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Transnational connections of health professionals: medicoscapes and assisted reproduction in Ghana and Uganda

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**ABSTRACT**

**Objectives.** Based on our comparative fieldwork in two private fertility clinics in Accra (Ghana) and Kampala (Uganda), we explore the transnational mobility of providers involved in assisted reproductive technologies (ARTs) and analyze how resulting transnational networks influence the realization and appropriation of these therapeutic treatments. By exploring these case studies from developing countries, this article intends to contribute to the field of studies that examine the diversification and complexity of migration and health care.

**Design.** We first summarize the dynamics affecting the health-care systems in Ghana and Uganda over the last decades. Then, we describe the transnational mobility engaged in the two clinics. Through the case studies, we highlight how ARTs are realized and appropriated in the two receiving countries, and the role transnational contacts play within the negotiations of medical ethos and financial interests. By using the concept of medicoscapes, we analyze the worldwide connections between ART providers, the institutions they work in, their medical practices, artifacts, and their regimes of medical knowledge.

**Result.** Transnational professional contacts have been essential to the setup of both clinics offering ARTs in Ghana and Uganda. These contacts developed along colonial and post-colonial links, integrating also south–south relationship. The clinics’ directors act as entrepreneurs and creative decision-makers who capitalize on their transnational professional network. The case studies show the diverse transnational entanglements in both clinics and demonstrate the frictions between the doctors’ entrepreneurial interests, medical concerns and cultural values.

**Conclusion.** The transnational professional contacts expose both clinics to varying practices and debates, and make them into sites for negotiating distinct clinical practices. They provoke frictions between entrepreneurial interests and medical concerns including cultural values. In current medicoscapes, in a situation of full absence of any form of financial support and of any national ART regulation in Ghana and Uganda, clinic directors are in the position to apply those practices that fit their interests and local circumstances best.
1. Introduction

In sub-Saharan African countries, health care is increasingly provided by private clinics. These clinics offer basic and general health care, but also highly sophisticated therapeutic interventions such as medical-assisted reproduction (insemination and in vitro fertilization [IVF]). While many health-care technologies are delivered to sub-Saharan African countries as part of international cooperation schemes, assisted reproductive technologies (ARTs) – including IVF, Intra CytoPlasmic Sperm Injection (ICSI) and surrogacy – often arrive in the private health sector in sub-Saharan African countries through the initiative of highly skilled African practitioners. This onset of ARTs is driven by a promising market: at the one hand, infertility rates are high and childlessness equates with social death for many African couples, while – on the other hand – there is an upcoming middle class which can afford expensive ART treatments. Many of these high-skilled ART providers have been trained and worked in European countries, before they return to their countries of origin as clinical entrepreneurs and exploit their transnational networks to set up their private clinics in African countries (Hörbst 2012; GIERAF conference 2011).

The focus of this article is on the providers and entrepreneurs of ARTs in Ghana and Uganda and their transnational networks. A thorough analysis of our data from users – patients, egg donors and surrogates – will be the central focus of other articles.¹ In this article, we address the question how distinct mobility schemes and networks of ART providers impact the organization, appropriation and application of these techniques in a Ghanaian and a Ugandan fertility clinic. Medicoscapes, a concept launched by Hörbst and Wolf (2014) – which we will explain below – enables us to analyze the worldwide connections between ART providers and the institutions they work in and subsequent medical practices, artifacts, ART policies and regimes of medical knowledge.

As a starting point we sketch out some aspects of medical globalization on the macro-level, by delineating the historical contexts and economic developments in the Ghanaian and Ugandan health arenas, which form part of the dynamic background in which the mobility and the onset of both fertility clinics took place. We then lay out the transnational mobility of staff of both clinics and describe the transnational networks they are involved in. Next, we analyze the differences in mobility and networks along which health staff, knowledge, skills and ethics travel and show how these differences connect to colonial and post-colonial regimes in the respective countries. In a final move, we turn to the micro-level of medical globalization by presenting some clinical practice examples to highlight tensions between business interests, international scientific standards and medical ethos in daily practice. Focusing on transnational mobility around ART clinics in developing countries and using the concept of medicoscapes, this article explores and contributes to the debate around the complexity of migration and health care.

2. Theoretical background

Informed by co-production theory of the technical and the social (Oudshoorn and Pinch 2005; Hadolt, Hörbst, and Müller-Rockstroh 2012), we start from the assumption that when ARTs travel across countries and become embedded in new contexts, changes may occur in the perception, organization and practice of these techniques. When
analyzing transnational connections and their interactions with specific practices of ARTs in Ghana and Uganda, we found medicoscapes as laid out by Hörbst and Wolf (2003, 2014) to be a helpful concept to explore interacting complexities on the macro- and micro-levels in health arenas. According to Hörbst and Wolf ‘Medicoscapes constitute worldwide dispersed landscapes of individuals; national, transnational and international organizations and institutions as well as heterogeneous practices, artifacts and things, which are connected to different policies, power relations and regimes of medical knowledge, treatments and healing’ (2014, 184). By using the concept of ‘medicoscapes,’ Hörbst and Wolf emphasize that the persons and institutions are influenced by partially contradicting aims and policies. At the same time, persons and institutions are distinctly – and unevenly – positioned in hierarchical ‘power topographies’ (Massey 1994, 148). The resulting constellation of institutions and people enable certain global flows of medical technologies but, simultaneously, they restrict other flows of the same medical technologies – in this case ARTs (Hörbst and Wolf 2014).

Elaborating the concept of medicoscapes, Hörbst and Wolf (2014) contrasted the ways in which ‘international health arenas and academia define and produce the targets of intervention’ for two different health conditions, namely infertility and HIV/AIDS. While over the last three decades, HIV/AIDS has received an enormous amount of attention, infertility has remained a neglected reproductive health concern. The authors carved out three key conditions as being central to understand the unequal attention these two health conditions have received. First, the perception of the health condition as a worldwide threat to peace and security (HIV/AIDS as a contagious disease has been described as a threat to economic, political and social stability, while for infertility that has not been the case; rather the opposite – high fertility and overpopulation – are considered threats). Secondly, the subordination of social implications of a health condition compared to its biological implications (from a biological point of view HIV/AIDS – when not treated – is life threatening, while infertility is not). Thirdly, the possibility to achieve ‘global quality’ (while infertility is highly prevalent in African countries and can lead to ‘social death’ for the people involved, in contrast to HIV/AIDS, it does not generate the necessary shock or panic to gain attention on a global scale). Thus for all three conditions, Hörbst and Wolf (2014) argued, addressing HIV/AIDS is seen as more important than infertility. The use of the concept of medicoscapes not only allows us to analyse how different health conditions connect places, sites and practices, but also to highlight the subtle ways in which distinct attributions create attention for one health condition and not for another.

In the current article, we take up the concept of medicoscapes to understand how providers’ migration biographies and transnational networks, which are embedded in global ‘power topographies’ of medicoscapes, influence the ‘place making’ (Massey 1994) of ARTs – referring to the introduction and development of ART practices in a particular place – in two African countries. We particularly aim to analyze how these networks and linkages shape and are shaped by practices of ARTs in two private clinics in Ghana and Uganda, which are the focus of this article. What do these networks look like? In which ways do they inform the ‘place making’ for ARTs and the practices in these two clinics? How do different associated moral and ethical values impact on practices in the two sites? How do entrepreneurial interests and different cultural values relate to practices of ARTs in the respective clinics and the local place making for ARTs? And what do the
results add on a theoretical level to the understanding of medicoscapes and the co-production of the technical and the social?

3. Methodological approach

Our data originate from qualitative ethnographic research we carried out in 2012 and 2013 in four private clinics in Ghana and Uganda (yet, in this paper only insights based on fieldwork in two clinics have been used). This fieldwork was part of a research project focusing on the mobility of people, things and knowledge associated with ARTs in sub-Saharan Africa. Building on the insights gained by Hörbst (e.g., 2012) in her research on infertility and ARTs in Mali (2004–2011), we particularly tracked the transfer and appropriation of ARTs to Ghana and Uganda – sub-Saharan countries differing from each other in terms of socio-cultural, historical, economic, political, colonial and post-colonial dynamics.

For the fieldwork, ethical clearance was obtained from the responsible authorities in both countries. We collected data through observations at different spaces in the clinics, like consultation and treatment rooms as well as IVF laboratories. In order to grasp the multiple perspectives of ARTs, we carried out formal interviews and casual conversations with gynecologists, embryologists, nurses, counselors, donors, surrogates and with women and men attending the clinics in search of children.

In total, 25 staff members were interviewed (12 in Ghana and 13 in Uganda). Topics covered in these interviews – and in manifold casual conversations – included the professional biographies of clinic staff; the history of the clinics and their development over time; the clinics’ transnational networks; the various clinical, laboratory and ethical practices and the way these had evolved throughout the years.

With regard to ART users, a total of 32 women and 6 men were interviewed in Ghana and 28 women and 2 male partners in Uganda. Selection of informants was purposively and aimed at seeing a broad range of people, both in terms of place of origin and mobility (including women and men coming from Ghana or Uganda, neighboring countries, Europe and the USA) and with regard to the use of ARTs. Interview questions included questions about the informants’ personal history of involuntary childlessness and their child-seeking behavior in the past; the reason they had come to visit this particular clinic; the treatments they had undergone in the clinic and their treatments experiences; their view about ARTs (including the use of third-party material); financial issues related with the treatments and the impact of the treatment on their personal life.

In addition, in Ghana 6 surrogates were interviewed (some of them twice), and in Uganda 10 surrogates and 2 ova donors. Topics covered in these interviews included their personal background and motivations to become a surrogate or donor, their experiences with and views about surrogacy and donation, the impact it had on their life and their plans for the future. All ART users (patients, egg donors and surrogates) we interviewed were asked to provide written informed consent to participate in the study.

In our fieldwork, we applied an explicit comparative design, deploying the method of ‘working apart together’: conjointly we designed topic lists for informal and formal interviews and guidelines for observation. Being at the same time in the field, we regularly exchanged and discussed – via Internet and email – our fieldwork experiences, findings and further steps to be taken and we advised each other regarding sensitive issues. We also exchanged research material and co-worked on analytical lines.
Based on empirical data from both research sites, we will outline the transnational forces that affect the local ‘place making’ in a fertility clinic in Ghana and Uganda. As a starting point, we present a brief historical overview of relevant developments in the health arenas in sub-Sahara Africa and particularly those in Ghana and Uganda, the countries of study. These interacting forces and entangled shifts on the global and national levels are an example of how specific ‘power topographies’ intersect and of how these interactions brought about the conditions and configurations in which, and due to which, ART clinics could develop, specifically in the private sector.

4. Background of private health-care initiatives in Uganda and Ghana

Over the last three decades, public health services in many sub-Saharan African countries have been pervaded, even dispensed, to a flourishing and increasingly fragmented private health sector. In the 1970s, many sub-Saharan African countries were confronted with serious economic and often political crises and faced severe internal and external problems, which challenged their health-care systems. This was also the case in Ghana and Uganda: in both countries government expenditures on health care were reduced, health management was poor which resulted in shortage of medical supplies, and led to health professionals leaving the countries (IOM 2005; Birungi et al. 2001; Agyepong and Adjei 2008). In the 1980s and early 1990s, the World Bank together with the International Monetary Fund (IMF), enforced structural adjustment programs in many sub-Saharan countries, supporting privatization and liberalization in order to enhance ‘economic development’ by prioritizing expenditures on export-oriented fields. In this process many African countries became economically dependent on external donors. Subsequently, national health policy became more transnational in character, following various interests and assets (Vasconi 2011). International and transnational organizations and the humanitarian industry compensated for national state deficiencies (Fassin 2007). The World Bank and World Health Organization (WHO) announced a policy favoring privately financed health care for Africa (Vasconi 2011). This process of privatization was accelerated by demands of multilateral and private donors (Vasconi 2011; Langwick, Dilger, and Kane 2012).

As a long-term result, these reforms and dynamics brought about further shortages in public health services and enhanced an ongoing commercialization of African health-care systems. Governments had to curtail public funding, which in many public clinics in Africa further augmented the shortage of drugs, equipment and human workforce (Langwick, Dilger, and Kane 2012, 4–6). In Ghana and Uganda, the introduction of user fees decreased access to health care for the poor (Birungi et al. 2001; Blanchet Fink and Osei-Akoto 2012, 76).

In some sub-Saharan Africa countries, a permanent low employment rate in the public health sphere resulted in the fact that many young doctors and nurses, educated in state run universities and schools, remained unemployed while their help was actually needed. Some of them migrated to countries within and beyond the continent or left the public health system (Connell et al. 2007, 1878). Ghana, for example, lost 630 doctors, 410 pharmacists, 87 laboratory technicians and 11,325 nurses between 1993 and 2002, and 50% of all medical school graduates in the country emigrated within 4.5 years following graduation (IOM 2005). During roughly the same time period, health professionals in
Uganda shifted to health projects run by better paying transnational organizations or tried their fortune in the increasing private health sector (Birungi et al. 2001).

In the last decades, curative care has increasingly been provided by the private sector: private practitioners produced more than half of all health services used in Ghana (WB 2011, 1–2), and an estimated 79% in Uganda, where nearly 58% of all health-care expenses were paid privately (Birungi et al. 2001, 82). In the last years, Ghana and Uganda have generated policies of public–private partnerships concerning the role of the private health sector; however, several critiques are mentioned regarding the actual functioning and effects of these policies in practice (Vasconi 2011; WB 2011, 1–2).

While the situation in the public health-care system remains problematic in Uganda and Ghana, in political and economic terms both countries have substantially increased their development features, particularly in the last decade. Uganda recovered from civil war and economic catastrophe, and Ghana evolved into a stable democracy (World Bank 2011).2

The health-care histories in both countries show how ‘power topographies’ gradually shifted due to international interventions. Various economic plans and regulations forced upon the two respective countries by global players weakened the state run health system. This opened up the scenery for transnational health activities by NGOs and international organizations and shifted the focus slowly to private health care covering for the primary needs of the people, while excluding more and more the poor from health care. Many activities from the transnational health industry focused on specific groups (e.g. mothers and children under five) or specific diseases (e.g. HIV/AIDS and malaria) prioritized by the global community as being most disruptive. Other ailments, particularly disruptive for the social well-being, such as unwanted childlessness were – and are – not taken into account, although they might be very disrupting from the perspective of the local people (Hörbst and Wolf 2014). As a result of these specific ‘power topographies’, high-tech therapies to resolve unwanted childlessness were not supported by the transnational health industry, including international NGOs, and thus not offered in any public clinic in Ghana and Uganda. The private sector, boosted by these developments, became the space that enabled the medical doctors to invest in these high-tech therapies. As mentioned, the high prevalence of infertility in combination with the local perception of infertility as a tremendous social problem (in both countries) helped to drive the development of this private industry.

4.1. Fertility and infertility: figures and local perceptions

In the last years, the total fertility rate (for women aged 15–49) in Ghana declined – particularly in rural areas – to an average of four children per woman at the end of her reproductive age (GSS et al. 2009, 68). In Uganda, figures remained rather stable with four to seven children per woman; yet, huge differences are found between districts, rural and urban areas (WHO 2014). Notwithstanding declines in fertility in Ghana, normative mainstream culture in both countries demands a couple to have children, in order to be socially accepted and respected as complete human beings (Donkor and Sandall 2007; Dyer 2007). As in other sub-Saharan African countries, children give meaning and worth to marriage, while marriage and family are highly valued religious and societal aspects. Much talk at regular family meetings circle around children and pregnancies.
Women with problems conceiving are excluded from these talks; rather they are stigmatized and harassed by family members. In the case of ongoing non-conception, husbands might divorce, marry a second wife or start another informal relation in order to have children. In many cases, information that husbands are the reason for childlessness is kept secret between the spouses, while stigmatization of the women continues. In general, women shoulder the bigger share of stigmatization.

With infertility prevalence of around 13% among Ugandan and around 15% for Ghanaian women (GSS et al. 2009; Macarenhas et al. 2012), infertility rates are quite high. About 40% of men are estimated to be the primary cause of non-conception. In combination with the socio-cultural importance of children, these figures lead to a high demand not only for fertility treatments in the so-called traditional and religious health-care systems, but also for biomedical interventions. The fact that fertility is so highly valued co-created the space (and place) for ART clinics in Ghana and Uganda. In addition, the start of the fertility clinics was facilitated by the countries’ recent policies – intermingled with global forces – encouraging private health care alongside interventions of the transnational health industry, and the public health system (as shown in the previous section). Unwanted childlessness promises a lucrative field for biomedical interventions. Unlike HIV/AIDS, no transnational NGOs are active in this field, neither in Ghana nor in Uganda. The currently existing ‘power topographies’ – within medicoscapes – thus enabled local private practitioners and entrepreneurs to cater to the needs of infertile Ghanaians and Ugandans.

Not surprisingly, biomedical infertility treatments, and particularly ARTs (which ask for capital intensive investment) are – in both countries – increasingly offered by private clinics. At present, four private fertility clinics are known to provide ARTs in Uganda; three of them operate in the capital Kampala, while one is situated in a Northern district. In Ghana, fourteen fertility clinics are known to offer ARTs, most of them located in or near to Accra, the capital city of Ghana.

However, treatments with ARTs are a complex set of different interacting steps characterized by high uncertainty, where success is far from being granted. Compared to other biomedical treatments, ART treatments have rather low success rates: even in top clinics around the world success rates do not exceed 50%. In less-favoured places, success rates are around 20–30% per cycle). Patients in Ghana and Uganda have to pay out of pocket for these expensive treatments; there are no national funds or transnational agencies covering these expenses.

In both countries, no legislation or professional regulations for the use of ARTs exist thus far. The fertility clinics cater to the needs of Ugandan and Ghanaian couples and, for various reasons, also to those of Africans from neighboring countries. The clinics also attract transnational users: women and men from the African diaspora living overseas and international expats (men and women originating from the global North and the global South who temporarily work and live in Uganda or Ghana). While not all patients undergoing ART are affluent, the large majority of them belong to the – growing – middle or upper class. A large variety of transnational users of ART treatments were found in the Ghanaian and Ugandan clinic. However, as mentioned before, in this article we focus on the transnational connections of ART providers and entrepreneurs (and not on the users). We want to show in which ways these transnational dynamics influence the local ‘place making’ of ART clinics and understand how this is reflected in ART practices in our
field sites. We also want to follow the ways in which topographies of powers – within medicscapes – affect the features of local practices in Ghana and Uganda. As a first step, we will describe the migration background and networks of the clinic staff and the resulting structural impacts on ART treatments in Ghana and Uganda.

5. The mobility and networks of providers

Although we studied two clinics in both Uganda and Ghana, in this article we focus on one clinic in both countries, using pseudonyms for the clinics and informants.

5.1. Makanga Clinic in Uganda

Makanga clinic was founded in 2004 and officially inaugurated in 2005, when the first IVF baby was born there. The clinic’s Ugandan director, Dr Ubane, was trained in medicine in Kampala at the end of the colonial era. Due to political reasons, he had to leave the country. Following connections from a Ugandan religious institution he went to the UK, the former colonizing power. In the UK, he specialized in gynecology and then worked for several years in different clinics there, before he accepted the invitation to work in a clinic in Kuwait. Within this clinic, he successfully started a fertility department with support from a British gynecologist. However, after some years, the clinic’s director changed and – according to Dr Ubane – animosities arose between him and the new director. So, he returned to Uganda and started his own Makanga Clinic, this time supported by the expertise of a Belgian embryologist whom he met in Kuwait. Since 2004, the clinic has been substantially enlarged and attracts a growing number of patients providing an estimated number of 250 IVF cycles per year in 2012. Together with his wife, Dr Ubane owns and directs the clinic. In the last years, Dr Ubane integrated his sons into the management of the clinic, which is now organized as a ‘family business’ with Dr Ubane as the patriarchal and medical head of the clinic, responsible for roughly 50 employees (including health professionals, management staff, security, etc.). In 2011, he opened a satellite fertility clinic in Dar es Salaam, Tanzania and in 2013 another one in Kigali, Rwanda.

As medical director, Dr Ubane leads the consultations with fertility patients; he conducts all gynecological surgeries including preparative surgery for fertility treatment like the removal of fibroids (myectomies), which are often diagnosed. He has the last say in hormonal stimulation matters, is responsible for egg collections and embryo transfers. In addition, he decides on financial and investments issues. Dr Ubane works closely together with nurse Usha, who holds a key position in the clinic: she prepares and monitors most protocols for individual hormonal stimulation; she organizes the ova donors, their selection and matching with single receivers; she is involved in the egg collection and embryo transfers, and in monitoring the women after the embryo transfer. She also counsels patients through the process. Usha is from Kerala, India, where she was trained as a midwife. She worked in India for 5 years (in casualty), then in Saudi Arabia (labor room), before she came to the Makanga Clinic in 2007. At that time, a Nigerian nurse was responsible for the IVF department and taught Usha how to deal with all IVF-related issues. Two other nurses, one from the Philippines and the other Ugandan, assist Usha in her duties.
The laboratory work in Makanga Clinic is carried out by ‘local’ and ‘international’ embryologists. The most senior one of the three ‘local’ embryologists is Arthur who holds a BA in biochemistry from Makerere University. He started in 2007 by assisting the international embryologists working in the clinic. Additionally, he completed internships in India, Nigeria and South Africa and has attended several European Society for Human Reproduction and Embryology (ESHRE) conferences. He feels capable doing all IVF-related work; ICSI is still problematic as he seldom has a chance to perform it himself. Since 2011, Arthur has been training a Ugandan assistant with a BA in laboratory technology from Makerere University in Kampala. The laboratory is headed by Keaton – one of Dr Ubane’s sons. Keaton completed a BA in pharmacy in the UK and a MA in the USA, where he worked for more than 10 years for a pharmaceutical company. When he returned to Kampala in 2011, he enrolled in a MA program in embryology at the University of Leeds, UK, which he successfully finished at the end of 2013.

In 2012 and 2013, the ‘international’ embryologists consisted of a Belgian and South African team, a single embryologist from Sweden and one from the UK. All embryologists are regularly employed in clinics in their home countries except the British one, who works as a freelance embryologist working in several clinics spread around the world. On a rotating schedule, these embryologists are coming once a month to do all the laboratory work – from collection to preparing gametes, all fertilization steps via IVF and ICSI, and finally the transfer and freezing of embryos. Moreover, they are involved in training the local embryologists and serving as ‘consultants’ for difficult cases. All staff members regularly participate in international conferences as well.

5.2. LeleNa Fertility Centre in Ghana

LeleNa Fertility Centre, the first private clinic offering ARTs in Ghana, was initiated in 1985 (as a private gynecology clinic) by the current director and gynecologist, Dr Aidoo. Before that he lived and worked in Germany for 19 years, where he studied medicine and specialized in gynecology. For his medicine studies, he received a scholarship from the Ghanaian government. At that time, there was a special arrangement between Germany and Ghana which – according to Dr Aidoo – was related with the previous colonial connections between the two countries (part of current day Volta region in Ghana belonged to the German protectorate Togoland from 1884 to 1914 (Laumann 2003)). These arrangements facilitated Ghanaian students being able to study in Germany.

After his gynecology specialization Dr Aidoo continued working in Germany, where it also would have been possible for him to start his own clinic. However, given his ‘interest in political developments in Africa’ he decided to go back to Ghana in 1982, in a period of economic decline and political unrest. He felt that as a doctor, he could be ‘more useful in Ghana than in Germany’. He returned to Ghana with the intention of setting up a private gynecology clinic. Back in Ghana, he soon learned that infertility was a major problem in the country, needing specialized attention. For that reason, he returned to Germany to specialize in IVF and in 1995 he carried out his first successful IVF in his own clinic.

His treatment successes received a lot of media attention and the clinic’s reputation grew rapidly, both in Ghana and beyond. The number of IVF treatments performed increased steadily up to the peak period in 2005–2008. Recently, the patient load has decreased a bit (in 2012, 630 IVF treatments were conducted), due to the establishment
of a number of other private clinics offering ARTs in Accra and its surroundings, which are competing for patients. Dr Aidoo, together with a gynecologist from Cuba, is in charge of the daily patient care. They do all intakes and consultation hours; they perform all clinical steps in the IVF and many deliveries (mainly C-sections). In total, the clinic employs around 130 staff members, including health professionals, administrative and support staff.

Part of LeleNa Clinic’s specialized health staff have their roots elsewhere and/or were trained abroad. For instance, the Cuban gynecologist originally came to work in Ghana in the early 1990s, participating in an international collaboration program between Ghana and Cuba (see De Vos et al. 2007). In Cuba, she had specialized in infertility, but had not performed any ARTs. She decided to stay permanently in Ghana. Contrarily, the clinic’s surgeon is a Ghanaian man who studied in Cuba for 8 years, as part of a bilateral training program between these countries. After his return to Ghana in 1998, he worked in public hospitals and – for approximately the past 5 years – in LeleNa Clinic. He is doing gynecological operations, including the myectomies, which are also frequently diagnosed at LeleNa Clinic. Further, the clinic’s anesthesiologist is from Poland: she married a Ghanaian man who studied in Poland in the 1970s as part of a student program among the two, then, socialist countries.

The Ghanaian embryologist who worked at the clinic at the time the fieldwork was conducted was educated at several places: he received on-the-job training from an Iranian embryologist who had been living and working in Germany for many years (and was an acquaintance of Dr Aidoo); he attended several ESHRE conferences and courses and other trainings abroad (for instance organized by the WHO in South Africa and an industrial company in Sweden); and finally he financed a master’s himself in Clinical Embryology at the University of Leeds. While in principle he mastered both IVF and ICSI treatments, in practice he did not perform many ICSIs. ICSI treatments were almost only done in the weeks, the Iranian embryologist was visiting the clinic. Next to doing the IVF laboratory work, the embryologist and his assistant are the contact persons for the sperm donors, while a female – Ghanaian – nurse is responsible for the egg donors and surrogates. This nurse has not received any specialized training for this. Dr Aidoo and his core staff are frequent attendees of international gynecology conferences.

5.3. Transnational links and networks: differences and similarities

The above case studies show that the countries where the clinics’ founders did their medical or specialist training (Germany and UK) continue to be important sources for contacts to support their professional initiatives and/or to receive additional expertise. Bonds from the colonial past – between Uganda and the UK, between Ghana and Germany and Ghana and the UK – seem to still play an important role. ‘Socialist tendencies’ in post-colonial Ghana generated linkages with (previous) socialist countries such as Cuba and Poland (through exchange and collaboration programs), which is apparent in the Ghanaian clinic’s staff structure. The staff in the Ugandan clinic reflects the strong historical immigration from India to Uganda.

Besides, these historic links between governments and countries, individual professional contacts also affect the composition of transnational professional networks. Networks develop through attending international conferences and lead to new training
opportunities, consultancies and further exchange of knowledge. These contacts seem to result mainly from coincidental meetings in clinics and conference, in combination with mutual sympathy, and shared professional and/or economic interests.

Most of the contacts of the fertility clinics in Ghana and Uganda refer to Europe, where the techniques of IVF (UK, in the 1970s) and ICSI (Belgium, in the 1990s) were developed. Personal professional contacts to the USA are rarely mentioned neither by the directors nor the staff at both sites; similarly, contacts with US-American professional organizations are less referred to by staff members than contacts with European organizations.

Additionally, south–south relationships exist: in the case of the Ghanaian clinic this refers to South Africa only, while transnational links with the south are more prominent in the Uganda clinic. There contacts are kept with South Africa and Nigeria (both pioneers in ARTs on the African continent) and with India – all countries where ARTs have already become institutionalized.

Finally, both case studies show that the knowledge and skills of embryology – an essential part of IVF/ICSI – are scarce resources, which were initially brought to both countries by foreign professionals from Europe. While in the Ugandan clinic, this strategy has continued, both clinics employ African lab technicians who have taken over the responsibility (safeguarding also their interests) of training and developing the skills of employee.

Thinking in terms of medicoscapes, our case studies show the multifold – national and transnational – connections that exist between individual persons, organization and institutes (including clinics, universities and other training institutes, professional organizations and industrial companies). The mobility of professional individuals leads to the emergence of shared interests and new alliances between gynecologists and embryologists. These shared interests and alliances become a new force in the ‘power topographies’ of medicoscapes. On the micro-level these transnational professional linkages also bring along heterogeneous medical practices, artifacts and knowledge – connected to different policies, regimes of medical knowledge and moral values. Altogether this results in a diversity of ART practices in different locales, a phenomenon we describe and analyze in the next section.

6. Transnational contacts and impacts on treatments

Transnational professional contacts within medicoscapes are accompanied by a variety of impacts that may provoke subtle adaptations on the micro-level of analysis: they expose the clinics to distinct professional/scientific insights, varying practices and debates. The fertility clinics in Ghana and Uganda become meeting places of clinical procedures and sites for negotiating them. However, the clinics do not simply copy different sets of practices. On the contrary, we found that the local appropriation of ARTs is characterized by an assemblage of procedures, protocols and practices in which – next to professional insights and skills – socio-cultural values, ethical concerns, legal backgrounds, and structural and economic factors play an important role. With two examples, we illustrate in this section how the local health staff consider and negotiate in their daily practices their own economic interests, the interests of their patients and medical concerns.
6.1. Embryo transfer

The maximum number of embryos to be transferred is a highly debated issue in the international field of ARTs; different notions about potential risks and success rates play an important role in this debate. Currently, ESHRE suggests single embryo transfer or – in particular cases – the transfer of a maximum of two embryos as best practice to minimize these risks (ESHRE 2008).

In the Ghanaian and Ugandan clinic, the maximum number of embryos transferred varied – according to the clinic staff – from three to five. While the number of embryos to transfer is discussed with the (local and international) embryologists, and the consulting international embryologists in some cases may have deviant opinions, in the end the clinic directors determine the maximum number of embryos to be transferred. They have different arguments for their decision.

In the Ugandan Makanga Clinic, up to five embryos are transferred, taking into account the age of the women, the numbers of cycles already undergone and the quality of embryos. For instance, if only a few higher grade embryos have developed, lower grade embryos might be transferred additionally. According to one of the international embryologists, these low-grade embryos do not have any chance of developing. However, the local embryologist’s arguments are two-fold. First, he considers that many couples coming to the clinic only have financial means to do one cycle, so they should be given all the available chances to succeed. Secondly, referring to the grading of embryos, he states that no one can definitively tell which embryo will evolve into a pregnancy and argues that the uterus, as the best environment for any embryo, may enhance the chance for low-grade embryos to develop. Thus, the lack of predictability and economic considerations – hoping to achieve the best results while limiting costs – rule out the scientific probability and determine the number, a strategy to which the clinic director fully agrees.

While in the Ghanaian LeleNa Clinic, a similar sort of reasoning and economic background of patients is given to justify the number of embryos to be transferred, according to the doctor they limit themselves to three embryos. Yet, to improve couples’ chances of achieving a pregnancy, women whose tubes are open are additionally inseminated before the embryo transfer. While he is aware that this practice is critiqued in the international ARTs field and by the visiting embryologist, he justifies this practice with two arguments. First, he mentions that through egg collection not all ova might be captured and therefore the additional inseminated sperm may fertilize the potential remaining eggs. Secondly, he explained that theoretically ‘the sperm activity is not only to go and fertilize, but also to prepare the lining of the womb.’ Through this rather unconventional additional insemination, he intends to increase the chance women have to achieve pregnancy.

Both clinic directors are highly aware of the ESHRE recommendation to go for single embryo transfer (or maximally two embryos) and the scientific arguments for this recommendation. However, as we have shown in the above, instead of following this particular ESHRE recommendation – what they often do in other questions around ARTs – here they define their own treatment regime, based on arguments that are related with the economic background of their clients, the high costs of treatment, the lack of health insurance coverage for ARTs in their country and the rather high uncertainty of the treatment.
outcome in a context where being childless is extremely problematic. The doctors’ main drive is to increase chances for patients that often only are able to pay for one attempt. While they put socio-economic aspects above scientific medical findings, they do that to limit costs not only for their patients but for their clinics as well: it is important to keep up the good reputation of the clinic and – presumably – to make profit. They strengthen their own position by benefitting their patients as much as possible. As no national rules and regulations around ARTs exist in either country, the clinics’ directors have the power to decide the ways in which ARTs are practiced. They are free not to adhere to scientific international or transnational standards. Given the existing ‘power topographies’ within the current medicoscapes, international (e.g. ESHRE) standards cannot be imposed on the private clinics.

6.2. Egg sharing

Another example of a practice in which negotiation takes place is egg sharing, which is common in both clinics. For egg sharing, oocytes are collected from one single ova donor and used for up to four or five receiving couples. This practice may reduce costs for the clinic and the patients. However, if the number of oocytes collected from the donor is less than expected and has to be shared with four other patients, this practice reduces the chance for the patients to become pregnant, as the local embryologists in Uganda claimed. Therefore, the local embryologists suggested that donors should be better selected, in order to grant a high amount of eggs to be collected, and, further on, a maximum of two couples should receive gametes from the same donor in order to guarantee a higher number of ova and therefore a better chance of success.

While in both clinics informed consent procedures are regulating the rights and duties of the partners involved, the receiving couples may not always be aware that other couples receive gametes from the same donor. The international embryologist in Uganda particularly argued that communication and transparency should be improved to make sure the patients are fully aware of what happens. In Ghana, the local embryologist – influenced by a course on ethics and legislation related to ARTs in the UK – started to reflect on possible future societal implications of the clinic’s donor use practices and discussed these ethical issues with the clinic director, who came to share his concerns. One of their concerns was what would happen if a woman and man – created out of the same donor’s genetic material without their knowledge – would procreate together. In the Ugandan Makanga Clinic, similar considerations recently engendered efforts to allow women to donate ova only up to two times.\(^5\)

In both the Ghanaian and the Ugandan clinics, the described practices of egg sharing may decrease costs for the patients, but at the same time may also decrease their chances, while simultaneously increasing the financial benefit of the clinic. This example highlights that transparency and patients’ rights, as well as international best practice standards, seem to be at odds with gaining profits in both clinics. Again – as in the above example of the number of embryos to be transferred – no national rules and regulations around ARTs exist in these countries, allowing the clinics’ directors to decide freely how to practice ARTs in their clinics. They do not need to adhere to international standards. Moreover, as no international donor money is involved, the clinic directors are not accountable to any external organization, which stands in sharp contrast to other forms
of transnational cooperation in the international health arena, where donor money is involved. In this case, the hierarchical ‘power topographies’ within global medicoscapes are not in favor of transnational organizations or scientific recommendations, neither of individual patients, but rather in favor of the directors of the private clinics.

7. Conclusion

Our analysis of the appropriation of ARTs in clinics in Ghana and Uganda has shown how contemporary hierarchical ‘power topographies’ – within globe spanning medicoscapes – have shaped the field of infertility and ARTs in particular ways. The local ‘place making’ by fertility clinics in Ghana and Uganda is thus not an isolated national activity, but embedded in the complexity of medicoscapes and power relations. Different places and sites, people and activities are pragmatically connected with the clinics and form constituent parts of the ART configurations in both clinics.

First, we have highlighted how national policies and repercussions of international activities, launched for instance by the World Bank and the IMF, co-prepared – in a similar way in both countries – the development of private clinics.

Secondly, we argued that cultural, socio-economic and political particularities in both countries enabled these clinic directors to successfully start up fertility clinics: procreation as a highly valued – existential – human option and an upcoming middle class who can afford ARTs; health policies that encourage the development of a private health sector; and the absence of any form of national ART legislation or professional guidelines. In addition, in both countries inclusive and comprehensive health insurance systems – paying for ARTs – are absent, so doctors and patients are inclined and even eager to increase success rates by all means possible.

Thirdly, our findings point to the centrality of the clinic directors’ biographies and networks. Both the Ghanaian and Ugandan fertility clinic directors have an extended professional migration background, which has increased their capacity to create professional transnational contacts. Additionally, the directors’ professional migration backgrounds enabled them to earn money and return to their home countries as entrepreneurs. As entrepreneurs they can act as creative decision-makers, who capitalize on their transnational professional network in order to cope with the challenges they are confronted with as pioneers of ARTs in their countries. They, for example, hire international embryologists and immensely invest in the training of local embryologists (at home and abroad).

Our examples – egg sharing and the number of embryos transferred – clearly illustrate that ARTs are sociotechnical arrangements co-shaped by transnational professional networks. While the complex steps and ‘technical’ characteristics of ARTs prescribe treatment options to a certain extent, which options are put into practice and in what way is also clearly related to the above mentioned cultural, socio-economic and political particularities.

Our examples also highlight the ways in which transnational connections affect the local ‘place making’ of ARTs, by bringing in a diversity of scientific and ethical perspectives. Since the first IVF procedure was carried out in the 1970s in the UK, numerous perspectives and arguments, regulations and standards have been developed, in particular – but not solely – in western countries. Through transnational contacts, as
those described in this article, these perspectives have had an impact – to a certain extent – on the ART services in the studied clinics in Ghana and Uganda.

However, our examples show the limits of these influences: within the local ‘place making’ in the Ghanaian and Ugandan clinics, transnational power topographies become visible as leading (European) organizations in the international field of ART, such as ESHRE, are functioning as highly respected sources of orientation for the clinics’ directors. Providers from nations where ARTs are more institutionalized and developed claim a certain (dominant) expertise regarding ‘the right way’ to practice ART and bring in critical points and suggestions for changing some practices. Through these suggestions frictions emerge between entrepreneurial interests, different cultural values and orders guiding the practices in the respective clinics, some of which contradict certain international guidelines in the ART arena (and it should be noted that these guidelines are not static either). Yet, the final decisions about procedures and practices remain with the two African directors/gynecologists, who are not restricted in their practices by national legislation or professional guidelines. Moreover, they are the directors of and investors in the clinics, thus they decide what exactly is accepted or rejected. Their selection seems to be guided by considerations of biomedical, financial/economic and moral nature; yet a main aim is to keep their costs low (to the extent that this is possible) and to enhance success rates. While these frictions between medical concerns and entrepreneurial interests are always part of any health-care project, they become particularly visible within the place makings for ARTs in the Ghanaian and Ugandan clinic. We argue that three aspects of the local configuration are constitutive to this fact: the treatments’ intrinsic uncertainty with regard to achieving the aspired result; patients paying out of pocket for these expensive treatments; and the lack of national regulations for ARTs. Our study thus contributes to further insights into the complex dynamics in medicsapes – both at the global macro- and the local micro-levels – involved in the transnational mobility and appropriation of ARTs. We suggest – and this is based on our observations in all four fieldwork clinics, on previous fieldwork conducted in Mali, Togo and Senegal, and insights gained in conferences and international meetings – that similar patterns of transnational professional dynamics can be observed in other African countries as well. Further research in other African countries is needed to fully understand the complexities and particularities involved.

In summary, the transnational professional contacts expose both clinics to varying practices and debates and render them into sites for negotiating distinct clinical practices. They also provoke frictions between entrepreneurial interests and medical-ethical concerns, including cultural values. Yet, in the current global power constellation the final decisions about procedures remain with the African directors of the clinics as they are the financial investors and are unsupported by the state or any (international) donor. In the current medicsapes, in a situation of full absence of any national ART regulation, they are to a large extent free to pick and choose from the international standards that fit their interests and local circumstances best.

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**Notes**

1. For more information on ARTs patients in sub-Saharan African countries, see for instance Faria (in print 2015) (Mozambique and South Africa) and Gerrits (2015a, 2015b, 2016).
2. In both countries, the percentage of the population below the national poverty line has decreased substantially: from 56.4% in 1992 to 24.5% in 2009 in Uganda; and from 51.7% in 1992 to 28.5% in 2006 in Ghana. Life expectancy is above the sub-Saharan average with 59 years in Uganda and 61 years in Ghana in 2012. The GNI per capita for the nearly 37 million of Ugandans was 480 USD, and 1550 USD for the 25.4 million Ghanaians in 2012. The total expenditure on health per capita in Uganda was 44 USD in 2012, compared to 83 USD per capita for the same year in Ghana (WB 2014b).
3. It should be noted that success rates per clinic may differ widely and are difficult to compare, as they also depend on the eligibility criteria that clinics apply for selection of people to be treated with ARTs.
4. Africans from neighboring countries and privileged expats from Western and Southern countries do IVF or ICSI by using (or not) services of egg donors and surrogates. Donated ova and surrogate services are provided by Ugandan respectively Ghanaian women, and sperm is donated by Ugandan and Ghanaian men. Since recently, in Uganda one white national foreigner and Indian women are donating ova, too.
5. The same reasoning could be applied to sperm donation, but the providers made no comments on that. In general, sperm donor material seems to be used less frequently in the clinics studied in Ghana and Uganda, because men seem to a lesser extent willing to accept having offspring with no biological link to themselves, as the Ugandan gynecologist and Ghanaian embryologists explained. For detailed male patients’ reasons and explanations for this restraint in Mali, see Hörbst (2008, 2010).

**Key messages**

1. The appropriation of assisted reproductive technologies in private clinics in Ghana and Uganda has shown how contemporary global hierarchical ‘power topographies’ have shaped the field of infertility and ARTs in particular ways. The local ‘place making’ by fertility clinics in Ghana and Uganda is thus not an isolated national activity, but embedded in the complexity of medicoscapes and global power-relations.
2. Cultural, socio-economic, political and legal particularities in both Ghana and Uganda enabled the clinic directors to successfully start up fertility clinics. These include: procreation as a highly valued human option; an upcoming middle class who can afford ARTs; health policies that encourage the development of a private health sector; and the absence of any form of national ART legislation or professional guidelines.
The presented examples – egg sharing and the number of embryos transferred – clearly illustrate that assisted reproductive technologies are sociotechnical arrangements co-shaped by transnational professional networks. While the complex steps and ‘technical’ characteristics of assisted reproductive technologies prescribe treatment options to a certain extent, which options are put into practice and in what way is also clearly related to mentioned cultural, socio-economic, political and legal particularities.

Transnational professional contacts expose both clinics to varying practices and debates, and make them into sites for negotiating distinct clinical practices. They provoke frictions between entrepreneurial interests and medical concerns including cultural values. In current medicoscapes, in a situation of full absence of any form of financial support and of any national ART regulation in Ghana and Uganda, clinic directors are in the position to apply those practices that fit their interests and local circumstances best.

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