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Assisted reproductive technologies in Ghana: transnational undertakings, local practices and ‘more affordable’ IVF

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Abstract The article sketches the origins and development of IVF in Ghana as a highly transnational undertaking. Movements are from and to Africa, involving human beings (providers and users), and also refer to other entities such as technologies, skills and knowledge. None of these movements are paid for using public money, neither are they subsidized by international health organizations. Currently, ‘more affordable’ IVF is being introduced into Ghana, on initiative of the first Association of Childless Couples of Ghana (ACCOG), in collaboration with the Belgium based non-profit organization the Walking Egg (tWE), representing another form of transnational networking. The article underlines the scarcity of well-trained embryologists in Ghana, which turns the embryologists’ expertise and skills into a scarce and precious commodity and guarantees this expertise becomes a major challenge for the directors of the private clinics. Next to local Ghanaian couples, the clinics also attend to transnational reproductive travellers, including women and men from neighbouring countries and Ghanaians in the diaspora returning to their country of origin. Their manifold motivations to cross borders and visit the IVF clinics in Ghana provide insight into the structural conditions impeding or facilitating the use of assisted reproductive technologies at different local sites. Transnational movements also include the flow of new procreation practices (such as surrogacy and the use of donor material), which (re-)shape existing cultural and societal notions regarding kinship and the importance of blood/genetic ties. Finally, the article lists a number of thematic and theoretical issues which require further exploration and studies.

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Introduction

Sub-Saharan Africa is generally depicted as the region with fewest IVF clinics compared to all other regions worldwide (Inhorn and Patrizio, 2015). Within the region, South Africa, Nigeria and Ghana are referred to as 'comparative regional success stories' (Inhorn and Patrizio, 2015: 6). Nigeria was the first sub-Saharan African country to open an IVF clinic, in 1984 (Giwa-Osagie, 2002). In Ghana, the country on which this article focuses, the first IVF baby was born in 1995. Since then, a growing number of IVF clinics in Ghana – all private – have been offering IVF and other high-tech assisted reproductive technologies. To date, however, the country's public health sector is not involved at all in its provision. Moreover, the field of infertility and assisted reproductive technologies functions without any form of financial support from international health or development organizations (Hörbst and Wolf, 2014; Inhorn and Patrizio, 2015).

Yet the establishment and actual functioning of IVF clinics in Ghana is far from a local enterprise. On the contrary, in many ways the Ghanaian IVF industry is a highly transnational undertaking, involving an ongoing cross-border and even cross-continental flow of people, technologies, skills, knowledge and ideas. Most explanations of transnational mobility of people in Africa have focused on economic inequalities between sending and receiving places (cf. Dilger et al., 2012). This case study of the establishment of IVF in Ghana draws attention to multiple forms and directions of transnational mobility – from and to Africa – and its focus is certainly not on the destitute or less privileged social strata (cf. Hörbst, 2010). The current article thus addresses not only the origins and development of IVF in Ghana (constituting repro-nationalism), but also sheds light on repro-transnationalism.

After Louise Brown – the world's first 'test-tube baby' – was born in England in 1978 via IVF, this reproductive technology soon spread throughout North America and Western Europe, as well as to the continent of Australia. The rapid development of IVF worldwide over the past three decades has led not only to its expansion, but also to an enormous diversification. This Symposium Issue aims to assess the global histories of IVF, analysing the rapid but very uneven global diffusion of one of the world's most important reproductive technologies. The current article aims to provide an insight into the particularities of the uptake of these technologies in Ghana, which was one of the first African countries to offer them.

The article is based mainly on ethnographic research that I carried out in 2012 and 2013 in two private clinics in Ghana offering assisted reproductive technologies (see Hörbst and Gerrits (2015) for more details about the study methodology). Ethical clearance for the study was obtained from the Noguchi Memorial Institute for Medical Research-IRB in Accra, Ghana.

The article addresses the transnational connections and networks of African assisted reproductive technology providers – and users – and their vital importance for the establishment and continuing functioning of local IVF clinics. These multiple transnational connections and interactions co-shape the local appropriation and actual supply and use of assisted reproductive technologies in Ghana to a certain extent; yet at the same time, country-specific

circumstances and values also affect the local appropriation of assisted reproductive technologies (cf. Gerrits and Hörbst, 2016; Hörbst and Gerrits, 2015) and also inform the recently heard concerns about the use of donor material and surrogacy. Recently, a new form of transnational connection and collaboration in the field of assisted reproductive technologies has been initiated in Ghana, seeking to introduce more affordable IVF to the country, an initiative that will also be discussed below.

The origin and development of IVF in Ghana

Training abroad and private initiatives

The first successful IVF procedure in Ghana was conducted in 1995 in a private clinic, the Pro Vita Specialist Hospital (further referred to as Pro Vita Hospital), in Tema, a harbour town close to the capital city Accra. Dr Mainoo, the founding director of the clinic, left Ghana in 1963 to study medicine in Germany, where he also specialized in gynaecology and worked for many years as a specialist. In 1982, he returned to Ghana with the plan of setting up a private gynaecology clinic, investing the money he had earned in Germany. Back in Ghana, he found himself faced with many cases of infertility and it was only then he realized that infertility was a major reproductive health problem in his country – both in terms of numbers as well as concerning the impact it had on the women and men concerned – and thus required specialized attention. As he had not previously trained in the use of IVF, he returned to Germany several times and, using his old professional network, further specialized in IVF. In 1995, he was able to carry out the first successful IVF procedure in his own clinic, giving him the status of Ghana's IVF pioneer.

Since Dr Mainoo began providing IVF in the mid-1990s, several other clinics in the country have started offering assisted reproductive technologies, mainly in the southern region, in or not far away from the capital city Accra, but more recently also in the centre of the country (in Kumasi). As of 2015, 14 clinics, all of them private, are offering assisted reproductive technologies; some solely focus on the treatment of infertility, while others provide a broader scope of medical specialties (information provided by Nana Yaw Osei, the founder of the Association of Childless Couples of Ghana – ACCOG). One of these latter clinics is Lister Hospital and Fertility Centre (further referred to as Lister Clinic), the second private clinic (in addition to Pro Vita Hospital) where I conducted my research. The founding director of this clinic, Dr Hiadzi, started his medical training in Ghana, qualifying in 1982, followed by postgraduate training in Glasgow, Scotland, qualifying in 1992. After his return to Ghana, he worked in a hospital in Accra, where in 1996 he initiated intrauterine insemination (IUI) fertility treatments. He then realized that there was a huge demand for more advanced reproductive treatments, which led him to return to the UK to do a specialization in IVF and other assisted reproductive technologies, this time at King's College Hospital, London. He went there together with an embryologist and a nurse; all three had the intention of training in assistive reproductive technologies in order to be able to offer them together as a team. Dr Hiadzi and the

embryologist returned to Ghana, where Dr Hiadzi set up his private clinic and together they started providing IVF in 2004. The nurse has to date not returned to Ghana, so Dr Hiadzi has to work with nurses with no specialized assisted reproductive technology training. Furthermore, the embryologist left the clinic suddenly in 2011, which placed it in a precarious situation. Well-trained embryologists specialized in fertilization are indispensable for a fertility clinic's proper functioning. They are, however, extremely scarce on the African continent.

The scarcity of embryologists

Guaranteeing ongoing and high-quality embryology knowledge and laboratory skills constitutes one of the major challenges for both of the clinics. Both have been confronted with embryologists (suddenly) leaving their jobs to work elsewhere. To resolve the problem of the sudden departure of the embryologist at the Lister Clinic in 2011, Dr Hiadzi contracted a British embryologist, who began working at the clinic for one week on a more or less monthly basis; women's treatment cycles were adapted to these monthly visits. When this embryologist was in the clinic, he performed the lab work for the couples in treatment and provided on-the-job training for two Ghanaian staff members working at the IVF laboratory. This British embryologist had been working overseas since the 1990s. Similar constructions of collaboration with embryologists were observed by Viola Hörbst in her work in Uganda, as a way to resolve the scarcity of embryologists (Hörbst and Gerrits, 2015).

Guaranteeing embryology expertise has also been a challenge for the Pro Vita Hospital. In 1995, Dr Mainoo started out with a Ghanaian embryologist who had been trained in Germany, although he left the clinic after 3 years. Since then, Dr Mainoo has been working with and has invested in four other embryologists. The lab technician working at the Pro Vita Hospital during the period in which I conducted the research – a smart and ambitious young man – was trained in Germany and on the job in Ghana (with the help of an Iranian embryologist residing in Germany, who came once a year to assist at the Pro Vita Hospital), and took various training courses, including at the yearly European Society of Human Reproduction and Embryology (ESHRE) conferences, from the World Health Organization (WHO) in South Africa and from the European industrial companies that delivered laboratory equipment to the clinic. In 2013, he completed his Master's in Clinical Embryology in the UK, which he had financed himself. The impact of the transnational networks, collaborations and training activities in the area of embryology, in terms of the treatment and laboratory regimes applied in clinics, has been addressed elsewhere (Hörbst and Gerrits, 2015).

Other forms of transnational collaboration

In addition to transnational cooperation with embryologists based in Europe, the Lister Clinic also collaborated with a clinic in the UK, in particular when donor material was being used, and some elements of the treatment were conducted in two different places (this refers to the practice of cross-border treatment and reproductive travelling that I discuss below).

Dr Hiadzi intended to intensify his collaboration with this UK clinic in order to offer preimplantation genetic diagnosis (PGD), mainly in order to detect cases of sickle cell disease, a common genetic condition among 'Africans'. Finally, the Lister Clinic occasionally collaborated with a South African clinic for genetic testing (karyotyping).

All materials used in both clinics – equipment, laboratory agents and medicines – had to be imported, mostly from European companies and occasionally also from American ones, some of which had a representative in Ghana. Thus in terms of materials as well as specialized training and expertise, both clinics depended hugely on input from Europe and – to a lesser extent – the USA and South Africa.

International standards and local practices

Staff from both clinics attended international conferences, in particular those of the ESHRE, but occasionally also those of the American Society for Reproductive Medicine (ASRM). In addition, the clinics subscribed to *Human Reproduction* and *Fertility and Sterility*, the two most influential European- and American-based professional journals in the field, respectively. They were thus well informed about innovations in the field and aware of debates on the constantly changing 'international standards' in IVF. While clinic staff definitely followed several of these standards, they also set their own local practices and procedures, for example regarding the maximum number of embryos to be transferred, which was usually higher than the number of embryos recommended by the above-mentioned professional associations at the time (Hörbst and Gerrits, 2015). To date, there are no assisted reproductive technology legislation or professional guidelines in Ghana, which allows the clinic directors to set their own rules and treatment regimes, in terms of both ethics and technology. The lack of such regulations turns the clinic doctors into 'moral pioneers' – a concept introduced by Rayna Rapp to refer to women who had to decide whether or not to terminate their pregnancies on the basis of amniocentesis results (Rapp, 1999) – as well as entrepreneurs (Gerrits and Hörbst, 2016). Thus, while transnational connections, as depicted above, have had an impact on the way in which assisted reproductive technologies are delivered in the studied clinics, several local practices were noted, showing the limits of these influences in daily practice (Hörbst and Gerrits, 2015).

One of the striking 'local practices' that I encountered in the Ghanaian clinics was the (extended) period of bed rest prescribed after embryo transfer. In the Lister Clinic, women were strongly recommended to remain hospitalized for 5 days after the embryo transfer, while in the Pro Vita Hospital, hospitalization after the embryo transfer was mandatory for all women, at least up to the pregnancy test, during which time they were advised to remain in bed and move as little as possible. Furthermore, women at the Pro Vita Hospital who tested positive were strongly recommended to remain hospitalized up to the confirmation of pregnancy by foetal ultrasound (conducted 2–3 weeks after the initial pregnancy test). In addition, depending on a number of conditions, several women were strongly advised to stay in the clinic for up to 3 or 4 months of their pregnancy, or even until delivery (which was a Caesarean

section in most cases). While the procedures following the embryo transfer differed substantially in the two clinics, the doctors basically used the same reasoning to justify their recommendations – they pointed to the bad road conditions in Ghana and to the fact that the pregnancy created was ‘precious’ (both culturally and financially) because most of the couples had to pay for the IVF themselves. The fact that many women had to travel long distances – coming from abroad or from far away in the country – and thus could not easily return for follow-up visits, constituted another argument for their prolonged hospitalization (particularly in the Pro Vita Hospital). This was backed up by Dr Mainoo’s argument that possible complications resulting from the IVF might not be recognized by other doctors. As a result of such procedures, the wards at the Pro Vita Hospital were full of pregnant women; during my first fieldwork visit, around 30–40 pregnant women were hospitalized. Hospitalization after the embryo transfer clearly added to the costs of treatment. While several women (particularly in the Pro Vita Hospital) complained about this long (and boring) period of hospitalization and the extra costs it entailed, and questioned whether it was really necessary, others commented that the opportunity to stay longer in the hospital gave them a sense of security and was exactly the reason they had chosen this hospital.

The embryo transfer was just one of many steps of an IVF cycle to be conducted in a particular way in these two Ghanaian clinics. This particular ‘local appropriation’ of IVF reflects local values and circumstances, underlining the notion that local factors may ‘reshape and sometimes curtail’ the way in which assisted reproductive technologies are used in particular localities (Inhorn, 2003: 16) and confirming the fact that technologies undergo local transformations and appropriation – for socio-material reasons – when travelling from the places where they are initiated (in ‘the West’) to other contexts (Hadolt et al., 2012). The local appropriation of assisted reproductive technologies is a topic that deserves more scholarly attention, as it can further our understanding of the societies and cultures in which assisted reproductive technologies are embedded and employed, as well as of the local meanings, experiences and impacts of the use of assisted reproductive technologies.

Assisted reproductive technologies, third-party involvement and costs

Since the opening of these two clinics, the number and type of treatments that they offer have steadily increased. Both clinics in principle offer IUI, IVF and intracytoplasmic sperm injection (ICSI), while the Lister Clinic occasionally also offers testicular sperm extraction (TESE) and percutaneous epididymal sperm aspiration (PESA). In practice, however, the Pro Vita Hospital was conducting very few IUIs and ICSIs: IUI was not considered an effective treatment for most of the couples attending the clinic (given the high prevalence of bilateral tubal block), and ICSI was only provided when the Iranian embryology specialist visited the clinic (once a year); the Ghanaian embryologist knew how to do ICSI, but had too little hands-on experience to guarantee its proper and successful use.

Both clinics also offered treatments using donor material and surrogates. No information was available about the number of treatments being conducted that involved donor material and/or surrogacy, but it (in particular oocyte donation) constituted a substantial part of the total treatments conducted. Egg donation exceeded sperm donation, and egg sharing was a common practice; in particular, the ova provided by egg donors were frequently used by two or more couples. The relatively high demand for surrogacy may be explained by the fact that many women only come to the clinic at a later age, when their own capacity to conceive and carry a child has greatly reduced. All donation and surrogacy was anonymous and none of the women (and men) I spoke with intended to share the fact that they had employed these methods of conception with others (including their offspring); it would be their well-kept secret.

When the Pro Vita Hospital began to involve third parties in procreation, it performed all of the related non-medical tasks itself – finding, screening, informing and contracting donors and surrogates and organizing the related legal procedures. However, from 2013 onwards the clinic started to make use of intermediary agencies to arrange these non-medical aspects. The Lister Clinic, on the contrary, used the services of an intermediary agency from the moment they began working with surrogates, although clinic staff select and screen donors themselves. The first intermediary agency in Ghana was set up by a Ghanaian woman who had lived in the USA for many years. As she could not find an appropriate surrogate in the USA, she returned to Ghana where she first organized a surrogate for herself (according to her, this was the first time surrogacy had ever been done in the country) and subsequently she was requested by ‘her gynaecologist’ to arrange surrogates for others as well, which led to the creation of her agency in 2004 (Gerrits and Hörbst, 2016). Since then other intermediaries have followed.

The number of IVF cycles performed in the Pro Vita Hospital reached its peak in 2005–2008, when over 800 IVF cycles were conducted on a yearly basis. Since then, the patient load has started to decrease: in 2012, 630 IVF cycles were conducted, which – according to the clinic director – was probably due to the increasing number of IVF clinics in Ghana. The total number of cycles conducted at the Lister Clinic has been consistently much lower: in 2010, the clinic conducted 102 IVF/ICSI cycles, and in 2011 there were 222 IUIs. In Ghana, there is no central registration of the number of cycles performed per clinic.

Treatment costs were around 2500 euros per IVF cycle (without use of donor material or surrogacy). This was the amount of money for a ‘natural IVF cycle’ in the Lister Clinic (as mentioned in the tariffs list), and did not include examinations, medicines, hospitalization and other costs. I do not have such a tariffs list for the Pro Vita Hospital, but from the women in treatment I understood that it was a similar amount of money. Yet, as previously stated, the long-term stay in the clinic added a substantial sum of money to the costs of IVF.

Most users have to cover treatment expenses themselves. Only a few can get (part of) the treatment costs reimbursed by their private health insurance (this mainly applies to people who have health insurance offered by the private [international] company they work for). This implies that, as in most other resource-poor countries, assisted reproductive

technologies are mainly accessible to and affordable for the happy few, leading to an extreme form of 'stratified reproduction', a concept first used by Sarah Colen, referring to the idea that some people, because of cultural and/or structural factors, are more empowered to reproduce than others (Colen, 1995; Ginsburg and Rapp, 1995). Many assisted reproductive technology users in the clinic were well off, highly educated and often owned or worked in private companies. Less affluent women and men do attend these clinics to undergo IVF cycles as well, but this is only possible after spending a long time saving up, selling commodities, taking out bank loans and/or accepting support from relatives.

Transnational users

Aside from attracting women and men from all over Ghana, both of the clinics in which I conducted fieldwork also attracted many clients from neighbouring West African countries such as Gabon, Nigeria, Ivory Coast and Burkina Faso. In addition, Ghanaian people living in the diaspora in the USA and Europe return home for IVF cycles (cf. Inhorn, 2011). These cross-border and return reproductive travellers have various reasons for doing so. Many of those with whom I spoke – especially those coming from the region – were attracted by the good reputations of the clinics. In particular, the doctor at the Pro Vita Hospital had built up a strong reputation in Ghana as a successful IVF pioneer. The reputation of both clinics seemed to be very much based on the spread of success stories, some of which were highlighted in local newspapers and on the internet, but in particular through word of mouth. Most women had no idea of the actual success rates of the clinics, and had not even asked for them. For most, hearing success stories – or actually seeing babies born as a result of IVF in these clinics – was an important reason for visiting their clinic of choice (this applied also to the women and men residing in Ghana). Hardly any of these couples were interested in statistics (cf. Paxson, 2006), and most did not act as the critical and well-informed consumers that many assisted reproductive technology users in the West are portrayed as being (see e.g. Gerrits, 2014, 2016).

Indeed, it would be accurate to say that the criteria on which clinic performance was assessed were quite different in Ghana compared with the West, and overall the exchange of information – not only about success rates – during consultation hours in the two clinics was often very limited. However, assisted reproductive technology users did have regular contact with clinic staff in other ways. For example, the nurse at the Lister Clinic could be telephoned day and night and many clients (from abroad) had email contact with the clinic director before actually visiting the clinic. Patient–staff interactions, the provision, requirement and use of information, informed consent procedures and counselling practices in the studied clinics were thus differently shaped – and maybe also differently appreciated by their users – in this context of transnational assisted reproductive technology consultations, and where consultation hours are busy and the social distance between clinic staff and part of the assisted reproductive technology users may be large.

In addition to the clinics' good reputations, there were several other motivations – push and pull factors – for women and men to cross borders to visit these Ghanaian IVF clinics (cf. Inhorn and Gurtin, 2011; Inhorn and Patrizio, 2012). Push factors were related to the situation in their country of residence, such as legal or ethical prohibitions, high costs of assisted reproductive technologies, or complete lack or shortage of services. Pull factors were related to the situation in Ghana, such as being surrounded by supporting relatives, the availability of matching donor material and surrogates, and 'patriotic pride' (cf. Inhorn, 2011).

No figures are available about the magnitude of cross-border reproductive travel to Ghana. Yet the seemingly high level of transnational reproductive mobility across West African borders may reflect the high overall transnational mobility in the region, mainly for commercial reasons. In addition, return reproductive travel may be a reflection of the high number of Ghanaian citizens living in the diaspora, estimated at around 1 million, of which one-third is based in the USA, one-third in the UK and the other third in other European countries (Orozco et al., 2005). Part of this migrant population is presumably well educated and potentially earning a good enough income to afford transnational travel and IVF expenses. For example, data presented by the International Organisation for Migration (IOM) show that in the health sector alone, over 12,000 well-educated professionals left Ghana in the period between 1993 and 2002, including 630 doctors, 410 pharmacists, 87 laboratory technicians and 11,325 nurses. Furthermore, 50% of all medical school graduates in the country emigrate within 4.5 years (IOM, 2005).

Societal concerns

While the initial introduction of 'traditional IVF' did not lead to too much societal concern in Ghana, the more recent and increasing use of third-party involvement in conception did raise questions about its acceptability, both on the part of the Ghanaian government and the Pentecostal Church. The government – in the person of the Minister of Gender, Children and Social Protection – has announced the need to regulate the practice of gamete selling, of which she said, 'Of course, it's legitimate, but there are implications too' (Anonymous, 2013). Proper regulation is intended to lessen the negative impact that the practice could potentially have on society, and in particular on the 'children to be produced'. One of the concerns expressed – or 'moral panics' (cf. Carsten, 2004), which can be defined as feelings of fear spread among a large number of people that some evil threatens the well-being of society – is that children conceived with the same donor material might later marry and have children together, which 'raises issues of morality and ethics'.

In the same period as the government's intervention on the issue, the Executive Council of the Church of Pentecost presented its view on third-party involvement in conception, fully condemning it and starting from the position that, 'The Church believes that physical intimacy between a husband and wife remains the biblical means of producing children' (Executive Council of the Church of Pentecost, 2012). Couples are, nevertheless, allowed to use assisted

reproductive technologies as long as they use their own material. The Pentecostal Church also took a strong position against discarding frozen embryos, as this would mean that human life would be destroyed, which would be ‘tantamount to abortion’. To avoid the discarding of embryos, and in case of a need to freeze gametes, the church stipulated that eggs and sperm should be frozen separately (and thus not embryos). While the state and the Pentecostal Church are thus starting to consider their positions vis-à-vis third-party involvement in conception, in the present-day Ghanaian context – where there is no form of assisted reproductive technology legislation or professional guidelines – clinic directors are to a large extent free to decide how they perform assisted reproductive technologies (cf. [Hörbst and Gerrits, 2015](#)).

New transnational connections – ‘more affordable’ IVF in Ghana

Finally, there is a recent development in the field of assisted reproductive technologies in Ghana, namely the introduction of ‘more affordable’ IVF, sometimes referred to as low-cost IVF (LCIVF) ([Inhorn and Patrizio, 2015](#)). The LCIVF movement has been characterized as ‘a reproductive justice movement, driven by the goal of helping the world’s infertile, most of whom are located in resource-poor settings’ (Ibid. and 20: 9). One of the organizations involved in this movement is the Walking Egg (tWE), a non-profit organization initiated by the Belgian gynaecologist Willem Ombelet (see e.g. [Ombelet, 2014](#)). One aim of the organization is the development of a simplified laboratory method for IVF, which avoids the use of – and thus high-cost investment in – specialized laboratory equipment (the tWE method is explained in [Johnson et al. \(2014\)](#) and [Van Blerkom et al. \(2014\)](#)). This new laboratory method, referred to as tWE-IVF, has recently been tested in a pilot clinical trial in Belgium, which showed encouraging results ([Johnson et al., 2014](#); [Ombelet, 2014](#); [Van Blerkom et al., 2014](#)). The next step is to introduce this new laboratory method in a number of African countries, including Kenya and Ghana.

Ghana has become one of the first sites to work with this new, more affordable, tWE method, as a result of the efforts of Naya Yaw Osei, the founder and director of the first Association of Childless Couples of Ghana (ACCOG), set up in 2013. The aim of ACCOG is threefold: to support, inform and counsel childless couples; to decrease their stigmatization; and to increase affordable and accessible high-tech treatment options in the country. When Osei learned about the tWE-IVF initiative via the internet he sought contact with tWE and became determined to introduce this new and more affordable IVF technology to Ghana. Subsequently, he has convinced the Ghanaian Church of Pentecost to set up a private fertility clinic in Accra, in which tWE-IVF will be offered. The price of tWE-IVF in the Ghanaian context is estimated to be around 1000–1500 Euros per IVF cycle, including expenses for infrastructure, staff costs and medication. As this is almost less than half the price of traditional IVF in Ghana, it will make IVF more accessible to and affordable for a larger group of Ghanaian citizens (but definitely not for all), and as such will modify the existing pattern of stratified reproduction regarding the use of assisted reproductive technologies. tWE has invested in the

training of laboratory technicians and doctors, both in Belgium and Ghana, to enable them to perform the new (laboratory) methods. Yet, as even the low-cost tWE procedures demand an initial financial investment in laboratory infrastructure (which tWE does not support), its actual implementation will not start before this financial obstacle has been successfully overcome.

Conclusion

The above is a sketch of the origins and development of IVF in Ghana, with special attention to the multiple forms and directions of transnational mobility and flows, which are indispensable for the functioning of the Ghanaian IVF industry. These movements are from and to Africa, often involve human beings, but also refer to other entities such as technologies, skills and knowledge. It is striking that none of these movements are paid for using public (Ghanaian) money, nor are they subsidized by international health organizations, a pattern that is in strong contrast to the way in which many other (reproductive) health issues in Africa are addressed and financed. This financial independence enables clinic directors to be rather autonomous decision-makers regarding their clinical and ethical practices ([Hörbst and Gerrits, 2015](#)).

Also salient is the fact that training in this specialized field of assisted reproductive technologies – both the clinical and embryological part – is not offered in Ghana, which means that embryologists’ expertise and skills in particular are a scarce and precious commodity. Despite almost seven decades of independence after colonization – Ghana became independent from the UK in 1957 – the Ghanaian local assisted reproductive technology industry cannot function without this new ‘neocolonial dependency’, which is most outspokenly reflected by the fact that international embryologists have to fly into the country to enable the performance of IVF.

Furthermore, the transnational reproductive travellers – women and men from neighbouring countries and Ghanaians in the diaspora returning to their country of origin – and in particular their motivations to cross these borders and visit the IVF clinics in Ghana, provide insight into the structural conditions impeding or facilitating the use of assisted reproductive technologies at different local sites. In addition, their motivations and experiences with actual assisted reproductive technologies in these clinics may reveal their expectations about the sort of care, information and attention they would like to receive.

Transnational movements also include the flow of ideas, as was illustrated by the case of the Ghanaian woman who set up an agency mediating between the needs of ‘wish parents’ and donors and surrogates in Ghana, after having lived in the USA for many years where she had become familiar with the idea of surrogacy. While she initially acted out of self-interest (she needed a surrogate for herself), she introduced new ideas and cultural practices into Ghanaian society ([Gerrits and Hörbst, 2016](#)). Such intermediary agencies and their recruitment practices, and the role they play in shaping and reshaping cultural and societal notions, values and practices regarding, for example, the essence of kinship, social and biological parenthood and the importance of blood/genetic ties,

constitute an area of anthropological study that is still untouched in the sub-Saharan African context.

Finally, this article points to a number of thematic and theoretical issues, which I believe require further exploration in the anthropological study of assisted reproductive technologies in general, and in Ghana in particular. Following the introduction of tWE-IVF and examining its effects – on couples and society – in Ghana and other countries where it will be introduced is one of these themes. Among others, it will be interesting to study how the tWE initiative is received within the wider field of assisted reproductive technology providers, as it may threaten the interests of those who have already invested in costly laboratory infrastructure (although it should be noted that the tWE method does not replace ICSI and can certainly not treat all fertility problems) (Johnson et al., 2014).

The functioning and impact of associations like the ACCOG form another important subject for future studies. First of all, it is important because lessons can be learned that may improve the lives of infertile people in other settings. In addition, it might be interesting to examine theoretically how such associations create new types of 'biological' or 'therapeutic' citizens and introduce new 'technologies of the self', when they promote the 'coming out' of infertile couples and their engagement with counselling and self-help practices (cf. Nguyen, 2010; Petryna, 2013).

The societal response – which includes the positioning of the government and churches, but also the public at large – to the use of assisted reproductive technologies, in particular when it involves third parties, is an unexplored field, both in Ghana and in sub-Saharan Africa in general. Analysing current and past debates – as presented in the mass media, on the internet and in policy documents – would help shed more light on the way in which assisted reproductive technologies are received, perceived and contested in the country and the region. Such insights will also provide an understanding of present-day values and developments in Ghanaian society. In sum – and at the risk of using a perhaps too clichéd metaphor – the field of assisted reproductive technologies in Ghana constitutes a barren terrain, waiting for anthropologists (and other scholars) to plough and cultivate.

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