from providers when they returned home.

A poorly documented population is that of members of diasporic or migrant communities returning to their countries of origin for infertility treatments. Anthropological evidence suggests that large numbers of expatriate migrants travel back to avail themselves of culturally and linguistically familiar ART services or in search for phenotypically similar gamete donations (Inhorn, 2011a, Whittaker, 2009). Yet they may not be counted as reproductive travellers if nationality rather than residence is used to define 'foreign patients' (Whittaker, 2009). Long-term ethnographic work with Middle Eastern patients engaging in 'return reproductive tourism' found five major factors pulling diasporic couples back to their countries of origin (Inhorn, 2011a). These included: patriotic feelings of the superiority of services 'back home'; a desire to receive and negotiate complex treatment in their first language; a desire to receive treatment from co-religionists who understood specific Islamic bioethical considerations; phenotype similarity for those accepting third-party donation; receiving treatment in a supportive setting surrounded by extended family; and avoidance of perceived discrimination in host-country IVF settings.

Experiences of reproductive travel

Over the past decade, a series of book-length ethnographic studies of reproductive travel for infertility care (Inhorn, 2015; Speier, 2016), egg donation (Nahman, 2013), or gestational surrogacy (DasGupta & Dasgupta, 2015; Deomampo, 2016; Harrison, 2016; Majumdar, 2017; Pande, 2014; Rudrappa, 2015; Stockey-Bridge, 2017; Whittaker, 2018) have added considerable depth and empirical nuance to our understanding of both individual subjectivities (Nahman, 2016a), as well as the broader patterns and issues emerging in reproductive travel. In her review of anthropological literature on cross border assisted reproduction, Nahman (2016a) notes how this scholarship confronts fundamental anthropological topics such as kinship, religion, gender, mobility and ethics, and is contributing to the development of anthropological theory. Such studies complicate easy classifications of motivations; rather they show that a combination of individual, contextual and contingent factors result in decisions to travel for assisted reproductive services. Few of these studies specifically document the experiences of men in reproductive travel (Hudson & Culley, 2013), although some accounts are now emerging of the experiences of gay men as intended parents (Smietana, 2017a). The crucial role of the internet, other digital technologies and intermediary companies in the promotion, facilitation and normalisation of reproductive travel has been noted in several studies (Millbank, 2018; Speier, 2011, 2016; Whittaker, 2018).

Reproductive travel depends upon the supply of gametes and reproductive assistors. Understanding the nature of the oocyte provision market and the experiences of providers has become a productive area of an intense recent study. Nahman's work (2011, 2013, 2016a, 2016b) documents the Romanian oocyte provision industry, the inequities and 'reverse trafficking' of oocyte to Israel. She analyses how the practices of cross-border oocyte donation create and reinforce nationalised, racialised bodies and borders. The development of a large oocyte provision industry in Spain (the largest source of oocyte for Europe) has been the focus of a number of studies of providers, their motivations, and marketing appeals (Kroløkke, 2014; Marre et al., 2018). Oocyte provision draws into relief the new bioeconomy in which reproductive potentials become a source of economic value (Cooper & Waldby, 2014; Kroløkke, 2018) in an industry only made possible through technological advances in vitrification (i.e. fast freezing of gametes).

A number of ethnographic studies of transnational surrogacy (particularly in India prior to its closure of the trade) have provided rich insights into the recruitment and socialisation of surrogates; their understandings of the procedures; economics of the industry; and the effects of patriarchy and the local moral worlds within which surrogacy takes place (Deomampo, 2016; Harrison, 2016; Majumdar, 2017; Pande, 2014; Rudrappa, 2015). On the other side of the transaction, a study of Australian intended parents reveals their misgivings, hopes and experiences as they pursue their dream of a family in India (Stockey-Bridge, 2017). Other studies include Whittaker's (2018) study of the

organisation and repeated bans upon transnational surrogacy in Thailand and Southeast Asia, and the study by Weis (2017) who documents the experiences of Russian surrogates and their internal migration from peripheral areas to St Petersburg to service the assisted reproductive industry. Limited work has explored the industry in Ukraine (Lance & Merchant, 2016). More work on the industry as it is developing in different reprohubs is needed. Anthropological work is also exploring the queering of reproduction and new family formations through gamete donation and surrogacy (Smietana, Thompson, & Twine, 2018) and the new forms of kinning and de-kinning these involve (Smietana, 2017a,b). Further qualitative and quantitative longitudinal work with these families is needed.

Clinical implications of reproductive travel

Most patients in studies of cross border treatment in Europe, as well as in the Middle East (Inhorn, 2015), report satisfaction with their experiences (Culley et al., 2011; Pennings et al., 2009; Shenfield et al., 2010). They make favourable comparisons about the quality of care received, short waiting times, quick test results, and access to and choices of gamete donors (Culley et al., 2011; Whittaker & Speier, 2010). However, a number of concerns have been raised over quality, safety requirements, and standards of care in some countries. Professional organisations have expressed concerns about misleading advertisements on the internet, which leave patients misinformed about the different medical risks involved if they make decisions to pursue treatment overseas without a referring doctor's guidance (Collins & Cook, 2010; Jackson, Millbank, Karpin, & Stuhmcke, 2017). Patients in a number of studies report difficulties and negative reactions when attempting to obtain medical advice from medical professionals in their home countries before travelling abroad for treatment (Culley et al., 2011). There is a need for appropriate counselling for reproductive travellers, gamete donors and surrogates, given that infertility treatment in another country may exacerbate the psychosocial stresses normally experienced during such treatment and may pose additional risks (Hartman, 2016). Yet, there is little specific practice guidance for counsellors (Blyth, Thorn, & Wischmann, 2011).

ESHRE has published a good practice guide suggesting how to reduce risks and inequalities in reproductive travel, through principles of equity, safety, efficiency, effectiveness, timeliness, and patient-centredness (Shenfield, Pennings, De Mouzon, Ferraretti, & Goossens, 2011). This guide stresses the need for all those involved in these arrangements, including foreign patients, oocyte providers and surrogates, to receive the same levels of care and counselling. Recognising the risks inherent in oocyte provision, which include ovarian hyperstimulation syndrome and possible death, these guidelines stress the need for stimulation cycles which minimise the health risk for oocyte donors and the need for international collection of data and registers of gamete donors, to obtain information on repeated donations. They also suggest that to prevent the abuse or exploitation of donors coming from abroad, clinics should avoid using intermediate agencies. Single embryo transfer is stressed as the only acceptable option for surrogates to minimise the risks posed to both surrogate and babies by twin or multiple pregnancies (Shenfield et al., 2011). Similarly, the Ethics Committee of the American Society for Reproductive Medicine (2016) has issued an official opinion regarding the benefits and harms posed to the various ART stakeholders (i.e. patients, offspring, providers, gamete donors, gestational carriers, local populations in destination countries) in cross-border reproductive care. Despite these ESHRE and ASRM efforts, a study of ART clinic websites showed that 32 of 35 websites contained at least one factor considered misleading by ASRM guidelines (Hartman, 2016). Given the potential for harm and misrepresentation, there have been calls for the development of an independent international system of benchmarking and accreditation of fertility clinics (Culley et al., 2011).

Similarly, there are little empirical data related to outcomes for offspring conceived through reproductive travel. A report highlighting the increased numbers of higher-order multiple pregnancies (HOMPs) in the UK as a result of procedures in countries where multiple embryos are transferred, draws attention to the health impact and health costs of reproductive travel for both

mothers and their infants (McKelvey, David, Shenfield, & Jauniaux, 2009). Furthermore, many women who undertake reproductive travel are older than average (Shenfield et al., 2010), and are at increased risk of hypertension, pre-eclampsia, gestational diabetes, and cesarean delivery. This may be compounded by an increased obstetric and perinatal risk for women pregnant with egg donation, even with a singleton pregnancy (Abdalla et al., 1998; Malchau et al., 2013), including an increased risk of pre-eclampsia and bleeding pre- and post-delivery. Many women will not reveal the donation origin of their pregnancy and are less likely to do so if conceived abroad with means that would be illegal at home. Thus, when they return to home countries for antenatal care and delivery (Thorn & Dill, 2010), they may not be offered the optimal environment to ensure a safe delivery. Likewise, the outcomes of surrogacy arrangements reflect the risks associated with multiple pregnancies and IVF. For example, an online survey of 259 members of two Australian surrogacy support organisations who undertook overseas surrogacy (Stafford-Bell, Everingham, & Hammarberg, 2014) found that 55%, (62/112) experienced multiple pregnancies; 45%, (35/78) had premature births; and 10% (11/112) reported that a pregnancy had ended in a late miscarriage or perinatal death.

Despite these real clinical risks, Belgian clinicians reported few problems when caring for patients from other countries. However, they note that some practices must be modified, such as asking for advanced payment; providing all appointments in one day; provision of interpreters; adapting treatment protocols; collaborating with doctors in home countries; and providing appropriate language consent forms (Pennings et al., 2009). Over half of Canadian clinicians surveyed reported always providing specific destinations to their patients who were intending to travel for treatment, and 21% provided recommendations to a specific provider. Ninety percent reported providing information requested by the receiving clinic (Hughes & DeJean, 2010). However, a recent study also showed that neither Canadian nor US-based clinicians were 'motivated to collect the simplest of data regarding CBRC patients' (Hughes et al., 2016).

Reproductive stratification and reproductive travel

Although the transnational trade in assisted production gives an illusion of endless consumer choice and neoliberal possibilities for reproduction, socio-economic, gendered, racialised and nationalised differentials structure people's capacities to undertake assisted reproduction resulting in 'stratified forms of reproduction' (Colen, 2009) that both drive transnational movements and are essential to the industry. ART clinics are unevenly distributed, as with global inequities in healthcare services overall (Bolton & Skountridaki, 2017; Connell, 2016). The total absence of ART services in some countries is a major driver of reproductive travel (Inhorn, 2015; Inhorn & Patrizio, 2015). According to a 2016 International Federation of Fertility Societies (IFFS) survey (International Federation of Fertility Societies [IFFS] 2016), between 5000 and 5500 ART clinics exist worldwide. Of these, between one-quarter and one-third of clinics exist in just two countries, India (>1000 clinics) and Japan (587 clinics). The US (410 clinics), Italy (350 clinics), Spain (371 clinics), and China (358 clinics) also report substantial numbers of clinics, as do some countries in Latin America (e.g. Brazil, 180 clinics) and the Middle East (e.g. Turkey, 153 clinics). Having said that, many countries have no existing ART clinics, especially in sub-Saharan Africa, where rates of infection-induced infertility remain high. According to the IFFS survey, only seven sub-Saharan African nations report the existence of ART clinics, including Nigeria with 50 clinics, followed by South Africa with 20 clinics, and Kenya with five clinics. However, the remaining countries – Cameroon, Democratic Republic of Congo, Mali, and Senegal – each report only one or two clinics, with other countries not responding to the survey at all.

Given this dearth of ART services in Africa, infertile African couples with the resources to do so are travelling across borders for reproductive care. For example, in a study based in the global hub city of Dubai, United Arab Emirates, Inhorn (2015) found flows of incoming patients from East Africa, most of whom were travelling due to lack of clinics in their home countries. Although

many of these African couples were considered elites by home-country standards, they nonetheless struggled with the high costs of treatment and travel abroad. Some had incurred 'catastrophic expenditures' (defined as expenditures that threaten a household survival by exceeding 40% of a household's non-food expenditures) in order to undertake just one ART cycle in Dubai. Other studies also document the African reprotravellers to other continents, including the US (Bochow, 2015), Europe (Hörbst, 2016) and Latin America (Machin, 2018), while Deomampo (2013) and Whittaker (2015) encountered reprotravellers from Africa to Asian destinations, respectively in India and Thailand. Other anthropological studies from the global South highlight the lengths to which people will go in their attempts to access ARTs (Bennett & Pangestu, 2017; Inhorn, 2003, 2012; Whittaker, 2018). The advent of low-cost IVF (LCIVF) protocols, which are currently being tested in parts of Africa, may eventually provide increased access to infertile couples from the global South, thereby mitigating the need for reproductive travel in the future (Inhorn & Patrizio, 2015).

Bioethical issues in reproductive travel

There is evidence that reproductive travellers are concerned about the ethics of their travel, and that physicians are concerned about assisting patients in potential law evasion (Van Hoof et al., 2016). For example, UK patients who travelled across borders expressed concern about ethics, and this influenced where they chose to undertake treatment (Hudson & Culley, 2011).

The growth of a global trade in commercial surrogacy and gamete donation in developing countries has presented a particular concern for ethical reviewers over the potential economic exploitation of women as oocyte donors or surrogates (Deomampo, 2013; Deonandan, Green, & Beinum, 2012; Jackson et al., 2017; Parks, 2010; Shenfield, 2016; Voskoboynik, 2016). Oocyte donors and surrogates undergo medically risky, stressful, and physically invasive procedures, and concerns have thus been raised as to the conditions, financial inducements, and quality of care experienced by oocyte donors and surrogates in certain countries (Collins & Cook, 2010; Donchin, 2010; Lundin, 2012; Nahman, 2011; Pfeffer, 2011). In one case presented to the European Parliament, Romanian oocyte donors were selling their eggs through an Israeli doctor for Israeli clients. They received little information on possible risks and received US$250, while recipients paid US$11,000–$13,000 with profits going to the clinic involved (Lundin, 2012). In Thailand, a court conviction in 2012 involving the trafficking of fourteen Vietnamese women to Thailand to act as surrogates for Taiwanese couples highlights the potential for criminal exploitation of poor women to act as surrogates for foreign couples (Whittaker, 2018).

The many ethnographic studies undertaken with commercial gestational surrogates in India have highlighted the significance of the financial payment for women to undertake surrogacy, but also draw attention to the meanings that surrogates attach to their role in the process (Pande, 2010, 2011, 2014; Rudrappa, 2010, 2015). Conditions for surrogates vary greatly, with emphasis placed upon the protection of the pregnancy through restrictions on the surrogates' residence and activities (Deomampo, 2013). In some cases, kinship ties are created between surrogates, offspring and intended parents; in others, the interaction is anonymous and no interaction between intended parents and surrogates takes place. Rudrappa (2015) suggests that policy interventions are insufficient for creating the conditions for reproductive justice for women who are surrogates from developing countries given the capitalist inequities and precarious status of the women involved.

Given the unequal economic position of women donors and surrogates when compared to intended couples, some feminist scholars argue that women's choice to become surrogates constitutes an 'adaptive preference' rather than a fully free autonomous decision. They suggest that there is a need to improve the conditions under which surrogates and donors work and to address the unequal distribution of power and wealth that generates these exploitative relationships (Donchin, 2010). There are calls for the establishment of 'fair trade international surrogacy' (Humbryd, 2009), in which the arrangements are regulated, focusing upon minimising the potential harms to all parties involved and ensuring fair compensation to surrogate mothers. Likewise, there are bioethical issues

related to the children conceived from international donor and surrogacy, many of whom will never have access to information on their biological inheritance, nor have any way of tracing the identity of their surrogate mother (Blyth & Farrand, 2005).

One of the most significant ethical issues in reproductive travel involves lack of equity overall. Cross border movements for assisted conception do little to improve local equity and access to infertility treatments for local populations in receiving countries. There is evidence that such forms of medical travel are diverting scarce health care resources to foreign patients, specifically in low-income countries where reproductive travel often takes place (FIGO Ethics Committee, 2009). In developing countries, infertility treatment remains inaccessible for the majority of couple experiencing infertility, even as some of those countries offer services for international reproductive travellers. For example, less than 1% of infertile couples are able to utilise IVF in China, India, Pakistan, Indonesia, and Egypt. Less than 10% have access in the US, Japan, Russia, Argentina and Italy (Pfeffer, 2011). IVF costs are approximately 50% higher than the gross national income per capita in many developing countries, including in India, Indonesia, China, and Malaysia (Inhorn, 2009; Sorenson & Mladovsky, 2006).

The inaccessibility of ARTs for local citizens reinforces the need for the dissemination of effective low-cost IVF (LCIVF) to infertile couples as a way to achieve reproductive rights, particularly for those in resource-poor countries (Ombelet, Cooke, Dyer, Serour, & Devroey, 2008). Few governments subsidise the cost of IVF within their national health insurance schemes, meaning that most ARTs are accessible only to the wealthy or those who are insured within the private medical sector. There is a tendency to characterise reproductive travellers as wealthy, thereby reinforcing economic inequalities within and between nations (Martin, 2009). However, there continues to be a glaring lack of data on the socio-economic status of reproductive travellers themselves; hence, there needs to be caution against prevailing stereotypes, given that low-income couples from poor countries such as Egypt, Pakistan, India, Somalia, Lebanon, and Palestine are, indeed, travelling across borders to access ARTs, even if they can ill afford it (Inhorn, 2015).

Legal issues in reproductive travel

There is wide variation in laws governing assisted reproduction around the world, due to differing cultural attitudes, religious views, legal and ethical positions and histories (Gürtin-Broadbent, 2010; Spar, 2005). However, many countries of the world do not have laws regulating ARTs, and there is very little regulation of people travelling to or from other countries to seek ART treatment and varying degrees of regulation of the transfer of reproductive tissues (IFFS 2016).

These legal differences encourage people to travel to circumvent home countries' restrictions on procedures or eligibility restrictions, but the regulatory differences also result in potential legal risks. These include: (1) medical and civil liability issues for physicians, attorneys, brokers and facilitation companies, (2) lack of protections for gamete donors or surrogates, (3) difficulties for patients in pursuing any legal disputes in overseas jurisdictions, (4) potential prosecution under laws in some states that expressly criminalise crossing borders to obtain, facilitate or perform certain procedures, and (5) difficulties pertaining to the legal recognition of parents of children conceived through international oocyte donation or surrogacy, with consequences for the legal status and citizenship of the children themselves (Cohen, 2012; Cortez, 2012; Crockin, 2013; Storrow, 2011). Unlike the ESHRE guidelines, the ASRM ethics committee (Ethics committee of ASRM, 2013, 2016) proposes that physicians who are asked to assist patients considering ART travel 'may, but are not obliged to, offer guidance about the options for cross-border care'. But that their duty of care at home 'does not invoke a duty to inform or warn patients about the potential legal or practical hazards that may accompany such (CBRC) care'.

As in other forms of medical travel, there may be little legal recourse for patients suffering from medical malpractice or injuries as a result of their reproductive travel, given that many countries having underdeveloped or non-existent medical malpractice laws. Although the European Union has

passed comprehensive laws addressing patient mobility within its borders, few other countries have recourse to such supranational legal agreements (Cortez, 2012). Due to the differentiated legal landscape surrounding commercial surrogacy laws in the region, as noted by Whittaker (2018), 'hybrid' surrogacy arrangements have become the norm in many regions involving the movement of surrogates, gamete providers and intended parents across jurisdictions to avoid infringing local laws. This represents an adaptation in the industry allowing maximum flexibility to sustain the trade. Gamete donors and surrogates who travel across borders may have very little legal protection, particularly in countries lacking specific regulations for surrogacy or gamete donation arrangements (Heng, 2007). Similarly, there is no international register for the movement of gametes or embryos themselves across international borders.

Some states have introduced extraterritorial laws to prevent their citizens from pursuing specific treatments abroad. Such is the case with Turkey, which has passed a law enforcing its national ban on third-party reproductive assistance, but also banning infertile couples from undertaking such procedures outside of the country (e.g. in Cyprus) (Gürtin-Broadbent, 2011). Likewise, three states in Australia have banned their residents from undertaking or facilitating commercial surrogacy arrangements overseas so as to be consistent with local bans on commercial surrogacy (Cohen, 2012), although no prosecutions have occurred. Facilitating reproductive travel across borders may also expose physicians, brokers and attorneys to legal sanctions, malpractice or civil liabilities (Cohen, 2012). Although the legal and ethical justifiability and social effects of such laws have been challenged (Storrow, 2011) (Gürtin-Broadbent, 2011; Van Hoof & Pennings, 2011), their resolution remains unclear (Van Hoof et al., 2016).

Further complications involve the legal recognition of children born through international surrogacy arrangements, in which children are generally born in the host country and must obtain travel documents in order to travel back home with the intending parents. Several highly publicised cases in which children have been caught between legal systems and left both stateless and parentless have highlighted the legal complexities inherent in international surrogacy in particular (Kroløkke, 2012; Storrow, 2011; Whittaker, 2018). Japan and the United Kingdom have had controversial cases where immigration was initially denied. Citizenship disputes have occurred for children born through surrogacy arrangements for Norwegian (Kroløkke, 2012) and Japanese intending parents. Children conceived entirely through third-party assistance, with both donor sperm and donor oocytes, as well as gestational surrogacy, are especially vulnerable, as many countries require genetic testing to prove parenthood. Once in the home country, further problems may arise when the law does not automatically recognise the intending parents as the legal parents of the child.

Regulation of reproductive travel

There are currently few options for regulating reproductive travel (Whittaker, 2010, 2018), although regulators and policymakers could certainly learn from the accumulating evidence on the experiences of those who have travelled for ARTs (Jackson et al., 2017). A recent review of the clinical implications of cross border reproductive travel considers it crucial to regulate the global market on legal, economic, and ethical bases to increase legal harmonisation and reduce any forms of exploitation (Salama et al., 2018). Three broad types of regulatory response are available: (1) prohibition of cross border reproductive travel; (2) harmonisation of relevant regulations across borders; or (3) harm minimisation by allowing reproductive travel with specific safeguards (Hudson et al., 2011). As described above, a number of states are attempting to ban certain types of reproductive travel for their citizens with uncertain legal and social consequences. However, international harmonisation of laws has proven difficult, as demonstrated by attempts to create uniform healthcare standards and regulations within formal trading blocs (Blyth & Farrand, 2005; Pennings, 2004). Harm minimisation options include unilateral regulation of travel or referral networks by licensing brokers, and the provision of oversight through agencies which might monitor the movement of patients, gametes, and embryos and provide codes of practice and guidelines. Multilateral approaches include

cooperation between countries to regulate providers and intermediaries, cooperation to standardise professional credentials, hospital accreditation insurance practices, and international databases and outcomes reporting. Contrasting policy proposals between regulated market approaches and proposals for national self-sufficiency continue to be debated, although all agree on the need for regulation to protect those most vulnerable (Crozier and Martin, 2012).

Professional associations, patients, and health consumer groups have important roles to play in monitoring reproductive travel, providing guidelines for care, and lobbying for increased protections for all those involved. For example, the ESHRE Task Force on Cross-border Reproductive Care has been active in gathering reliable data and producing best practice guideline for clinics (Shenfield et al., 2011) (see Table 1). Medical facilitation company organisations are increasingly heeding calls for greater involvement in self-regulation of their members, producing codes of conduct and quality assurance certification processes for their own legal protection, and to ensure the

Table 1. Summary of ESHRE's good practice guide for centres and practitioners providing fertility treatment to foreign patients.

Principles	ESHRE guidelines
Equity	• Similar protocols, fees, information provision, counselling and psychological support should be provided for foreign as for national patients • The introduction of a system for fair allocation of health resources such as a limit to treatments provided to foreign patients ensures local needs are met • Donors should receive similar care to patients and local donors. Compensation and recruitment criteria should be the same
Quality, safety and evidence-based care	• Patients should receive clear information about accurate success rates, necessary investigations and their cost, treatment plan, waiting lists and the time they will have to spend outside their country • Patients should not be subjected to unnecessary procedures and the need for repeat tests should be minimised • Treatment options may differ from local patients according to whether patients are returning but not at risk to a woman's health • The ability to cryopreserve oocytes and embryos and possible transfer of the gametes or embryos to a clinic at home should be considered • Stimulation cycles should minimise the health risk for oocyte donors • Centres should participate in the national and international collection of data and registers of gamete donors, in order to obtain information on repeated donations and to be able to verify legal restrictions on donations • To prevent the abuse or exploitation of donors coming from abroad, clinics should avoid using intermediate agencies. Post-donation care should be provided to the best possible standards at home or abroad • Single embryo transfer is the only acceptable option for surrogates. Continuity of care during pregnancy and childbirth should be planned prior to a surrogacy cycle • Known legal problems or possible conflicts with the law in the home country should be explained to patients or through referral to appropriate local legal advisors • Single embryo transfer should be encouraged to minimise risks of multiple pregnancies and ensure welfare of future child. Embryo transfer must be limited to two embryos when donor oocytes are used • Follow up of outcomes for ART children, whether conceived after treatment at home or abroad, should be encouraged • Collaboration and good communication of previous treatment and medical records between the home practitioner and the receiving centre provides the best chance of optimal care. Referrals and copies of medical files should be made available when legal to do so
Patient involvement	• Counselling and psychological support should be available in a language understood by the patient • Patients should be asked to obtain the relevant details of their previous investigations and care, especially in cases where there is no direct communication between sending and receiving clinicians
Redress	• Clinics should provide the name of an ombudsman or person to whom complaints should be addressed

Based upon Shenfield et al. (2011).

quality of outcomes for their clients. International umbrella patients' organisations, such as the International Consumer Support for Infertility (iCSi), are important in the dissemination of information to consumers and to influence legislation and guidelines on the uses of ARTs transnationally (Thorn & Dill, 2010).

Conclusions

The mobility of reproductive travellers represents a prominent example of the increasing globalisation of health care. With this travel come new clinical, ethical, legal, and regulatory complexities, as people move between jurisdictions to bypass legal restrictions, overcome a lack of expertise in home countries, access reproductive gametes and assistors, and circumvent other barriers to ART care. The advantages for patients are many, including increased autonomy in choice of treatments, access to foreign expertise, and sometimes quicker and cheaper treatment options abroad. However, these benefits need to be balanced against the potential negative effects, including the potential exploitation of other women collaborating in reproductive assistance, the displacement of already scarce health care resources, especially in low-income countries, the quality of care in cross border arrangements, and the legal ambiguities surrounding children conceived through international arrangements. These are concerns that should interest all members of society, including the professions providing such care. Codes of (good) practice need to achieve suitable standards of care, with appropriate regulations to limit foreseeable harms and protect the rights of all stakeholders. Yet, an ongoing lack of empirical data on the numbers of people travelling for ART services and their experiences and outcomes of treatment limits the ability of policymakers to limit foreseeable harms and protect the rights of all those concerned.

As seen in this review, individuals and couples are undertaking reproductive travel due to legal and religious prohibitions, resource constraints, quality and safety concerns, and personal preferences often having to do with cultural compatibility and medical privacy. Patterns and motivations for travel vary considerably. Lower ART cost, which is often purported as the main reason for reproductive travel, is only one of a variety of important reproductive travel 'drivers'. Having said this, for many couples, particularly those in low-resource settings, the increased availability of low-cost IVF services would mitigate the need for reproductive travel abroad, as cost is the most pressing factor in whether ART access can be achieved in a home country.

Far from being an incidental phenomenon pursued by a few, empirical studies suggest reproductive travel has consolidated and will remain an important means through which some people reproduce. Globalised forms of medically assisted reproduction and its conversion into a form of trade has clinical, social, legal and psychological consequences for all involved that are yet to be fully understood. As an industry that exists because of and across borders, it epitomises global stratification across race, ethnic and socio-economic lines and the inequities of access that continue to exist for infertility care. Scholarship on this trade necessarily engages with issues of power and gender, social inequities, complex positionings under global capitalism and the most private of decision-making of individuals seeking to form families.

Future research on the transfer of this trade to new locations, particularly in the African continent is needed. New hybrid organisation of the industry increases both vulnerabilities and the difficulties to regulate. The mobility of medical staff (embryologists and fertility specialists) is becoming significant in many newer reprohubs and calls for investigation, and the emerging significance of the availability of selective technologies, mitochondrial transfers and the future possibilities of a trade in uterine transplants pose social, legal and ethical challenges. There still remain gaps in capturing the experiences of oocyte providers and surrogates as well as their families and the role and views of men both as intended fathers, donors and partners of reproductive assistors. Finally, there is a paucity of scholarly work on policy implications and potential forms of regulation.

As quests for assisted conception continue to multiply in number and in kind, it is imperative that reproductive health scholars continue to track these global movements and to participate in the

growing global activist efforts to ensure reproductive safety, equity, legal protections, and justice for those who travel and those who help them in their reproductive quests.

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