

Socio-Ethical Contours of Reproductive Medicine in Hyper-Modernizing Societies: Interfacing Historical Legacies and Biomedicine beyond Egg+Sperm?

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Reproductive power is the basic drive for any living species' survival. Human beings have been successfully to reproducing themselves to capture the world and enjoying a commanding position in natural world... With urbanizing and hyper-modernizing forces, demographic transitions move towards ageing societies globally – the drop of human fertilities (total fertility rate per woman in her life course) represents an alarming quest for the longevity and survival of human species (*homo sapiens*) in 21st century and beyond!

This paper explores human reproduction processes, particularly those are gifted by modern reproductive medicine and the related technologies; highlighting the contradictions (within three inter-related spheres) of dynamic socio-economic forces, developing along the past, present and future historical timeline within a wider opportunities structure available in 20th-to-21st century. By contrasting social virtues of pre-modern traditionalism (Confucian virtues, say, filial piety) and hyper-modern reproductive medicine based promise for better reproductive outcomes (the better newly born), it articulates that, bioethics for human reproductive medicine, is struggling to catch up with both governmental regulatory initiatives and the market-force driven higher pricing for the best possible reproductive outcomes – this is evidently shown in our study on hyper-modernizing Chinese societies.

Yet, we are in the new age of technological revolutions, shaping modus operandi of our daily life! But our case study on reproductive medicine in ageing Chinese societies discovers that the bioethics of reproductive medicine is seemingly so elusive in the public discourse but is administratively straitjacketed-bound within the governmental and bio-medical professional matrixes of rule-proceduralism. Hence, reproductive medicine and its ramifications are far from serving to revitalize the old social virtues for reproduction of filial piety, nor contributing significantly for the quality of life in hyper-modernizing society: isn't something missing-out from the (r)evolutionary of bio-medical science advancement?

Key Words : Assisted Production Technology, Biomedicine, Chinese Society, Ethics, Modernization.

1. Contradictions of New Family Life Cycle(s) in Hypermodernity?

Not until recent decades of hyper-modernization with a corresponding drop of total fertility rate (of less than 2 per woman-life course) with less new born

babies, human reproduction historically has been a natural cause and process for people survival and succession. But “infertility” has been both a private problem of husband and (particularly for) wife and a social issue; and it is as if a taboo somewhat unspoken to cause embarrassment for the concerned.

Highlighting the contradictions (within three inter-related spheres) of dynamic socio-economic forces, developing along the past history, present development and future prospects in a widening and new societal-technology opportunities structure, this short brief attempts to examine the highly “intrusive” reproductive technology (into male-and-female bodies and mind, family and kinship processes alike): To what extent new bio-reproductive technology “to couple” with socio-cultural structure, and in what ways normative -cum- ethical considerations and repercussions develop along the new technology life course, and the most important is: whose reproductive production and bio-technology for whom?

1.1 Dualistic Dynamics in Chinese (Western Technology-driven) Hypermodernization?

Against all the odds of infertility, the 1978’s biomedical breakthrough for test-tube baby and subsequent reproductive technology advancement provide hope for the infertile couples; redrawing the boundaries and contours of the natural, vis-à-vis, the artificial, as well as redefining individual and family life and humanity at large. The bio-social transformation thanks to new biomedical science has been complex yet highly differential with the society-technology nexus in variety of cultural-localities.

For Chinese societies in Asia, most of them have been undergoing hyper-modernization in the last few decades (1970- onwards) with mostly Western technologies adoption, biomedical and reproductive technology is among those learning from the developed West. In the process of interfacing, or interaction, between Western technologies and Asia’s socio-cultural idiosyncrasies, there are many forms of synergetic and contradictory development....And

it would be interesting to examine these interfacing issues.

Since the test-tube baby born in 1978, biomedicine has started treating infertility as a curable disease with assisted reproductive technology (ART) in the West. Unlike their Western counterparts, families in East Asia’s newly industrializing economies (NIEs) under traditional Confucianism influences, like South Korea, Taiwan, Hong Kong and Singapore(n Chinese), the inability to conceive a child is still considered not just individual but family-kinship (succession) issue. And the emerging regulatory frameworks embracing new biomedicine like those Ethics Committee or Council on Human Reproduction Technology (CHRT, in Hong Kong) are more or less being Western “medicalized” (controlled by biomedical professions with their policy discourse and narratives) in public domain (cf. Lai 2012; Madge 2011).

Among other socio-economic considerations, traditional social virtues of Confucianism are still influential in shaping each family member’s worldview to reproduce, to fulfill intergeneration duties for one’s familial succession (from father-to-son), along the patriarchy line – the basic for filial piety (孝) is to reproduce...“不孝有三、無後為大” (not having son is the worst of the three acts against filial piety). In other words, “to-reproduce” is the basic for filial piety duty (of inter-generational, family-kinship contract).

Given the legal provision, the commonly practice of ART, *in vitro fertilization* (IVF), a process by which an egg is fertilized by sperm (out), empowers the concerned bodies to have many trials (and errors) for achieving human reproduction purpose – which opens the spaces (egg+sperm+embryo) for the re-creation of new life. This has been reinforcing new

innovations for human reproduction in recent years with biomedical engineering targeting women as *modus operandi* (cf. Sharp 2012). Obviously, biomedical ART enables a better chance for Chinese families to sustain their succession – and the technology becomes not just a boost for Chinese traditionalism for reproduction; but also a biomedical link to bridge the thousand-year old tradition with new ART humanity!

To recapitulate, the *Chineseness* (of traditionalism) for filial piety is undoubtedly a good partner for modern bio-reproductive technology as far as the functionality and instrumentality of new bio-science offerings, enable an acceptable though not ideal, solution for family reproductive succession along the patriarchy social contours. In short, human reproduction (through various ways to create offspring) in Chinese societies has more than the instrumentality to realize socio-cultural virtues of filial piety and patriarch family succession, while reinforcing intergeneration contracts for family and kinship.

1.2 Whose New Body from Reproductive Technology: Temporal-Spatial Contingency

Giving birth to new life with ART is embedding the formation of both “intra-corporeality” (within one’s body-corpous) and “inter-corporeality” (between bodies-corpous), more even so for the new (alternative) genesis of life form, twining more complex nexus with natural evolution and artificial enhancing.

For those (like women, men or their surrogacy mothers) at the receiving ends of ART, they are always under stressful conditions, before, at and after the reproductive procedure; so do the relationships among various agencies involved: say the least is the

emotional tensions, the ups-and-downs of psychosomatic stress before-and-during pregnancy and actual labouring...

Beyond personal and familial nexus of emotional attachment; it is the couple’s dynamics and their unique family history, vis-à-vis, the “business as usual” for ART professionals, which shape not just the complex process of novice human reproduction, but also redefines the essence of humanity as (to be) experienced by the (passive) recipients of new biomedical treatment-solution. There are three contesting arenas could be delineated in this brief, following the relationship of ART with the inter-corporeality and temporality, agencies for (against) biomedicine, and the related externalities.

To examine the dynamics of new life making thanks to ART, this paper examines three inter-related spheres, mirror-imaging the Beauchamp (2003; Beauchamp & Childress (2008)’s three levels of biomedical ethics for understanding the related structure and dynamics, with specific reference to two distinctive yet inter-related mechanisms for coping with the “genesis” or “creation” of human beings; namely, the interactions between/among biomedical technology gate-keepers and their clientele, within the temporal (timing, when and how long?) and spatial (where reproductive technology and its derivatives take place: from microscopic egg plus sperm to transnational surrogacy) domains, along the timelines of new life genesis in a globalizing, hyper-modernizing, world of socio-cultural transformation.

Obviously, in our framework, there is a strong sense for new emerging opportunities structure thanks to differential modernization trajectories on the one hand; and the rise of the varieties of second modernity (Beck & Grande 2010), on the other. For Asia’s modernization drama, Hong Kong exemplifies

such – the very obvious paralleling (or partial) Westernization of Japan, China and South Korea demonstrates the thousand-year old socio-cultural structure and dynamics embedded in in hyper-

economic growth of the (Western?) modernization trajectories (Han & Shim 2010; Suzuki, et.al. 2010; Yan 2010; Chang & Song 2010). More specific for indicative illustration is shown here (Fig.1):

Figure 1: Dynamics of Reproductive Technology (RT) in (Asia) Hyper-Modernization Trajectories

	Inter-Corporeality & Temporality of R.T When: the Body	Agencies for (Against) RT	Internality - Externalities Where: Arena, Setting & Domains
1 st Level <i>Locale of Egg-Sperm</i>	Egg + Sperm Women > Men	Modern Biomedical Science & Agencies	Milieu (Test Tube to Embryo) of Women (and Men?) - New Life Course Bio-Engineering
2 nd Level <i>Bio-Tech In Society</i>	Regulatory Framework (e.g., HFEA, CHRT) within a Territorial-bound Jurisdiction (Country and Regional-State)	Biomedical & Legal Agencies of Regulatory Framework for RT, vis-a-vis Donors - Recipients of Eggs & Sperm, and Faith-based Institutions like Catholic Church....	Clinical Settings & Networks of Somewhere: Licensed or Outside-the-territory-bound Transnational R.T.
3rd Level <i>Transnational Cross-Cultural Philosophy</i>	Historical Processing of Socio-Cultural Virtues of the New Body: Human Reproduction: Global Opportunities Structure for Transnational R.T	Transnational Agencies & Cross-Cultural Dynamics in a Globalizing World: Fluidity of Family, Kinship and Lineage System?	Regional & Global Scales: New Life Course Social Engineering and Humanity? Interactions and Transformation between Cultural Spheres

2. Differential Reproductive Technology Nexus: Proceduralism over Humanity

Regulatory system to monitor and guiding ART is a new policy evolution, juxtaposing scientific advancement of hyper-modernization. Hong Kong is no exception to this catching-up for regulatory framework for new scientific application for (old) human (egg plus sperm) bodies and new babies.

2.1 Functionality of Biomedicine for Chinese (Individual) Wishes: The Law to Serve?

The legal foundation for regulating ART practices in Hong Kong is Human Reproductive Technology Ordinance (Hong Kong Law: Cap.561, 2001, 2007): it regulates ART procedures, and the use,

for research and other purposes, of embryos and gametes; to confine the provision of ART procedures to infertile couples subject to any express provision to the contrary in any code; to regulate surrogacy arrangements; to establish a Council on Human Reproductive Technology (CHRT). Accordingly, the Council on Human Reproductive Technology (人類生殖科技管理局) shall-

- (a)keep under review information about-
 - (i)embryos and any subsequent development of embryos;
 - (ii)relevant activities;
 - (iii)surrogacy arrangements, and advise the Secretary for Food and Health, if the Secretary asks it to do so, about those matters; (Amended L.N. 106 of 2002; L.N. 130 of 2007)

- (b) publish or otherwise make available-
 - (i) lists of premises at which relevant activities may be carried on pursuant to a licence;
 - (ii) statistics and summaries concerning relevant activities which have been carried on;
- (c) provide, to such extent as it considers appropriate, information for persons (including persons proposing to be persons)-
 - (i) to whom licences apply;
 - (ii) to whom a reproductive technology procedure is provided; or
 - (iii) providing gametes or embryos for use for the purposes of a relevant activity or surrogacy arrangement;
- (d) promote (by the dissemination of information and in other ways) informed public debate on the medical, social, moral, ethical and legal issues that arise from relevant activities and surrogacy arrangements;
- (e) liaise and co-operate with any person in any place outside Hong Kong-
 - (i) performing in that place any functions which, in the opinion of the Council, are similar (whether in whole or in part) to any of the Council's functions under this Ordinance; and
 - (ii) in respect of any matters of mutual interest concerning relevant activities and surrogacy arrangements, in particular any ethical or social issues arising therefrom; and
- (f) perform such other functions as are imposed on it under this Ordinance or any other enactment.

Hong Kong's regulatory body for ART is the

CHRT (<http://www.chrt.org.hk/>), it is a relatively new one, among biomedical regulatory bodies like the Hong Kong Medical Council (HKMC). And CHRT is a statutory body established under section 4 of the Human Reproductive Technology Ordinance (Cap. 561) ("The Ordinance") in April 2001 to regulate the provision of ART procedure; the conducting of embryo research; the handling, storing or disposing of gametes or embryos used or intended to be used in connection with ART procedure or embryo research and surrogacy arrangement. functions as central administrative body for issues and clinical procedure related to biomedical "intervention" for reproductive health (Ng, et al.2003). In spite of the Westernized biomedical advancement of Hong Kong, its regulatory framework is still novice, compared with the Human Fertilisation and Embryology Authority (HFEA) of the United Kingdom (<http://www.hfea.gov.uk/index.html>).

2.2 Regulating ART in Hong Kong: Maximal Biotech - Minimal Ethics?

Since Hong Kong government's enactment of Human Reproductive Technology Ordinance (Cap. 561) in 2000 (and revised in 2007), total number of babies born with assisted reproductive technology were only a few dozen before 2010, according to CHRT statistics (CHRT 2009, 2010): for instance, there were only 19 new born in 2009, and at most 31 (who were ongoing pregnancy as recorded in December 2010) for 2010-2011. In short, the Hong Kong case shows, and as expected, that ART was highly developed but under-utilized by infertile couples at the early phase (2007-2010).

According to 2010 statistics, none case for an earlier assisted reproductive technique (accepted by

Roman Catholic Church) of GIFT (Gamete Intra-Fallopian Transfer) which fertilization of egg occurs inside the woman’s body (not outside) was recorded in Hong Kong. Nor was the case for the more intrusive procedure (for women) of ZIFT-PROST when no procedure was performed. More specific, this reflects the obvious trade-off between risk-and-outcome, as well as old and new procedure for ART human reproduction (Fig.2 and Fig.3).

But there was an increasing trend for more couple to take up the infertility treatment with ART: for the year ending 2010, total number of users for ART increased to 8668 (patients) – still a relatively low level given the good availability of advanced reproductive technology centres in Hong Kong. More specific, majority of (female) users for ART were in their mid-30s cohort.

Figure 2: Type of RT Procedure in Hong Kong, 2010.

Types of RT Procedures in 2010

(Based on the information on Data Collection Forms received from licensed centre up to 31 December 2010)

Types of RT Procedures	No. of Patients	No. of Treatment Cycles
IVF-ET	710	749
IVF+ICSI	2630	3267
GIFT	0	N/A
ZIFT/PROST	0	N/A
Frozen-thawed ET	1832	2435
AIH	3447	5129
Others	49	51
Total:	8668	11631

(Source: CHRT, 2012)

Figure 3: Live Birth Rates among Women by Different Age Group by RT Procedure

Analysis of Live Birth Rates among Women by Different Age Group in Different Type of RT Procedures in 2010

(Based on the information on Data Collection Forms received from licensed centre up to 31 December 2010)

Age	IVF-ET					Age	GIFT				
	Treatment Cycles	Ongoing Pregnancy	Ongoing Pregnancy Rate	Live Births	Live Birth Rate		Treatment Cycles	Ongoing Pregnancy	Ongoing Pregnancy Rate	Live Births	Live Birth Rate
18-20	0	N/A	N/A			18-20	0	N/A	N/A	N/A	N/A
21-25	1	0	0.0%			21-25	0	N/A	N/A	N/A	N/A
26-30	43	16	37.2%			26-30	0	N/A	N/A	N/A	N/A
31-35	247	75	30.4%			31-35	0	N/A	N/A	N/A	N/A
36-40	402	105	26.1%	Information not available for the time being (see Remarks)		36-40	0	N/A	N/A	N/A	N/A
41-45	56	1	1.8%			41-45	0	N/A	N/A	N/A	N/A
46-50	0	N/A	N/A			46-50	0	N/A	N/A	N/A	N/A
51-55	0	N/A	N/A			51-55	0	N/A	N/A	N/A	N/A
56 and above	0	N/A	N/A			56 and above	0	N/A	N/A	N/A	N/A
Total:	749	197	26.3%			Total:	0	N/A	N/A	N/A	N/A

Age	ZIFT/PROST					Age	AIH-IUI				
	Treatment Cycles	Ongoing Pregnancy	Ongoing Pregnancy Rate	Live Births	Live Birth Rate		Treatment Cycles	Ongoing Pregnancy	Ongoing Pregnancy Rate	Live Births	Live Birth Rate
18-20	0	N/A	N/A	N/A	N/A	18-20	0	N/A	N/A		
21-25	0	N/A	N/A	N/A	N/A	21-25	26	3	11.5%		
26-30	0	N/A	N/A	N/A	N/A	26-30	417	64	15.3%		
31-35	0	N/A	N/A	N/A	N/A	31-35	2061	285	13.8%		
36-40	0	N/A	N/A	N/A	N/A	36-40	2114	214	10.1%	Information not available for the time being (see Remarks)	
41-45	0	N/A	N/A	N/A	N/A	41-45	457	16	3.5%		
46-50	0	N/A	N/A	N/A	N/A	46-50	50	0	0.0%		
51-55	0	N/A	N/A	N/A	N/A	51-55	0	N/A	N/A		
56 and above	0	N/A	N/A	N/A	N/A	56 and above	0	N/A	N/A		
Total:	0	N/A	N/A	N/A	N/A	Total:	5125	582	11.4%		

(Source: CHRT, 2012)

In addition to age and biological chronology of women, ART seemingly is also a form of “stratified” human reproduction in Hong Kong, following other developed economies’ experience. The package-price for reproduction at public hospital is nearly the average household (of four members) median income of HK\$19,000 in Hong Kong and the private providers charge about triple or more that amount. Hence, only those affordable can opt for such new technological blessing.

Beyond the reproductive cost for pre-natal care for babies, nurturing (monetary, social and temporal) cost for children in Hong Kong is exponentially high that the former British colony has the lowest total fertility rate of 1 (per woman life course) in Asia since 2000.

In November 2012, there were 36 (with 6 in public hospital) licensed centres for Artificial Insemination by Husband, 12 (with 3 in public hospital) licensed ART Treatment Centres and 2 ART Research Centres by the universities. Hence, the standards of ART are matching the developed nations. And the outcome of RT is comparable with international standards though there is differential in terms of ongoing pregnancy rate with different technology procedures. The overall average (despite its misleading indication) is within the 20%-30% international norms: in 2010: 26.3% for IVF and 25% for ICSI with IVF; somewhat similar to 2009 figures of 28.8% for IVF and 24.8% for ICSI with IVF (CHRT 2010).

Overall, the service needs are not significant if compared with total health services in Hong Kong. And because of this minimal utilization and demand, not much attention has been placed on ART and its bioethics, as compared with the end-of-life medical procedure everyone has to face....

2.3 The Perplexity of Reproductive Technology-driven Proceduralism

Juxtaposing the advancement of biomedical reproductive technology in the period 1970s to 2000s, the transformation of law governing family relationship and reproduction in Hong Kong has been dramatic, if not unprecedented, reflecting the rate of hyper-modernization: Hong Kong law banned polygamy in 1971, first test-tube baby born in Great Britain in 1978 and the 2000 Hong Kong legislation on Human Reproductive Technology Ordinance (Cap.561) enacted. This has posed substantial burden for Hong Kong society to cope with dramatic changes in the *Chineseness* and Western technology, as well as the socio-legal governance of human reproduction and family relationships – this is the partial bilingual perplexity of (legal) governance of human reproductive technology in Hong Kong society.

Furthermore, the perplexity of ART procedure in Hong Kong is complicated not just by different conceptions of (new, born or unborn) life, but also the partial bilingualism of Chinese (in daily use: spoken Cantonese and written Mandarin) and (the official legal and biomedical) English – an integral part of Western modernization with British colonial legacies.

Motherhood (and parenthood) in Hong Kong’s Human Reproductive Technology Ordinance (Cap. 561), though bilingual in legislation and for enforcement, the definition(s) of motherhood (parenthood) for the sourcing of egg (and sperm from the father) though reproductive technologically well defined but it is contestable in socio-cultural perspective, if and follow Chinese traditionalism of polygamy (banned in Hong Kong just a few decades ago, since 1971)....

For instance, related to (dualistic meanings of) the

interpretation, the Ordinance (Cap.561) states that

“surrogacy arrangement” (代母安排) means an arrangement by virtue of which a woman to whom it relates would be a surrogate mother were she to carry a child pursuant to the arrangement;

“surrogate mother” (代母) means a woman who carries a child-

(a)pursuant to an arrangement

(i)made before she began to carry the child; and

(ii)made with a view to any child carried pursuant to the arrangement being handed over to, and the parental rights being exercised (so far as practicable) by, another person or persons; and

(b)conceived by a reproductive technology procedure.

Similarly, for the interpretation on “in vitro fertilization” (體外受精)-

(a)means the fertilization of an egg by sperm outside the human body, whether or not the egg was originally removed from the body of that or any other woman;

(b)includes any procedure involving the induction or aspiration of an egg, or the culture of an egg for the purposes of any such fertilization;

Due to its highly legalistic and reproductive technical (yet narrowly defined) interpretation, not least the possible bilingual differential (mis-) interpretations, it is quite difficult for general public to make sense to use possible arrangement for ART without experts' support.

2.4 The Bounded Regulatory Governance for Biomedical Errors

Since its establishment, there are some problems for ART procedure in Hong Kong. The Council on Human Reproductive Technology (CHRT) has addressed these complaints timely but it has never taken the utmost stringent (disciplinary) actions. Below are two obvious cases.

The CHRT secretariat on 11.July 2011 received an incident report (for a wrong ART procedure occurred on 8.July 2011) from one ART Centre (licensed under Cap. 561), concerning the wrong transfer of embryos in the Centre on 8.July 2011. Two embryos belonging to a woman were transferred to a wrong woman due to failure of a junior embryologist to check the labeling of the embryos. According to the Centre, the error was immediately found and the Centre took remedial actions including retrieval of the two transferred embryos. Both women were informed of the incident and counseled.

For this wrong procedure or failure, the CHRT issued a press statement (issued 17:22 Hong Kong Time; 16.July 2011), after a prompt one-week investigation and its Investigation Committee (the Committee) of the (CHRT) at its meeting on 15.July 2011 evening, and decided not to suspend the licence of Victory ART Laboratory Limited (the Centre) as a treatment centre for carrying out ART procedure with storage of gametes and embryos as the CHRT was satisfied with the Centre's remedial measures for the accident (see <http://www.info.gov.hk/gia/general/201107/16/P201107160194.htm>).

According to the CHRT's report: it was unnecessary to suspend the Centre's licence in accordance with section 29 of Cap. 561 as the error involved was human rather than systematic.

Moreover, the Centre has demonstrated to the satisfaction of the Committee that the problem in the checking procedure has been rectified by introducing a double checking mechanism by two experts on each and every step involved.

Obviously, the above case demonstrates the failure not just in systematic terms; but against a very basic common sense that due to the lacking of a double-check procedure in place, errors have occurred; and a new system of double-checking procedure therefore will be in place after the incident: Isn't it a system failure or just human error? In other words, it is highly questionable whether human error (of no double-checking procedure on each and every step involved) was attributed to a systematic failure (in response, a double-check system was later introduced). To uphold the most stringent criteria (and subsequent sanction) for ART procedure (failure), a more pro-active and responsive action should have been taken by CHRT.

Furthermore, the limited regulatory (sanctioning) function, partly structural weakness, of CHRT is demonstratively shown in cross-border or transnational reproductive technology (trading) for egg-and-sperm. On the issue of childbirth by surrogacy arrangements, surrogacy arrangements on a commercial base is prohibited in Hong Kong, but the regulatory authority has no action taken to uphold the law (Cap.561). It is more or less challenged by wealthy privileged people, or anyone exit from Hong Kong system of ART. Demonstratively by Mr. LEE Shau-kee, the 82-year-old chairman of property developer, Henderson Land Development Ltd., and one of the richest men in Asia, and his eldest unmarried son. On 26.October 2010, Henderson Land Development Ltd. announced that triplets (three male babies, by coincidence or by reproductive

design in October?) born via surrogate to bachelor Peter LEE Ka-Kit, then age 47, heir to his aged (82) father's business empire in Asia. Since then, it has sparked international controversial discussion of surrogacy laws and regulatory measures on ART. Apparently through a surrogate hired in USA, such financial transactions for commercial surrogacy are illegal (given the reproductive law Cap.561) in Hong Kong, even if they take place elsewhere.

Due to not enough evidence to show that a criminal offence had been committed, the Hong Kong authority has closed the file on after 10-month investigation into an alleged surrogacy deal involving Henderson Land Development vice-chairman Peter LEE Ka-kit who had three sons born to him via surrogacy (*SCMPost*, 16.October 2011; *The Wall Street Journal* 14.December 2011).

Nor the Hong Kong authority (CHRT) for Cap.561 has not pursued any legal action against such illegal act. CHRT and HKMC just issued a joint statement to re-assert the illegality for commercial surrogacy in September 2011 (http://www.chrt.org.hk/english/publications/files/joint_statement_fair.pdf) that:

Surrogacy arrangements on a commercial basis are prohibited under the Ordinance (Cap.561)... It is unlawful to use in a surrogacy arrangement the gametes of persons other than the husband and wife in a marriage to whom the child carried will be handed over.... Besides legal sanctions for contravention of the provisions of the Ordinance, a medical practitioner may also be guilty of professional misconduct and liable to be disciplined by Medical Council of Hong Kong. ...

In short, the CHRT failed to reply to inquiries about whether they would be following up on the case. No full scale investigation leading to prosecution has been made under the Human

Reproductive Technology Ordinance (Cap.561) since it was passed in 2000!

3. Multiple Humanity beyond One's Egg (and Sperm) in ART?

Historically (and still the case today) that ART has been mostly private wealth-funded. It is developed to fit with individual's solution for infertility, with differential consequence for people. For this complex processing, the following delineates three levels of intrusion of ART into people's life.

3.1 1st New Biomedicine for Life: Wealth-enhanced Choice for Egg+Sperm

ART is fundamentally an integral part of new humanity-in-formation, at the micro (1st) level for the self-chosen human agencies (mostly of women and biomedical professionals). It is more psychosocial than biomedical impacts, as new biomedical science redefine whose (consented partners of egg and sperm), where (whose or which body), how (techniques of IVF), when (timing) and what (gender-choice) body will be reproduced and created, within the given (or the missing) regulatory mechanism for human reproduction. More importantly, it is the transcending matrix at micro (individual) level, meso (familial and biomedicine community) and macro (socio-legal) domains. Not least, it is about women bodies and their centrality of their bio-psychosocial embedded-coupling with new biomedical science and the externalities. Here "the physicality or materiality of the relationships between people who give organs and tissues (donate eggs and sperm alike) and those who receive them, and the imaginary of this connection, must be taken into

account along with the social values attached to those relationships. It is the constellation of relationships in which women's bodies and their own body parts (e.g. eggs) are materially exchanged and acquire particular meanings" in / through new biomedicine in practice (O'Riordan & Haran 2009: 192-193).

For reproductive biomedicine, the gender bias is more than obvious - or perhaps, a privileged biological advantage for women! In addition to the self-chosen preference to engage for biomedical solution-seeking, in most ART procedures, the presentation of women as the body to carry eggs ("exported") and bearing embryo (to another woman in surrogacy case) is not just gender biased, but also women are existing "as atomized units", free from a social world who will operate in relation only to biomedical advise (likely a solution-focused one for biomedical undertaking) in clinical setting (in which they are often already undergoing risky and stressful procedure), seems at best disingenuous (O'Riordan & Haran 2009: 197).

For last several decades, biomedical (new) science miracle advances for new life, beneficiaries for the selected or self-chosen few. The intrusive reproductive technology has been more for individual bodies' enhancement at private realm than public health or social wellbeing – all the concerned agencies are focusing on micro-benefits. As biomedical ART is more or less solution (or outcome of having babies) focused; the psychosocial and spiritual aspects of people (women in particular) have been mostly neglected – though some bioethical precautionary guidelines and procedures *par excellence* (?) are belated mooted and cosmetically put in place in terms of legal and biomedical terms.

3.2 2nd Perplexity of Regulatory Framework:

Governance of What-Whose Life?

Familial support, or its rejection, to opt for reproductive biomedicine methods to ensure the continuity of family lines of succession, reemphasizes the importance of not just bio-psychological intervention for the concerning couple (and their surrogacy), but also the functioning of marital-familial and kinship network within a larger socio-cultural milieu.

Reproductive biomedicine, operating for private sphere but in public domain, is a challenge for any regulatory framework to deal with the spectrum ranging from egg+sperm, privacy, professional competence and privileges, to social values and norms with bioethics.

But most regulatory frameworks for emerging sciences, biomedical reproductive technology in particular, are administrative-bureaucratization, embedding the proceduralization of “business as usual”, of bioethics. For example, the Human Reproductive Technology Ordinance (Cap.561) and its CHRT are mostly dealing with detailed procedure, protocol and guideline and the administration of them, in and through which it states:

“reproductive technology procedure” (生殖科技程序) means a medical, surgical, obstetric or other procedure (whether or not it is provided to the public or a section of the public) assisting or otherwise bringing about human reproduction by artificial means, and includes-

- (a) in vitro fertilization;
- (b) artificial insemination;
- (c) the obtaining of gametes;
- (d) manipulation of embryos or gametes outside the body;

(e) a procedure specified in a notice under subsection (2)(a)(ii) to be a reproductive technology procedure; and

(f) a gender selection achieved or intended to be achieved by means of a procedure which falls within this definition, but excludes a procedure specified in a notice under subsection (2)(b)(ii) not to be a reproductive technology procedure;

To recapitulate the governance on ART, administrative-logics are throughout the processing of, and biomedical professionals’ domination over, human reproduction and its missing of interfaces with society at large – the *modus operandi* of CHRT with some selected representation of interest groups is well controlling the regulatory (specific proceduralism!) body. Ethics and norms for good governance on human reproduction are subject to bio-scientific hegemony.

The risks of new biomedicine are also under-articulated in secular narratives, given certain advantageous, positively acclaimed, narratives and rhetoric by the interest groups for new biomedicine – this is clearly shown in the functional representation of statutory regulatory bodies on ART which medical and research professions dominate most of public discourse on the beneficiaries of new technologies for people at large (O’Riordan & Haran 2009).

Perhaps because of this system’s self-referentiality (pre-empting the bioethics) for championing biomedical reproductive technology by the state and biomedical agencies, people (especially those are more wealthy) attempt to “exit” from the system to pursue their own reproductive wishes with transnational reproductive tourism.

3.3 3rd Societal-Technological Historicity: Aged Virtues in Transformative Biomedicine?

There are multiple yet inter-related ways to conduct ART, the widely use procedure of the *In Vitro Fertilization Pre-Embryo Transfer* (IVF-ET), designed to enhance the likelihood of conception in couples for whom other fertility therapies have been unsuccessful, first successfully used in humans in 1978. Over the years, the possibility of a continuing pregnancy being achieved by IVF has improved from practically zero to 25% at IVF clinics worldwide – Hong Kong’s biomedical ART achieves such level recently as well (CHRT 2010). But the possibility of a pregnancy being achieved for any one patient cannot be predicted, as it depends on many variables - such as age and the reproductive health of both the wife and the husband. Moreover, it is high risk too as the complex process involves multiple steps resulting in the insemination and fertilization of oocytes (eggs) in the laboratory. The embryos created in this process are then placed into the uterus for potential implantation (<http://www.ivf.com/overview.html>)...

But most of ART procedures are “autopoietic” (self-referential) as biomedical endeavors go in a technology creeping *modus operandi* (O’Riordan & Haran 2009: 201) that

a process by which new technologies create affordances for each other and contribute towards cultural acclimatization for more technologies; in this case the creep is between IVF and cloning. The novelty of cloning as a new (reproductive) technology retrospectively normalizes the existing practices of IVF. These developments and the core-creep relationship can be traced from IVF practices in the 1970s (Crowe, 1990; Pfeffer and Woollet, 1983; Spallone, 1987)

through to the practices of therapeutic cloning in the early 21st century (Haran et al., 2008).

As proclaimed by most regulatory frameworks over reproductive medicine in developed world, egg and sperm donor(s) and their corresponding recipient(s) should be well informed about the risks and benefits with subsequent consent for the clinical ART procedures; but contextual realities are more or less that donors and recipients are self-chosen, for better or worse over different motivations, that they are bound to be involved in the clinical procedures: as their involvement is reflecting somewhat heightened attention, hope and excitement, if not euphoria, for futuristic promises of new biomedical offerings under the pro-active state policy development for future sciences.

Recent research also shows that reproductive service is demonstratively in favor of the wealth and privileged groups and there is continued existence of “stratified reproduction” in USA, with evidence of group differences in reproductive control and access to reproductive health care: women of color were overrepresented among people with infertility but were underrepresented among those who received medical services (Arthur, et al. 2011). This is in line with our examination that ART is a socio-economic biased one, favoring the privilege ones: the same trend is more than obvious for the (price mechanism-driven) commodified practice of reproductive biomedicine in most developed and emerging economies.

Reproductive technology consists of complex -cum- sophisticated procedure, taking and placing eggs and sperms for laboratory and woman womb aiming for continuing pregnancy. The time for considering, deciding and involving in assisted human reproduction is a long and enduring one, lasting

in terms of months, if not years if the trails do not succeed. And egg-and-sperm donors and recipients have to undergo biophysical and psychosocial stresses, though mostly bear by the female partner(s) in human reproduction.

Yet most of the efforts for reproductive regulatory framework development are muddling with legal and biomedical professional specificities for self-referentiality, in terms of guideline, protocol and procedural specification of who and for whom, when and where, as well as how reproductive technology should be taken place, without much considerations for human (non-professional) agencies and the rights (to opt out) – hence it is not unreasonable to quest for: whose body (and for whom calling) for human reproduction?

4. Paradoxes of Bio-Medicalization: Multiple Humanity (Family) in New Millennium?

Futuristic biomedical science in 21st Century hypermodernity facilitates not just new technologies but likely to transform humanity with rejuvenations of multiple humanity, new family-kinship relations and social relations with emerging novice technology-driven societal encounters, like new virtual realities and the back-to-the-future human relationship when traditional family-kinship can be historically or chronologically reversible: any life can be possibly re-created by biomedical re-engineering.... For the likely scenarios, the ending paragraphs of this brief make critical remarks.

4.1 Egg + Sperm Escape from the Womb: Champion for New Life (Course)!

New “intrusive” biomedicine for people,

empowering women in particular, to choose new lifestyle(s) and extending their opportunities to make up the lost of (reversing or rejuvenating biological) critical time (for having baby) set by bio-historic limits. For instance, people can now re-create human new life at anywhere - anytime (back to the future?) as they wishes, given they have stored up their own (or other) egg+sperm with ART system. But this is only for those privileged ones.

At the society level, there is new opportunities structure supported by both wealthy groups and biomedical science advancement for human reproduction – demonstratively an extension of people alternative choice(s) to make for planning one’s future (and legacy) and familial succession.

This is in line with hyper-modernizing systematic calling for individual(ism-driven self-) planning future in liberal, global advanced capitalism, affecting not just the young and fertile one, but also the rich aged one who can still be reproductive active as ageing (say, reactivating their previously stored eggs and sperms). Hence, a new choice-based auto-biography in “New Biomedicine Age” is more than obvious. The choice biography concept implies not just young people, but also the aging ones, to (re-) plan for their own (not historically defined, aged-limited and standardized life course). All these exercises are not just cognitive-mental one, but are being institutionalized into everyday life that people are engaged in the projection, planning and evaluation of their own life course with new *Weltanschauung* (worldview) – the biographization of one’s own life course (Vinken 2004; Macmillan, Ed. 2005).

Helping the self-biographization of life course of younger generation are the state policy, new sciences and new family wealth and outlook in late 20th Century. Both the state and the upwardly mobile,

better-off family (in comparison with their previous cohort) dynamics reinforce the delaying and exit- (and-re-engaging) strategies of the younger (and the aged) generation to take up new socially expected role for adulthood, fatherhood / motherhood... as well as reproducing new life beyond the historical bound age-limits. On the other hand, the apologetic and sympathetic attitudes of new, secularly individual rights centred, regulatory framework for ART, foster new parenthood even at advanced (60+) age cohorts. Furthermore, most developmental state's further investment for biomedical sciences (as future championing technologies of life sciences) reinforces the complex, but contradictory, constellation of the individual's life choice for new parenthood and baby-bearing; calling within a new challenging (constructive destructive forces?) biomedical technological advances. One such complex matrix is a challenge to social (historical bound) norms and ethics on the equal opportunities for men and women (for life creation), with the promotion of progressive rights for women to control their sovereign body for new human reproduction.

4.2 Global Reproductive Tourism – Choice-driven New Flexible Human Reproduction Regime?

Medical tourism in general and transnational ART in particular is booming globally. In spite of the difficulty to measure the scope for medical and “reproductive” trading, they are considered as a new major source for economic development. Accordingly, the worldwide market size for medical travel was close to US\$60 billion (in 2008), and was expected to grow at double-digit rate, to US\$100 billion by 2020 (Whittaker 2010). Accordingly, it is estimated that there were approximately 5 million medical

tourists worldwide; each spends an average of US\$3,000 per surgery. Of that figure, some 550,000 Americans travelled outside the US for medical care in 2011. This includes all medically-related costs and does not include patient travel or accommodations (Patientsbeyondborders 2012).

The top ten countries for medical tourism are: Brazil, Costa Rica, India, Korea, Malaysia, Mexico, Singapore, Taiwan, Thailand, Turkey; and the emerging ones are China, Puerto Rico, United Arab Emirates (UAE), United States (Patientsbeyondborders 2012). Among them, India and UAE stand out as the most pro-active ones for ART tourism, though their biomedical infrastructure and regulations for reproductive procedure differ much (Inhorn & Shrivastav 2010; Palattiyil, et al. 2010).

Why people “exodus” for reproductive tourism? Empirical review on global reproductive tourism has identified seven major factors contributing to the phenomenal “exit” making new life (Inhorn & Shrivastav 2010: 68S-69S):

- (i)-individual countries may prohibit a specific service for religious or ethical reasons;
- (ii)-a specific service may be unavailable because of lack of expertise, personnel, and equipment;
- (iii)-a service may be unavailable because it is not considered sufficiently safe or its risks are unknown;
- (iv)-certain categories of individuals may not receive a service, especially at public expense, on the basis of age, marital status, or sexual orientation;
- (v)-services may be unavailable because of shortages and waiting lists, especially for donor gametes;
- (vi)-some individuals may have privacy concerns; and
- (vii)-services may simply be cheaper in other

countries.

Arguably, transnational surrogacy (egg, sperm and woman womb of global human reproduction trading chain in a globalizing world) is controversial not just in terms of the questionably intrusive technological procedure applying in, as well as taking advantages of, different regulatory state regimes on ART, ranging from complete ban on surrogacy to the almost free market like regime. USA, Great Britain, and Canada have policies governing surrogacy in the interests of both the surrogate mother and the commissioning couple, with clear guidelines related to payment for surrogacy. But in USA the legality of surrogacy differs from state to state. But countries like Australia, China, Denmark, France, Germany, Hong Kong Mexico, Spain, Switzerland, and Turkey have banned surrogacy -- contrasting Belgium, Finland, Guatemala, India, and other countries have few regulations regarding surrogacy. In different surrogacy markets, comparative costs to the commissioning parents range from about \$80,000 in the United States to \$12,000 in India (Ross-Sheriff 2012: 126).

The issues of (commercial) transnational surrogacy are three folds: (i) new globalizing market for new life (more than cross-borders adoption) with full spectrum of price-tagged ART services from egg+sperm to new born babies; (ii) enabling wealthy individuals to escape from a restricted reproductive regime; and (iii) pre-empting any likely questionably ethical and moral controversies. It could be said that transnational surrogacy champions reproductive technology *par excellence* for the affordable price (thanks to the wealth of the buyer of) new life.

Juxtaposing the self-referentiality new biomedical science for human reproduction, those self selected wealthy, privileged people are escaping (or “exodus”

en masse?) from socio-cultural -cum- ethical bondages of their society – isn’t it the new life praxis for new humanity in 21st Century and beyond?

4.3 Reproductive Questions for New Life: Alternatives beyond Bio-Medicine?

Historically, and mostly likely be the case that, any regulatory body on new sciences operates within (and beyond) a fast-advancing, complex hence ethically challenging yet mostly uncharted spaces of sciences and humanity.

Transnational reproductive trading and surrogacy are core part of global-regional medical tourism in advanced global capitalism, with selective ART as a pay-tradable service for those who can afford but are not legally and/or ethically offered in their home country: with the “all-in-one” reproductive-service-chain having the embodied services or biological offerings (egg+sperm and woman womb) of other people. But the challenge for global flexible-trading regime of reproductive technology is obvious: people’s “exodus” for the liberalizing cost-efficient techno-regulatory regimes has strong ethical ramification within and beyond bio-reproductive technology in global society, exacerbating the perils of humanity and systemic unsustainability (Palattiyil et al. 2010; Ross-Sheriff 2012; Whittaker 2010).

Indeed, recent secular ethical frames to consider reproductive tourism are also sympathetic to, if not inclined to favor, the trading of money with bodies of egg, sperm and womb alike (Jaiswal 2012: 1-2):

- (a) the liberal feminist principle of women’s choice and freedom, which accepts contractual surrogacy as a service, as opposed to the socialist feminist principle of equity and fairness which regards it as potentially

exploitative given the lack of economic opportunities to the surrogate, and

- (b) the extended equity principle, which questions India's propriety in allowing "outsourcing" of pregnancy in a country with a dismal record of maternal mortality.

Thanks to (or the curse of) ever-advancing bio-sciences, the further expansion -cum- sophistication of various forms of (legal or illegally) "trading" for human (organ-) reproduction is inevitably in reality. But two critical domains for future development should be guided by ethical considerations: the hosting countries for reproductive tourism and the governance of flexible trading of egg-sperm and the womb. First, policy development for those hosting countries (like India) of reproductive tourism should have equitably distribution of health resources between the reproductive sector (as a form of trading to earn foreign currencies?) and those non-reproductive (but critical) services. Second, as reproductive tourism is chaotically organized - the uncertainty and unprotected rights for all the concerned in transnational surrogacy, say the least; it is therefore indeed urgent for international governmental and non-governmental agencies to monitor and, possibly region-international regulate, the trading of egg-and-sperm and organs in ART mobility, like the regime against human trafficking, that the rights of the surrogates and the concerned are safeguarded and exploitation minimized.

Furthermore, there are more normative questions to be raised: will biomedical endeavors towards alternative new life form(s) engender a paradigmatic shift from socio-cultural-historically fixed humanity to a boundless or unlimited one? Will new reproduction (with money can buy all) of human species bring more happiness and wellbeing for

people at large?

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