

## Review Biomedical Improvement of IVF Technology in Developed and Undeveloped Countries

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**Abstract:** The main purpose of this paper is review of biomedical improvement of IVF technology in several countries to investigate their conditions about this important issue; all based on biomedical perspective. So, some main factors such as growth, regulatory laws, infertility ratio for IVF acceptance both by government and people were investigated. To date these intentions and declarations have hardly been translated into the formulation and implementation of concrete, comprehensive and systematic infertility care. We considered 10 countries for this purpose and finally we suggest some critical ways to more and fast improvement for growth and development of biomedical improvement of IVF technology.

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### 1. Introduction

Infertility in developing countries has long been a neglected reproductive health concern, despite the fact that it often has devastating consequences for the women and men involved. The neglect of infertility in formal health care is often explained in terms of population control (decreasing fertility growth is considered to be more important than treating infertility); developing countries have slowly been receiving more attention; both in terms of studies being carried out and in the international health arena. At the United Nations International Conference on Population and Development (ICPD) in 1994 in Cairo, prevention of infertility and appropriate treatment, where feasible, was finally accepted as a basic component of reproductive health care in its Program of Action. Subsequently, various declarations and policy documents of international organizations and meetings.

The exceptional usage is linked to the high age limit (45 years) of eligibility for funded IVF, as reproductively older women normally require more treatment cycles to conceive. Indeed, a third of IVF treatments are delivered to women above 40. Globalization has great prominence in these undeveloped countries donor gamete economy. Until the early 1990s, the simple technology of donor insemination (DI) was informally practised in many countries. A gynaecologist would synchronize the clinic appointment of a receiving couple with a donor's visit, so he could perform insemination while ensuring that the parties didn't meet.

### Literature Review:

Daphna Birenbaum-Carmeli was studied thirty-five years of assisted reproductive technologies in Israel which published in Elsevier in 2016. In Israel, reproduction is a central life goal for most Israelis. She outlines 35 years of assisted reproductive technologies in Israel by tracing a principal axis in the development of three major technologies of assisted reproduction: the proliferation of IVF-ICSI; the globalization of gamete donation; and the privatization of surrogacy. She concluded that Israel's polarized assisted reproductive technology policy, which reaffirms the priority of biogenetic relatedness over social kinning, enhances the centrality of the former as a constituent of Jewish collectivity. This interpretation helps elucidate the vast state investment in assisted reproductive technologies that can now be understood as an element in the state's broader national project.

Marcia C. Inhorn (2016) investigated with this title: "Cosmopolitan conceptions in global Dubai? The Emiratization of IVF and its consequences". Two main aspects of IVF emiratization are examined. The first involves the Emirati government's brief experiment with IVF public financing, which started off as a generous IVF subsidization programme for all infertile couples, but ended up solidifying preferential treatment for local Emiratis. The second is the 2010 passage of UAE Federal Law No. 11, which now stands as one of the world's most restrictive pieces of assisted reproduction legislation. She showed that IVF practices in the UAE have been increasingly emiratized over the past 25 years in response to government fiscal pressures and cultural sensibilities

of the local Emirati population. It is fair to conclude that the twin goals of Emirati statecraft – namely, a self-conscious medical cosmopolitanism coupled with a government-mandated emiratization – are existing at cross-purposes in the second decade of the new millennium. Emiratization has meant the increasing curtailment of cosmopolitan conceptions in global Dubai. How these opposing forces will play out in the future remains to be seen.

Zeynep B. Gürtin (2016) studied history of the introduction, growth and social regulation of IVF in Turkey, labelling it a form of ‘patriarchal pronatalism’ based on research between 2006 and 2015. It includes analysis of regulatory and media materials as well as an in-depth clinical ethnography and interviews with IVF patients and practitioners, the paper contextualizes Turkey’s ‘IVF boom’ within the wider and governmental contexts of reproductive politics. She got results that vying of medical modernity and advancing technological capabilities of reproduction, as well as globalization, international travel, and changing social attitudes on the one hand, with religious institutions, traditional mores and the regulatory and symbolic pronouncements of a neo-conservative government on the other. It enabled the rapid growth and accessibility of IVF throughout Turkey, while on the other curtailed its practice within strict conjugal confines.

In another paper, Bob Simpson reviewed of regulatory impasse of IVF in Sri Lanka in 2016. from the first successful births in the late 1990s and over the subsequent 15 years. It is based on anthropological fieldwork carried out at various points during this period. The piece focuses on the challenges entailed in achieving regulation of the new reproductive technologies against a backdrop of: (i) a bitter civil war; (ii) a complex mosaic of different religious traditions (specifically, Buddhism, Catholicism, Hinduism and Islam); and (iii) a shift towards neo-liberal marketization, particularly in relation to specialist and hi-tech medical interventions. He concludes that ‘soft’ regulation operates both to avoid conflict around highly contentious issues in debates about reproductive rights as well as to enable commercially driven developments in technologically specialized areas of medicine.

Trudie Gerrits (2016) studied origins and development of IVF in Ghana as a highly transnational undertaking. Currently, ‘more affordable’ IVF is being introduced into Ghana, representing another form of transnational networking. He concluded that 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.

Elizabeth F.S. Roberts considers the early period of development of IVF in Ecuador, focusing on factors that shaped the decade after the nation’s first successful IVF birth (1992–2002). Her paper was published in 2016 in Elsevier. It describes how a poorly resourced public healthcare sector compelled Ecuadorians towards private-sector medicine, which included assisted reproduction treatment, and how IVF clinics drew patients through the pervasive racial inequalities that characterise post-colonial Ecuadorian society. She concluded that Viewing IVF provision through the context of resources might also provide a useful analytic more generally. In Ecuador, healthcare inequality and encompassing racial inequality provide a means to examine the effects of resource-poor settings on IVF practice, and how state policy (or lack of it) facilitates the private practice of IVF. A resource framework could be equally applied to wealthier nations, or nations with functional public healthcare systems, tracking how, what and for whom resources for assisted reproduction are put in place. This resource framework would compel us to examine the kinds of conditions that bring persons into existence and the kinds of resources these persons then receive.

Kay Elder and Martin H. Johnson<sup>b</sup> carried out an analysis of the development of IVF 1969–1978 which published in 2016 in Elsevier. It investigates possible causes of infertility less invasively than had hitherto been the case (in addition to providing a safer and less invasive sterilization procedure for those who wished to limit further child bearing). The results showed that results all of the different parameters recorded: stimulation dose/interval, day of HCG, interval between HCG and lap, follicles seen/aspirated, oocytes, size of follicles versus oocyte stage, follicle size versus fluid bloodiness and stage of meiosis.

Martin H. Johnson<sup>a</sup> and Kay Elder studied development of IVF based on ethical aspects in 2016. They examined six evidential sources to investigate how Edwards and Steptoe applied ethical standards to their research leading to the birth of Louise Brown: (i) Their own contemporary writings from 1970 onwards. (ii) Archival evidence from the British Medical Association (BMA), the British Association for the Advancement of Science (BAAS), and correspondence between Edwards and the Ford Foundation. (iii) Minutes of Oldham General Hospital (OGH) Ethics Committee. (iv) Letters by Edwards to prospective patients. (v) oral evidence from interviews with a patient and colleagues. (vi) Evidence from their clinical case management of patients. Taken together

these sources suggest that Edwards and Steptoe demonstrated a strong awareness of the ethical issues involved, and offer evidence of honesty to patients about the realistic prospects of success and ethical practice. They concluded that the attraction of having done good as one perceives it leading to ‘over enthusiasm’.

Kay Elder and Martin H. Johnson<sup>b</sup> (2016) have done analysis of the development of IVF through treatment cycles and their outcomes. They report on the numbers of treatment cycles involved in the development of IVF (1969–1978) and their outcomes. Through their studies, they a maximum of 11 possible biochemical/ preclinical pregnancies plus five clinical pregnancies were observed. They have got results that independent report of a third IVF pregnancy and birth from Victoria, Australia was probably a crucial demonstration that, despite the difficulties, the approach could indeed deliver.

Alana Cattapan and Françoise Baylis (2016) investigate abandoned embryos in Canada when surplus IVF embryos are frozen and stored for later use. This article examines the matter of ‘abandoned embryos’ – the emergence of the term, its use in policy and law, and its implications in the Canadian case. They demonstrate that despite an intricate legislative framework, there are important gaps that leave fertility clinics and storage facilities in the tenuous position of discarding ‘abandoned embryos’ without clear authorization, or storing them indefinitely. They concluded that Despite a complex legal and regulatory environment, and despite concerns about federal authority to regulate on assisted reproduction, flexible time limits for embryo storage could be established in Canada at the federal, provincial or territorial levels.

### Results and suggestions:

In summary, it is important to re-emphasize just how little was known at the time about the areas of study in which they were engaged, and how limited was their access to helpful technology. What shines through is their persistence in the face of constant failure. Whilst in no sense could their approach be described as a double-blind controlled trial, it was an empirical study, albeit soundly based on a thorough reading and understanding of the literature – and as such does not differ fundamentally from most comparable research even today. Also, Understanding the development of IVF in Ecuador requires knowledge of the nation’s history and political economy, especially in relation to its history of poor healthcare infrastructure, and its racial reality.

Besides, IVF practices have been increasingly increased over the past 25 years in response to government fiscal pressures and cultural sensibilities

of the local population. Two key points of disagreement involved whether or not to allow embryo freezing, and whether all IVF clinics must include physicians on their staffs. Egypt, Jordan and Saudi Arabia – the first three Sunni Muslim countries to open IVF clinics – have never passed assisted reproduction legislation, relying instead on guidelines, which, although religiously authoritative, are not legally binding.

In conclusion, these countries today remain far from the position advocated that potential disputes about using or discarding embryos not be the subject of litigation, and that embryos not be regarded as property. Other approaches to using and discarding embryos are possible, however. For example, other jurisdictions have had success in implementing time limits on embryo storage, which have had important effects on addressing concerns about the fate of so-called abandoned embryos without making any claims about property.

### References:

1. Birenbaum-Carmeli, D. 2016. Thirty-five years of assisted reproductive technologies in Israel. *Reproductive BioMedicine and Society Online*. ISSN: 2405-6618. Elsevier Publication. (2016) 2, 16–23.
2. Inhorn, M. 2016. Cosmopolitan conceptions in global Dubai? The Emiratization of IVF and its consequences. *Reproductive BioMedicine and Society Online*. ISSN: 2405-6618. Elsevier Publication. (2016) 2, 24-31.
3. Gürtin, Z. 2016. Patriarchal pronatalism: Islam, secularism and the conjugal confines of Turkey’s IVF boom. *Reproductive BioMedicine and Society Online*. ISSN: 2405-6618. Elsevier Publication. (2016) 2, 39-46.
4. Simpson, B. 2016. IVF in Sri Lanka: A concise history of regulatory impasse. *Reproductive BioMedicine and Society Online*. ISSN: 2405-6618. Elsevier Publication. (2016) 2, 8-15.
5. Gerrits, T. 2016. Assisted reproductive technologies in Ghana: transnational undertakings, local practices and ‘more affordable’ IVF. *Reproductive BioMedicine and Society Online*. ISSN: 2405-6618. Elsevier Publication. (2016) 2, 32-38.
6. Roberts, E. 2016. Resources and race: assisted reproduction in Ecuador. *Reproductive BioMedicine and Society Online*. ISSN: 2405-6618. Elsevier Publication. (2016) 2, 47-53.
7. Elder, K. and Johnson, M. 2016. The Oldham Notebooks: an analysis of the development of IVF 1969–1978. I. Introduction, materials and methods. *Reproductive BioMedicine and Society*

- Online. ISSN: 2405-6618. Elsevier Publication. (2016) 2, 3-8.
8. Johnson, M. and Elder, K. 2016. The Oldham Notebooks: an analysis of the development of IVF 1969–1978. IV. Ethical aspects. Reproductive BioMedicine and Society Online. ISSN: 2405-6618. Elsevier Publication. (2016) 2, 34-45.
  9. Elder, K. and Johnson, M. 2016. The Oldham Notebooks: an analysis of the development of IVF 1969–1978. II. The treatment cycles and their outcomes. Reproductive BioMedicine and Society Online. ISSN: 2405-6618. Elsevier Publication. (2016) 2, 9-18.
  10. Cattapan, A. and Baylis, F. 2016. Frozen in perpetuity: ‘abandoned embryos’ in Canada. Reproductive BioMedicine and Society Online. ISSN: 2405-6618. Elsevier Publication. (2016) 2.

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