Low priority level for infertility services within the public health sector: a Brazilian case study

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BACKGROUND: In view of the lack of information on availability of public sector infertility services and in order to contribute to the debate on access to these services, we assessed the availability of public sector infertility services, including assisted reproduction technology (ART), in Brazil.

MATERIALS AND METHODS: We conducted a cross-sectional study with telephone interviews using a semi-structured questionnaire with Health Secretariats’ authorities from the 26 States, the Federal District, 26 Municipal state capitals and another 16 cities with more than 500 000 inhabitants. Also, directors of 26 referral centres and teaching hospitals provide ART procedures supported by the state or university teaching hospitals.

RESULTS: Authorities from 24/26 State Secretariats and the Federal District, from 39/42 cities and 26 directors of referral centres and teaching hospitals offering government-funded infertility care and ART were interviewed. In 19/25 states (76%) and 26/39 cities (66.7%), no infertility treatment was available free of charge. The most common reason for lack of services at the state and municipal levels was ‘lack of any political decision to implement them’, followed by ‘lack of human and financial resources’. When ART was available, barriers to access included the fact that patients needed to purchase medication and the more than 1-year waiting list for treatment.

CONCLUSIONS: Lack of political commitment results in inequity in the access of low-income couples in Brazil to infertility treatment, including ART.

Key words: infertility / inequity / low-income population / Brazil / public health

Introduction

As part of the United Nations (UN) Programme of Action, the international community discussed and agreed to a new, comprehensive concept of reproductive health (RH) that included the rights of men and women to choose the number, timing and spacing of their children, incorporating family planning (FP) programmes, the prevention of reproductive tract infection (RTI) and the prevention and treatment of infertility (United Nations, 1995). Also, the Millennium Developments Goals of the UN 2000 stated as one of the targets: ‘Achieve, by 2015, universal access to reproductive health’ (United Nations, 2000). Brazil was one of the countries that signed both UN declarations.

Owing to differences in the definition and methodology of data collection, the prevalence of infertility has been calculated as ranging from 4 to 14% worldwide. The international consensus is that 8–10% of cohabiting couples are infertile, with variations in this percentage in the different regions of the world (Greenhall and Vessey, 1990; World Health Organization, 1991; Lunenfeld and Van Steirteghem, 2004; Larsen, 2005). Recently, an analysis of 25 population surveys estimated the overall prevalence to be 3.5–16.7 and 6.9–9.3% in the developed and developing countries, respectively (Boivin et al., 2007).

In some developing countries, cohabitation is a common practice and adolescent pregnancy rates are high. This early age at sexual debut may be related to a high prevalence of RTI and consequently both the male and the female infertility (World Health Organization, 1991; Lunenfeld and Van Steirteghem, 2004; Boivin et al., 2007). In these developing countries, parenthood is a culturally important issue in the life of individuals, and infertile women are often...
stigmatized, suffering social consequences that may include being abandoned by their partners. Consequently, access to the diagnosis and treatment of infertility, including the provision of drugs and procedures and assisted reproduction technology (ART), contributes towards resolving social inequities for a large proportion of the population.

According to the Brazilian Constitution, current legislation within the National Health System, known in Brazil by the acronym SUS (Sistema Unificado de Saúde or Unified Health System), and an administrative decree issued by the Ministry of Health, all citizens have the right to health care and the government is obliged to provide for all health-related requirements, including infertility services (Republica Federativa do Brasil, 1988; Brasil, 2005).

Brazil has almost 190 million inhabitants, around 140 million of whom belong to socio-economic strata ‘D’ and ‘E’ and depend on SUS health care (Santos et al., 2008; IBGE, 2009). Over recent decades the country has made an effort to achieve some of its RH goals, mainly those concerning FP. An example of this effort is the fact that prevalence of contraceptive use is now 76.7%, while the unmet need is only 7.3% and the total fertility rate is around 1.89 (United Nations, 2008). However with respect to the availability of infertility services and access for the less privileged to infertility treatment, including ART, the situation is different. If we take into account that the estimated global need for ART procedures (including intrauterine insemination [IUI], IVF and ICSI) is 1500 cycles per million persons/year (Collins, 2001); this equates to a high number required annually only for the underprivileged in Brazil. In view of the lack of available information and as a means of contributing towards the debate on access to infertility services (Berkowitz King and Davies, 2006; Nachitgall, 2006), the objective of this study was to assess the availability of infertility treatment, including ART services, within the public healthcare network in Brazil.

Materials and Methods

This descriptive cross-sectional study was conducted by the Centre for Reproductive Health of Campinas (Cemicamp), Brazil. The protocol was approved by the Ethical Committee of the Faculty of Medical Sciences, University of Campinas (UNICAMP), Campinas, Brazil. The study was carried out between June 2008 and June 2009.

Brazil is organized in 26 states, the capital of the country is the Federal District and all the states are divided into municipalities. Telephone interviews were used for data collection. In the first phase of the study, all the 26 State Health Secretariats and the Department of Health of the Federal District, as well as all the 26 Municipal Health Secretariats of the state capitals and of 16 other cities with at least 500 000 inhabitants were contacted and a telephone interview was scheduled with the Director of the Women’s Health Division or another designated person. In the second phase of the study, 23 medical directors of referral centres for infertility services and 12 directors of university infertility services offering ART procedures, mentioned by the state and municipal health authorities during their interviews, were contacted and telephone interviews scheduled.

For the interviews, structured pre-tested questionnaires were developed. The main aim of the questionnaires for authorities (State and Municipal Health Secretariats) was to gather information regarding the number of services that provided infertility care (including those providing ART procedures), how long these services had existed and the kind of service they provided; the reasons for the lack of these services and plans for the implementation of infertility services, including ART, in the 12 months following the interview. The questionnaire had pre-coded categories and for open-ended questions the answers were coded (questionnaires available at: www.cemicamp.org.br).

In the case of referral services for infertility and university teaching hospital services that provided ART procedures, the questions concerned which ART procedures were offered and access to these services (referral system, waiting time and costs). Prior to initiating the interview, an informed consent form was read to all participants and their verbal consent was recorded. All the telephone interviews were conducted by a trained interviewer, who filled out the interview form and simultaneously this information was tape recorded. This allowed checking the written information against the recording to assure quality.

Results

Interviews were conducted with 24 of the 26 authorities from the State Health Secretariats and authorities from the Federal District. The remaining two refused to participate in the study. In addition, 39 of the 42 authorities from the Municipal Health Secretariats were interviewed, 25 from the state capitals and 14 from other cities with more than 500 000 inhabitants. In the second phase of the study, 26 directors of the referral centres for infertility mentioned by the health authorities, including those offering government-funded ART procedures, participated in the telephone interview, 18 from centres supported by the state and 8 from centres located in the teaching hospitals (Fig. 1).

At the state level, 19 of the 25 authorities (76%) reported that no infertility services were available in their state (Table 1). At the municipal level, this figure was fairly similar with 26 of the 39 authorities (66.7%) reporting that their municipality provided no government-funded

*Figure 1* Summary of authorities contacted and interviews conducted in order to assess the availability of public sector infertility services in Brazil.
infertility services free of charge to the population. The most common reason given for the lack of services both by the state and municipal authorities was ‘a lack of any political decision to implement them’, followed by ‘a lack of human and financial resources’ (Table I).

Among the states and municipalities in which infertility services were available free of charge, only 4/6 and 8/13, respectively, had implemented any algorithms or norms for infertility work-up and treatment. At the state level, authorities reported seven services that provided ART procedures and these services were located in only four different states. Authorities from 17 states reported that no plans had been made to implement either infertility services or ART procedures in the 12 months following the interview. The most common reason given was ‘a lack of any political decision to do so’ (data not shown). At the municipal level, authorities reported only one service that provided ART procedures (only IUI), while 35 of the 39 of those interviewed reported that no plans had been made to implement either infertility services or ART procedures in the 12 months following the interview (Table I).

State and municipal authorities stated that couples requiring infertility care or ART procedures were referred to centres specialized in women’s health care or to the teaching hospitals of universities, or low-complexity secondary public services refer these couples. In addition, ART procedures are available at some university centres, most of them concentrated in the south of the country. The magnitude of the problem comes to light when taking into account that there are almost 47 million women of reproductive age (15–49 years of age) in Brazil, hence around four million infertile couples (Santos et al., 2008; IBGE, 2009).

One of the most important and neglected aspects of RH in developing countries is infertility. Although no statistics are available in Brazil on the exact prevalence of infertility, it is presumed that the international prevalence rate would be applicable (Larsen, 2005; Boivin et al., 2007). This neglected aspect of RH is reflected in the present findings that 76% of the states and 66.7% of the municipal health secretariats interviewed reported that they did not provide infertility services and no ART procedures of 84 and 97% at the state and municipal levels, respectively. When available, only IUI, and not IVF or ICSI, is offered.

In contrast, 56 clinics were registered in the private sector (REDLARA, 2006). In an international survey and the last report for the year 2006 of the Latin American Network of ART (REDLARA, 2006; International Committee for Monitoring Assisted Reproductive Technology et al., 2009), there were estimates of 12 218 or 13 485 cycles, respectively, in Brazil, representing almost 45% of the Latin American procedures with an estimated cost of US$6000 per cycle. Despite the fact that women’s movements have been strong advocates for RH rights, less effort has been dedicated to the inequity of infertility services. Also, we believe that the inequity is not related to opposition of the Catholic Church to ART procedures because they did not express publicly restrictions.

Recently, the Ministers of Foreign Affairs of several countries, including Brazil, recognized health as an important issue and emphasized the need for integration of health services and RH as important concerns (Oslo Ministerial Declaration, 2007). However, the most common reason observed in our study for both the absence of infertility services and the lack of any plans to implement such services in the near future was ‘absence of any political decision’.

The fact that in the services that do provide ART procedures the cost of the medication is charged to the patients also represents a form of inequity. This is a barrier for almost all low-income couples because the cost of the drugs is almost twice the monthly income

<p>| Table I Availability of infertility services in Brazil and reasons for lack of services |
|--------------------------------------------|------------------------------------------|</p>
<table>
<thead>
<tr>
<th>At state level (25)</th>
<th>At municipal level (39)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of infertility services</td>
<td>19</td>
</tr>
<tr>
<td>Number of ART services</td>
<td>21</td>
</tr>
<tr>
<td>Number of plans for implementing either infertility or ART services within the following 12 months</td>
<td>17</td>
</tr>
<tr>
<td>Reasons for the lack of services*</td>
<td>17</td>
</tr>
<tr>
<td>Absence of any political decision</td>
<td>9</td>
</tr>
<tr>
<td>Lack of human resources</td>
<td>5</td>
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<tr>
<td>Lack of interest from the services</td>
<td>4</td>
</tr>
<tr>
<td>Lack of human and financial resources</td>
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</tbody>
</table>

*The policy-makers were permitted to give more than one answer.

**Discussion**

These results show that the access of low-income, infertile Brazilian couples to the diagnosis and treatment of infertility including ART procedures in public health facilities is limited. The access is almost exclusively limited to a few public healthcare centres supported by the state and municipal health departments and teaching hospitals maintained by the federal or state universities to which primary public services or low-complexity secondary public services refer these couples. In addition, ART procedures are available at some university centres, most of them concentrated in the south of the country. The magnitude of the problem comes to light when taking into account that there are almost 47 million women of reproductive age (15–49 years of age) in Brazil, hence around four million infertile couples (Santos et al., 2008; IBGE, 2009).

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of families in social strata ‘D’ and ‘E’ (IBGE, 2009). In addition, the more than 1 year of waiting time for consultation at services offering ART procedures poses another problem, since many of these women may be over 35 years of age at the time of the procedure, thereby reducing their chances of success (Daar and Merali, 2002; Dyer et al., 2002). However, there is the possibility of performing ART more cheaply in the future (e.g. using low-cost hormone stimulation protocols, low-cost laboratory techniques), thereby making it more affordable for patients, and recent initiatives are in agreement with this solution (Ombelet and Campo, 2007; Frydman and Ranoux, 2008).

In many societies, infertility is considered a tragedy with consequences for the entire family as well as negative psychosocial repercussions (Daar and Merali, 2002; Dyer et al., 2002; Dyer, 2007). It is seen as a disease or disability that affects only the women, thereby stigmatizing women who cannot conceive a child and often resulting in devastating consequences that may include neglect or domestic violence (Van Balen and Gerrits, 2001; Van Balen, 2002; Widge, 2002; Araoye, 2003). The urgent need for many women to resolve their childlessness is a situation that increases the demand from poor couples in developing countries for infertility treatment (Van Balen and Gerrits, 2001).

The availability of services and provision of infertility treatment is a complex issue in developing countries as a consequence of the many concerns and barriers erected by policy-makers, medical associations and society itself (Dyer et al., 2002; Fathalla, 2002; Dyer, 2007) considering that poverty remains an issue in these countries. The existence of other urgent and emerging problems, such as the high rates of maternal morbidity and mortality, unmet needs in FP, vaccination programs, infectious diseases such as malaria, dengue and yellow fever, RTI and the provision of drugs for the treatment of individuals living with human immunodeficiency virus and acquired immunodeficiency syndrome, strongly contributes to this state of affairs. Brazil is no exception in this scenario.

In the case of ART procedures the situation is even more complex because many policy-makers do not want to divert limited resources, human resources and facilities to expensive fertility services that will eventually result in low pregnancy rates (Chambers et al., 2009; Gunby et al., 2009; Hammoud et al., 2009). Consequently, infertility services have received little attention (Hamberger and Janson, 1997). The prevalence of male and female RTI, and the infertility which may consequently occur, is high in developing countries (World Health Organization, 1987; Nachtigall, 2006) and the best way to reduce the incidence is through prevention and RH education, an important task for governments; however, this represents a challenge (Makuch et al., 2000). Furthermore, the prevalence of tubal sterilization in Brazil is high, which in turn results in an undetermined number of women requesting reversal (Hardy et al., 1996), a situation that can generally only be resolved using ART procedures. The fact that women in Brazil do not have access to safe or legal abortion is another factor that cannot be ignored because the number of complications may constitute another cause of infertility (World Health Organization, 2004; Grimes et al., 2006).

The treatment of infertility in low-resource settings is a challenge; however, it is a human right of all individuals to find a family. The poorest sectors of the populations of developing countries are probably those more prone to infertility because of poor education, poverty, early sexual debut and unsafe abortion, among other factors (Ombelet et al., 2008), and probably they are the population most in need of ART (Blackwell et al., 2001; Luna, 2002; Filetto and Makuch, 2005).

Governments of developing countries need to give society the opportunity to debate these issues if they are to comply with the UN declaration on RH (United Nations, 1995). Fewer than half the existing services had implemented infertility algorithms or norms, despite the fact that the UN declaration states that elaborate norms with algorithms are required that should simplify the diagnostic and therapeutic procedures to avoid unnecessary spending of valuable resources on old technologies or allocating funds to centres with no trained personnel or an inadequate infrastructure (Blackwell et al., 2001). In addition, it states that infertility services can be acceptably, affordably and appropriately provided if firmly grounded in infertility algorithms (Blackwell et al., 2000, 2001). Recently Ombelet and Campo, (2008) provided many examples that may help policy-makers and other stakeholders reflect on the best way to offer solutions to millions of couples based on an ethical principle of reproductive autonomy.

The first decade of the 21st century is almost at an end and governments can no longer ignore the new concept of RH to which they put their signature, nor can they deny that infertility is a legitimate medical problem. Better care means eliminating inequity, reducing costs by avoiding the inappropriate expenditure of funds, avoiding malpractice and implementing means of achieving better patient outcomes (Jones and Allen, 2009).

Finally, our findings reveal inequity in access to infertility services, including ART procedures, for low-income couples, reflecting poor political commitment with respect to this kind of health care in Brazil (Hardy and Makuch, 2002). The World Health Organization made several recommendations with respect to infertility in developing countries (Vayena et al., 2002), and the recent review on infertility in developing countries (Ombelet and Campo, 2008) as well as the discussion on inequities in infertility access in the USA (Berkowitz King and Davies, 2006; Nachtigall, 2006) lead us to believe most strongly that now is the time to cross the boundary from talking issues in RH, although still neglected.

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**References**


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