Chapter 4

The Making of the World's Most Lenient Guideline

"Unlimited" was a category of the number of embryos to transfer (NET) in the International Federation of Fertility Societies (IFFS) report in 2001 (Jones and Cohen 2001). "Unlimited" indicates the absence of guideline for NET. The IFFS reported that among thirty-nine countries surveyed, more than half had guidelines or statutes to limit NET. Taiwan was included in that report, under the category "unlimited," with "< 6" supplied in parentheses, meaning that the customary NET was fewer than six (ibid.: S12). "Fewer than six" may have looked extreme in comparison with those countries doing double embryo transfer, but it may in fact have been an underestimate in Taiwan, for according to Taiwan's national registry data, in 2000 nearly 20 percent of cycles were implanted with six, seven, eight, or nine embryos (ROC Department of Health 2003). Canada and Greece also reported "unlimited" NET, with "< 6" again supplied in parentheses. In contrast, as chapters 1 and 2 have shown, Sweden, the UK, Belgium, and Japan had moved to a maximum of two or three embryos transferred as early as the 2000s, with enforcement from the state or medical society. Taiwan did not build any guideline on NET until 2005, and it has been revised three times since then. Although Taiwan is no longer listed under the category "unlimited," its NET guidelines have been one of the most lenient in the world.

This chapter analyzes the making of the NET guideline in Taiwan. How did Taiwan start the NET regulation? Who are the key stake-

holders in the process of creating regulation? If doctors have dominated the clinical practices, how could the power dynamics change? Since NET is a global trend, what kind of available regulatory models are chosen as the useful reference? What is the contact zone? Most research discusses ART regulation within the boundaries of a given nation-state. As the regulation latecomer in the case of NET, Taiwan can reveal the specificity of interaction between the global and the local. My analysis begins by identifying the key group of stakeholders who initiated the need to regulate NET. The leverage of the weak may first come from a sad mother's tears.

"A Sad Mother's True Confession"

In 2000, a story titled "A Sad Mother's True Confession," published in the newsletter of the Premature Baby Foundation of Taiwan (PBFT), revealed the suffering of a set of premature triplets and their whole family. The story began with the implantation of five embryos, becoming pregnant with quadruplets, reduction to triplets, and birth in the twenty-fifth week. The mother complained that the doctor in charge gave misleading information:

> The doctor suggested reducing the quadruplets to triplets and gave us three factors to consider. First, there are several success stories of triplets. Second, parents would have a difficult time. Third, the pediatric section in that hospital had a strong team. We came from a farmers' family, so we were not afraid of the heavy care burden. … However, what the doctor did not tell us was the health risk of triplets. … I would like to warn future parents that a singleton is what you should consider. … And for doctors, you should bear kindness in mind and tell the patients the danger that multiple babies would face. (A Sad Mother 2000)

The voices of such "sad mothers" had seldom before been heard. The PBFT created a platform to reveal the medical misconduct from the mothers' perspectives, as well as the direction of policy changes, such as correct information on the health risks of multiple birth. Some follow-up reports indicated that the sad mother's triplets suffered lingering health problems (Yang 2002), echoing the major concern of the PBFT, which gradually became the major public voice for wordless premature babies. The statistics of increasing premature babies caused by IVF looked alarming, but it is the personal tragedy that often resonated most.

Witnessing the rapid increase in similar cases and the upsetting statistical numbers, the PBFT became a new actor to confront the practices of assisted reproductive technology. The PBFT had been founded in 1992 to provide adequate medical care for premature babies and support for their parents. The main office was in MacKay Memorial Hospital, famous for its pediatric care. In the 2000s, the PBFT began to respond to the increasing multiple births of premature babies, from twins and triplets to quadruplets and even quintuplets. For example, responding to a quintuplet birth, Dr. Kuo-Inn Tsuo, a PBFT board member and the leading pediatrician in the neonatal care unit at NTU Hospital, argued that babies born of IVF overall had poorer health outcomes, mainly due to the prematurity caused by multiple pregnancy (Yang 2000); the response was based on her team's research on the outcomes of one hundred IVF births at NTU Hospital in 1995–96 (Chou et al. 2002). Prevention gradually stood out as a new agenda item for the PBFT, including the misuse of ARTs (Yang 2002). At the PBFT's tenth-anniversary event in 2002, a father of two sets of twins testified how his wife had been pregnant with quadruplets and septuplets, which had been reduced to twins in both cases who had nevertheless been born prematurely. His tearful testimony was widely reported in the media (e.g., C.-C. Chiu 2002).

The PBFT began to pressure the IVF community to act on prevention. In addition to these emotional personal stories, national registry data became a useful force. In 2002, when the PBFT celebrated its tenth anniversary, the premature rate of IVF babies was 43.8 percent, including 6.2 percent weighing less than fifteen hundred grams, categorized as "very low birthweight," the highest percentage ever recorded in Taiwan (ROC Department of Health 2005a). One active member of the PBFT described how she used the data to press the IVF leaders:

> 43 percent of IVF babies were premature. And about 7 percent less than 1,500 grams. This is horrible! These were caused by the 65 IVF centers. I presented the statistics to Dr. Kuo-Kuang Lee and kept asking him what to do. … He said let's have some education seminars for our members. Since the introduction of National Health Insurance [in 1995], we have traced the health outcomes of premature babies. We have done two white papers on the health outcomes of premature babies. One-fourth to one-fifth of them have some mild or serious neuro and developmental problems. Really sad. I hope they can provide the information well. (PBFT key member, 2002 interview)

Presenting "horrible" numbers and sad stories, the PBFT persuasively asked the IVF community to take action. Thus, unlike the interprofessional conflicts between neonatologists and IVF practitioners that spurred reform in Japan, in Taiwan it was the PBFT that was the main engine of reform. Dr. Kuo-Kuang Lee, who was both the IVF leader at MacKay Memorial Hospital, where the PBFT was based, as well as the president of the Taiwan Society for Reproductive Medicine (TSRM), became the bridge between the PBFT, as the spokesperson for premature babies, and IVF practitioners. The new anticipation of new success—achieving live birth without health risk—finally took off in Taiwan.

The TSRM took two initial steps: education, and informed consent. Seminars and continuing education classes were held to recommend that doctors implant an appropriate number of embryos. This included a 2002 seminar, co-chaired by PBFT director Hui-Chen Lai and TSRM president Kuo-Kuang Lee, titled "Minimizing the Risk of Multiple Pregnancy" that included three speakers who talked about the feasibility of single embryo transfer (SET), fetal reduction, and the relationship between ART and premature babies. The TSRM also offered new information about the increasing risk of multiples and premature babies on the official informed-consent form for ART, adding the sentence, "Assisted reproduction would increase the chances of multiple pregnancy and premature birth." In an interview, Dr. Lee also advocated that doctors follow the guidelines from the American Society for Reproductive Medicine (ASRM) to implant three to five embryos depending on the woman's age (Yang 2002). As chapter 1 has shown, state or medical society guidelines to limit the number of embryos had been practiced by other countries since the late 1980s, and these were deemed the most effective way to change clinical practice. As the president of the TSRM, Dr. Lee obviously knew the importance of guidelines. But why did he advocate the ASRM's guidelines for Taiwan instead of those from the UK, Germany, or Japan?

"American Model Plus One"

By 2002, limiting the number of embryos transferred was the common effort worldwide to reduce the troubling trend of multiple pregnancy. The most lenient guideline came from the US, which showed a NET on the IFFS report of two to five embryos by age

group in 1999 (Jones and Cohen 2001: S12), a guideline revised to one to five embryos in 2004. Taiwanese doctors knew well that the trend in European countries and Australia was toward double or single embryo transfer, and some even introduced this trend to Taiwan in popular media articles (C.-H. Lai 1998, 2002; C.-C. Tsai 1999; Chien 1999). Nevertheless, the American guideline became the model to follow.

In 2005, the TSRM announced its own voluntary guidelines for the very first time. At the board meeting in February of that year, Dr. Ying-Ming Lai drafted a qualitative guideline on NET, stating that "if we carefully select *two to three embryos of good quality*, we could reach ideal pregnancy … if we limit to transferring *two blastocysts*, this could both reach a high pregnancy rate and avoid higher-order multiple pregnancy" (Y.-M. Lai 2005: 7, emphasis added). However, in June 2005, the publicized TSRM guideline was much more lenient: two or three embryos for women thirty-five years old or younger; three or four for women thirty-five to forty years of age; and for women forty years old or more, doctors could implant five or more embryos. The guideline followed the recommendations of the revised 2004 ASRM guideline but added one more embryo for each age group (table 4.1). Several doctors termed it the "American model plus one."

Issuing a guideline was an important step, but why did the TSRM move from its original proposal of a two-to-three NET guideline to a two-to-five one? One doctor who became involved with the guidelines explained the result:

> The overall pregnancy rate in Taiwan looked good, but it was uneven: some centers were good, and some were bad. The good pregnancy rate is also made by implanting multiple embryos. Our one- or two-embryo implantation rate was still low. Some members still lacked the skill to get a good pregnancy rate with few embryos. If we gave a strict guideline, we were afraid that it would work against some members' interest. We would be badly complained [about]. (Doctor L, 2011 interview)

Dr. L's response was quite similar to the reasoning in the 1990s for not imposing any guideline—namely, to avoid interfering with other clinicians' business. IVF had moved from a technical competition for "First" status in the 1980s to market rivalry for good business in the 2000s. The number of government-accredited IVF centers rose from twenty-five in 1997 to sixty-five in 2001. IVF

TABLE 4.1. ASRM and TSRM Guidelines in 2004 and 2005. (ASRM = American Society for Reproductive Medicine; TSRM = Taiwanese Society for Reproductive Medicine.) © Chia-Ling Wu

ASRM embryo transfer guidelines			TSRM embryo transfer guidelines		
Publication date	Woman's age	Maximum number of cleavage-stage embryos to transfer	Publication date	Woman's age	Maximum number of embryos to transfer
September 2004	< 35	1–2	April 2005	< 35	2–3
	35–37	2–3		35–40	3–4
	38–40	3–4			
	> 40	4–5		> 40	5

centers expanded from the medical centers in metropolitan Taipei to private clinics in other parts of Taiwan. For newcomers particularly, the risk of IVF failure remained a major concern. Given the need of some IVF centers to raise their success rate through higher numbers of embryos transferred, the TSRM further expanded the lenient American guideline when forming a standard.

Why did the ASRM guidelines appeal to the TSRM? Other medical societies, such as the British Fertility Society and the Japan Society of Obstetrics and Gynecology (JSOG), also offered guidelines, but what the TSRM preferred was the American ones. Doctors whom I interviewed offered the following rationales. First of all, the US is a superpower in terms of technological innovation. Following the American guideline thus "cannot be wrong," as one doctor phrased it. Second, the American guideline adds a variable—the mother's age. Doctors believed that this would increase their autonomy to make clinical decisions. Third, by the mid-2000s, the US guideline was very similar to what most Taiwanese doctors practiced—that is, the US's two-to-five embryos was quite close to Taiwan's (misleading) "< 6"—so most did not have to change their clinical behavior to follow it. Fourth, among all the countries with regulation and guidelines, "Taiwan is most similar to the US" (Doctor N, 2011 interview).

Here "similarity" refers to the two countries' lack of health insurance coverage for IVF and their offers of IVF treatment on the free market. One opinion leader explained:

> Taiwan is much like the US. We are very similar. Both do not offer health insurance coverage for IVF. Consumers can choose IVF in the market. Those European countries offered health insurance coverage, so they could afford to limit the number to one or two. We should pick a country that is similar to us to follow. (Dr. N, 2011 interview)

Taiwan and the US may not be that similar, however. Since Taiwan started its National Health Insurance (NHI) in 1995, assisted reproductive technology—joining cosmetic surgery, sex reassignment surgery, and other medical treatments—is specified in the statute *not* to be covered. Even though some infertile couples have requested NHI coverage through public hearings to relieve their financial burden, these sporadic efforts have not easily moved to the level of legal change (Wu et al. 2020). By comparison, some US states, such as Illinois, require mandated insurance coverage for IVF, mainly due to the lobby of infertility patient groups (King and Meyer 1997). And by 2001, three states mandated complete coverage (Illinois, Massachusetts, Rhode Island), while another five states required partial coverage (Jain 2002; Reynolds et al. 2003). Therefore, it is misleading to say that the US is like Taiwan in requiring aspiring parents to pay for IVF fully out of pocket. Taiwan and the US also differ in terms of geographical space and degrees of competitiveness—factors that affect clinical decisions on NET, but ones that are seldom highlighted by policymakers.

It was Taiwanese doctors' affinity for the American model, rather than the similarity of the two IVF systems, that guided the TSRM to the ASRM. The familiarity of Taiwanese IVF experts with the American situation began with their early training in IVF. As mentioned earlier, most pioneering Taiwanese IVF specialists learned IVF in the hospital labs at the University of Southern California or the University of Rochester (Doctor L, 2011 interview). In the initial period, some Taiwanese Americans helped several Taiwanese hospitals build IVF centers, strengthening the link between Taiwan and the US. Taiwanese doctors also learned IVF skills from the UK, Australia, France, Japan, and Singapore and attended conferences held by the IFFS and the European Society of Human Reproduction and Embryology (ESHRE). Still, they most regularly attended the annual meeting of the ASRM, selected a US university lab in which to learn new skills during their sabbatical years, and reported on their American experiences in the TSRM newsletter or national newspapers. Taiwan's affinity for the American IVF model reflects its continuing dependence on the US since the Cold War period in

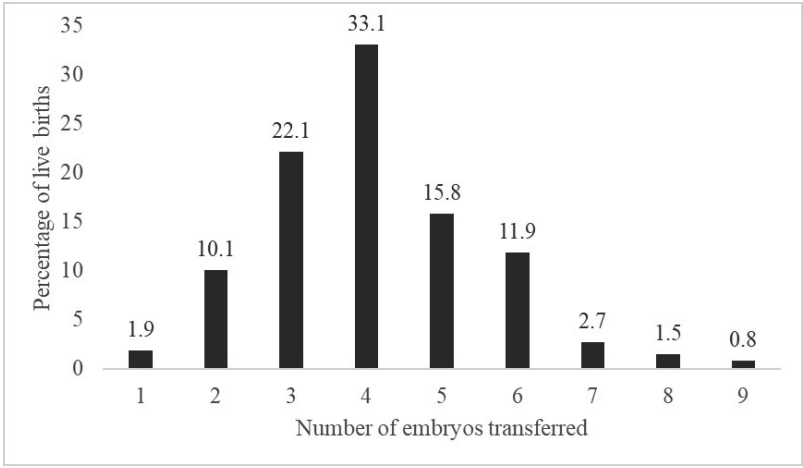
terms of knowledge acquisition. This affinity extends to policy travel in the regulation of embryo transfer.

Challenge from a Feminist Legislator

When Taiwan's Department of Health first drafted the Assisted Reproduction Act in the 2000s, regulation of the number of embryos transferred was not included, nor was it contained in two later drafts provided by legislators. It was the legislator Shu-Ying Huang, a feminist activist, who in 2006 proposed adding a regulation that would limit the number of embryos to "no more than four." Taiwan Women's Link (TWL) was established in 2000, the very first women's organization that focused on health issues.[1] From the very beginning, TWL has been devoted to women's access to resources of abortion, including RU486. At the same time, TWL shares similar values with FINRRAGE (Feminist International Network for Resistance to Reproductive and Genetic Engineering) in terms of challenging the use of assisted reproduction technology. Legislator Huang has been the main feminist figure against the legalization of surrogacy in Taiwan. When the Assisted Reproduction Act was discussed in the congress, she also insisted on including a new item on NET in the article that listed prohibited practices such as sex selection of embryos during IVF.

Legislator Huang's written proposal emphasized the risks of the fetal reduction technique to women's health as the primary reason for her insistence on regulating NET. In the parliamentary discussion, she stated that there were cases of women dying from fetal reduction, so "in the interest of protecting women's health," limiting NET was important (Legislative Yuan Gazette 2006: 157). What she was referring to had happened at Taipei Veterans Hospital, where the first IVF baby, Baby Boy Chang, had been delivered by Dr. Sheng-Ping Chang in April 1985. Seventeen years later, Dr. Chang had performed a four-to-two fetal reduction for a woman who subsequently died of a serious infection, together with the remaining two fetuses. Dr. Chang faced a legal suit brought by the family that was not settled for more than a decade. Only one major media outlet reported on the case (C.-S. Chen and Chang 2002). Legislator Huang highlighted the case in her opening statement as the main reason to legally limit the number of embryos transferred in IVF.

Legislator Huang also listed the regulations from Belgium, China, Germany, Japan, Sweden, and Switzerland as examples to regulate



GRAPH 4.1. Taiwanese Government Statistics for 2002 Cited by Legislator Huang. Source: ROC Department of Health 2005a. © Chia-Ling Wu

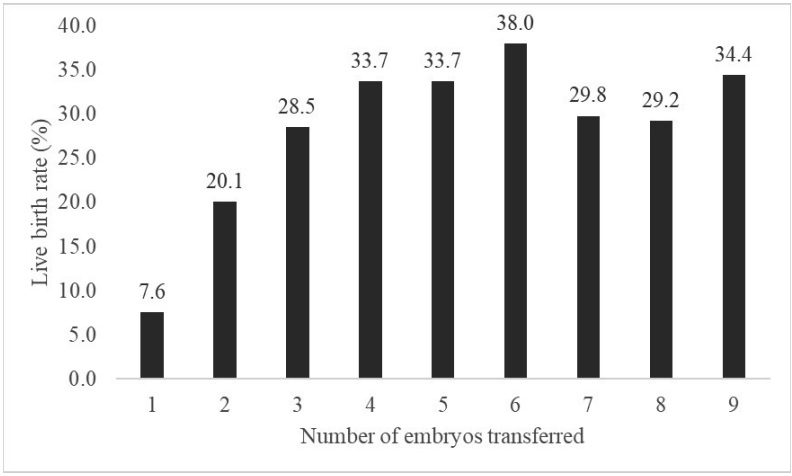
NET. As a latecomer to legal regulation, Taiwan applied the common strategy of mobilizing an international trend so as to convince others to follow. Legislator Huang further stressed during the congressional meetings that the Nordic countries, Belgium, and the Netherlands had moved to single embryo implantation (Legislative Yuan Gazette 2006: 156). Then she presented the local statistics based on the national registry: the live birth rate for implanting three embryos was 22 percent in 2002, the rate for four was 35 percent, and the rate dropped to 15 percent when five were transferred (graph 4.1). Legislator Huang proposed "no more than four" as a balance between protecting maternal and infant health and maximizing the local success rate of IVF.

Despite the fact that the global trend in IVF was to limit the number of embryos to three or fewer in the 2000s, local practice in terms of pregnancy rate was presented as the most important criterion when considering the extent of limitation. "No more than four" was a compromise for Legislator Huang, considering the dilemma she faced in attempting to protect women's health. That dilemma was to calculate the health risk caused by fetal reduction and repeated IVF. After she learned of the low local success rate using just one or two embryos, she could not just copy the European trend without considering the local situation. Gauging the multiple

risks women might face, Legislator Huang chose to limit NET based on the performance of local practice. Dr. Shee-Uan Chen of NTU Hospital, the expert invited to the parliament, admitted that the 3–5 TSRM guideline was more lenient than that of ASRM. He agreed with Legislator Huang that "up to four should be reasonable … if more than four, it only increases the chances of multiple birth and women's health risk" (Legislative Yuan Gazette 2006). Legislator Huang further echoed Dr. Chen to point out the statistics that "the success rate was 33 percent for four, and dropped to 15 percent [for five embryos], so certainly four was better" (ibid.: 158).

Lack of health insurance was another local practice taken into consideration in the legislature. Asked about the possibility of using single embryo transfer (SET), Dr. Chen responded: "The above-mentioned countries that require one embryo at one time have health insurance coverage, so they can absorb the burden of failure. However, most of the countries in the world do not offer health-insurance coverage" (ibid.: 157). Dr. Chen linked SET to insurance coverage to explain why it wasn't feasible to implant just one embryo at a time in Taiwan. What Dr. Chen described was closer to the Belgian model, or the case in some Nordic countries, as discussed in chapter 2. Still, more countries than Dr. Chen mentioned provide some public financial support of IVF. According to an IFFS survey, half of IFFS-reporting countries offer at least partial insurance coverage (Jones and Cohen 2007). Some countries (such as Israel and France) offer generous coverage without official regulation of NET, while others do not have any national insurance coverage (such as Switzerland and Canada) but nevertheless require that three or fewer embryos be transferred. Although the association between regulation of NET and third-party payment is complicated, a particular image of the global trend was given to justify the permissive regulations in the local proposal before the Taiwanese legislature.

"No more than four" did not encounter any objection in the arena of legislation and soon became part of the drafted Assisted Reproduction Act that was passed by the parliament in 2007. As I investigated this story, I found that the powerful statistics that Legislator Huang relied on were inaccurate, due to badly presented government data. The y-axis on graph 4.1 was mistakenly labeled "Percentage of live births" by the Bureau of Health Promotion; it should be "Percentage of *total* live births," and it would be better presented as a pie chart, since all the percentages would then add up to 100 percent (ROC Department of Health 2005a). If we look



GRAPH 4.2. Percent (%) of Live Births by Number of Embryos Transferred (NET) in Taiwan in 2003. Source: ROC Department of Health 2005b. © Chia-Ling Wu

at the success rate for each number of embryos transferred—the statistics Legislator Huang would have liked to quote—we find that in 2003 the live birth rate was actually highest when six embryos were transferred (graph 4.2), which was also listed in the annual government report of ART practices.

None of the legislators, governmental officials, or IVF experts pointed out Legislator Huang's inadvertent use of misleading government data. This may be because "no more than four" happened to be the best compromise among various stakeholders. For Legislator Huang, a legal enforcement was imposed on doctors. For doctors, "four or fewer" meant a flexible standardization. After all, in 2007, the year the legislation passed, only 13.1 percent of IVF cycles in Taiwan were implantations of five or more embryos (ROC Department of Health 2009). Therefore, despite the fact that the guideline of "no more than four" sprang from a misrepresentation of data, it paradoxically fulfilled the diverse interests of stakeholders and resulted in a consensus on statutory regulation. Feminists such as FINRRAGE members have been the leading actors in selecting multiple pregnancy as the dimension of anticipation of health risk. This also happened in Taiwan. Nevertheless, the newly established regulation of "up to four" embryos transferred in IVF could scarcely reach the goal of reducing the risk of multiple pregnancy.

Voluntary Guidelines: Far from Elective Single Embryo Transfer (eSET)

After the parliament passed the Assisted Reproduction Act in 2007, the TSRM revised its 2005 voluntary guidelines in 2012 and 2016 (table 4.2). In the statement of the 2012 guideline, the TSRM again recognized Taiwan in terms of its world ranking, although this time it was not for a glorious achievement but for a controversial regulation:

> Among all the countries that practiced assisted reproductive technologies in the world, for the legal limit on the number of embryos to transfer, Taiwan's "up to four" is the highest. … The goal of ART is to help infertile couples have healthy babies. Therefore, while we aim to maintain the success rates, we need to reduce the risk of multiple pregnancy caused by ART. Our success rates are as good as many European and American countries. Based on the trend of developed countries, meeting discussions, and surveys of our members, we built the following guideline. (TSRM 2012)

The TSRM showed signs of anticipating new success by bringing up the concept of "take a healthy baby home" and working to maintain Taiwan's success rates while reducing the health risk of multiple pregnancy. However, its overall statement leaned toward maintaining Taiwan's high success rates, as contextualized within the global comparison of developed countries. More significantly, the contents of Taiwan's guidelines were far from eSET, which was the most effective way to reduce multiple pregnancy and had been practiced by Sweden, Japan, Belgium, and several other countries for more than a decade by the 2010s.

TABLE 4.2. Taiwan Society for Reproductive Medicine (TSRM) Voluntary Guidelines in 2005, 2012, and 2016. © Chia-Ling Wu

Woman's age	2005	2012	2016
	Maximum number of embryos to transfer		
< 35	2–3	2	1–2
35–37	3–4	2–3	2
38–40		3–4	3
> 41	5	4	4

TABLE 4.3. American Society for Reproductive Medicine (ASRM) 2017 Guideline on the Maximum Number of Embryos to Transfer. Source: Practice Committee of ASRM and Practice Committee of SART 2017: 902. © Chia-Ling Wu

Woman's age	Cleavage-stage embryos			Blastocysts		
	Euploid	Other favorable	All others	Euploid	Other favorable	All others
< 35	1	1	2	1	1	2
35–37	1	1	3	1	1	2
38–40	1	3	4	1	2	3
41–42	1	4	5	1	3	3

Single embryo transfer was not on the TSRM's agenda. The 2012 and 2016 age-specific guidelines did not differ much from the 2005 ones (see table 4.2). They followed the "American model plus one" pattern, with two major differences. First, the TSRM deleted "five" embryos because of the "up to four" rule in Taiwan's 2007 Assisted Reproduction Act, whereas the 2013 ASRM guideline kept "five" for women forty-one to forty-two years old with cleavage-stage embryos (if blastocysts, then three as the maximum) (Practice Committee of ASRM and Practice Committee of SART 2013). Second, the TSRM did not directly follow the ASRM to set up NET according to the prognosis (type of embryos, favorable or not), and hence was more cautious than the ASRM about recommending SET. The 2016 TSRM guideline only asked its members to consider SET for women under the age of thirty-five with a "favorable prognosis," meaning women with (a) excess embryos of quality good enough to warrant cryopreservation, (b) blastocysts, or (c) previous success with IVF—and for euploid embryos with preimplantation genetic screening (PGS). These conditions showed that the guidelines needed to be updated hand in hand with the advancement of technology for high-quality embryo selection. This is an important part of anticipatory work—abduction—as discussed in chapter 2. When the ASRM announced its 2017 guideline, a lot of "ones" finally appeared in the table (table 4.3), but the TSRM still did not follow the ASRM and revise its own guideline. Overall, both the mandatory restriction (up to four embryos by law) and the voluntary guideline in Taiwan fell far short of encouraging SET.

Disconnected Patchworks of eSET

Other efforts to promote eSET existed but could not be assembled to enact SET. Anticipatory governance requires "ensemblization" (Barben et al. 2008: 990–91)—that is, turning a variety of practices into an ensemble that acts and is viewed as a whole, as a musical or dance ensemble does. I call each such practice a "patchwork" and present the five major types in Taiwan. I then elaborate how the patchworks are disconnected, thereby failing to create a working ensemble.

Patchwork I: Individual exemplar experiments with practicing SET. A few doctors were known to practice eSET and became visible as role models. At the annual meeting of the TSRM in 2010, Dr. Kuo-Kuang Lee, the former TSRM president, gave a keynote speech on higher-order multiple pregnancy since the 2007 regulation. As described earlier, Dr. Lee worked with the Premature Baby Foundation of Taiwan to warn against the health risk of multiple pregnancy, and he also built up some new practices at MacKay Memorial Hospital. In his speech, Dr. Lee did not talk much about the global trend but focused on a sophisticated analysis of local data and evaluation quite unseen in past debates. He then offered the guideline of MacKay Hospital in order to propose a gradual move toward elective single-embryo transfer (eSET) for women under thirty-five years old. This was the most demanding proposal in Taiwan at that time, even stricter than the later 2012 and 2016 TSRM guidelines. The term "SET" was almost synonymous with Dr. Kuo-Kuang Lee and MacKay Hospital whenever multiple pregnancy issues were brought up at annual TSRM meetings. MacKay is the only center that regularly presents a "cumulative pregnancy rate for eSET."[2] However, neither the guideline nor the presentation of eSET results has been followed by other centers.

Patchwork II: Research related to SET. Top IVF experts do publish scientific research related to eSET in both local and international journals. One method is to explore how to improve the selection of embryos by building a score system (Kung et al. 2003; T.-H. Lee et al. 2006) to help assess the possibility of practicing SET in the future. Only a few researchers have really assessed the clinical outcomes of eSET with advanced intervention, including the IVF team from MacKay Memorial Hospital (C.-E. Hsieh et al. 2018) and Dr. Maw-Sheng Lee's team (e.g., P.-Y. Lin et al. 2020). Nevertheless, this shows that a few Taiwanese doctors follow the most advanced sci-

entific breakthroughs, especially the genetic screening of embryos, even though the low percentage of SET from the Taiwan national registry data reveals a gap between research findings and clinical routines.

Patchwork III: An accreditation system to reduce multiple embryo transfer (MET) by encouraging double embryo transfer (DET). In 1998, the government established an accreditation system to issue formal licenses for medical institutions to practice IVF, perform donor insemination, and run sperm and egg banks. Most of the application criteria concern the qualifications of practitioners and the quality of the laboratory. To renew their license, accredited centers must report data to the registry system and reach a certain success rate. In 2014, the government started a new effort to reduce the multiple pregnancy rate—namely, adding a new item about "the percentage of double embryo transfer or less for women under 35 years old" during the accreditation period (usually three years). If a center reaches 55 percent DET or more, it is given the full points for that item—eight points out of one hundred—but if DET is only 30–54 percent, the center gets four points. The threshold was agreed upon by IVF experts before being put into practice. Considering the TSRM guideline, which recommends that women thirty-five or younger be implanted with no more than two embryos, 55 percent DET should not be difficult to reach. Whenever I asked opinion leaders about the policy to reduce multiple birth, the new accreditation rule was brought up as a new limitation.

The accreditation system has therefore become the major force to ask IVF doctors to follow, but its design does not prioritize eSET. First of all, the rule is more about DET than SET. Most importantly, the overall accreditation system still highlights the success rate. Each accredited IVF center needs to reach a cumulative live birth rate of 25 percent for women under thirty-eight years old over the preceding three years to get full points (twenty-six out of one hundred); if the rate is under 15 percent, its license will almost certainly fail to be renewed. Some doctors honestly told me during interviews that they worried that, if they had many difficult cases, they might not reach the required 25 percent rate. Although cumulative live birth rate supports the idea of SET—to transfer embryos one at a time and count the fresh and frozen cycles together—it still means that success rate matters most.

Patchwork IV: Registry data. Taiwan built a mandatory registry data system in 1998, with a 100 percent reporting rate, and collects quite a complete list of indicators, including both clinical practices

and health outcomes. However, the registry has not become the resource to reform ART. As discussed earlier, some activists and reflexive doctors did mobilize some descriptive results from the registry data reports to ask for ART reform. Still, much of the hope work and abduction to enact eSET is not carried out in practice, such as aiming for the ideal of "taking a healthy baby home," which would mean increasing the "percentage of cycles/transfers resulting in normal weight & singleton live births"—a number that has been reported in the US in recent years (CDC, ASRM, and SART 2015).

Taiwan has the data available to produce this indicator, yet it has not yet followed the US in this, i.e., in calculating and presenting this percentage in its annual reports. The HFEA in the UK has initiated the "one at a time" SET policy and made a 10 percent rate of multiple birth the target. Taiwan's state bureaucrats have not mobilized the data for a similar policy target. Even though Taiwan began to collect cycle-based data earlier than Japan, since the registry was handled by the state rather than by the medical society, the TSRM never produced an analysis similar to that of the JSOG to determine whether or not the practice of SET could still produce an acceptable success rate. The top-down approach of registry building in Taiwan has yielded complete data but has failed to transform those data into regulations that effectively reduce the health risks involved. In other words, the IVF data registry has not worked as a care infrastructure to strengthen the community's ethical obligations and to inform evidence-based policymaking, and thus it fails to generate better care (Wu, Ha, and Tsuge 2020).

Patchwork V: Public financing requiring SET. Taiwan's subsidy program was proposed several times to boost low birthweights, but it only started in 2015, much later than Japan in 2004 and South Korea in 2006. The three East Asian countries together reached a super-low fertility rate after entering the twenty-first century, but Taiwan did not follow Japan and South Korea in employing subsidies as a pronatalist strategy. Lack of financial resources, concern about a subsidy's effectiveness to increase the population, and criticism from public health experts and feminist scholars vis-à-vis a family policy that was asking for social welfare rather than direct support for IVF all delayed a subsidy program.

Responding to continuous requests from legislators, the government finally built a public financing program in 2015, targeting only low-income households.[3] However, the state required that for those who applied for the subsidy, SET was required for women under thirty-five years old, and a maximum of two embryos for all the

others. This restriction is far more demanding than the 2016 TSRM guideline. One governmental official explained the rationale:

> Considering the maternal and infant health risk caused by implanting too many embryos, we require the clinicians to follow our rule if they want to join this game, in order to guarantee the healthcare quality. We the government need to be the gatekeeper, so we impose the SET and DET rule in the subsidy program. (Governmental Official S, July 2019 interview, Taipei)

This became the only mandatory SET requirement in the IVF regime in Taiwan. With the efforts of some governmental officials, a program pressured by pronatalism has turned into one for equal access and health risk prevention.

Unfortunately, the subsidy program for the low-income families did not lead to any change. The eligible users were low-income families, estimated at about 1 percent of total households of married couples. And the applicants have turned out to be fewer than one hundred couples in six years, occupying 0.01 percent of all IVF treatment cycles. In addition, less than one-quarter of IVF centers joined the subsidy program. Some thought that the eligible users would be too few, and others did not want the government to intervene in the IVF market. In September 2020, Legislator Bi-Ling Kuan challenged the policy, claiming that the total expense of the program is about the same as the fireworks budget for the National Birthday. After implementing the policy for five years, only six babies had been born through the subsidy program. It may well be the program with the lowest proportion of eligible users in the world. As a result, its SET guideline for the subsidy program for low-income families has not had any impact.

These diverse anticipatory practices to assess, promote, and impose eSET have not created a working ensemble. The Taiwan Symphony Orchestra of eSET has been disassembled. Using a visual metaphor, the bottom half of figure 4.1 shows that the five patchworks of eSET—the exemplar role model, the academic research published in prestigious journals, the accreditation to give SET some points, the national registry with its 100 percent reporting rate on clinical practices and infant outcomes, and the subsidy requiring SET for young women—do not interact with each other in a way that is effective to enact eSET. In contrast, similar circles of the Belgian Project and the JSOG model, presented in chapter 2, are entangled and thus mutually strengthen each other to create a 60 percent SET rate in Belgium and a rate of over 80 percent in Japan.

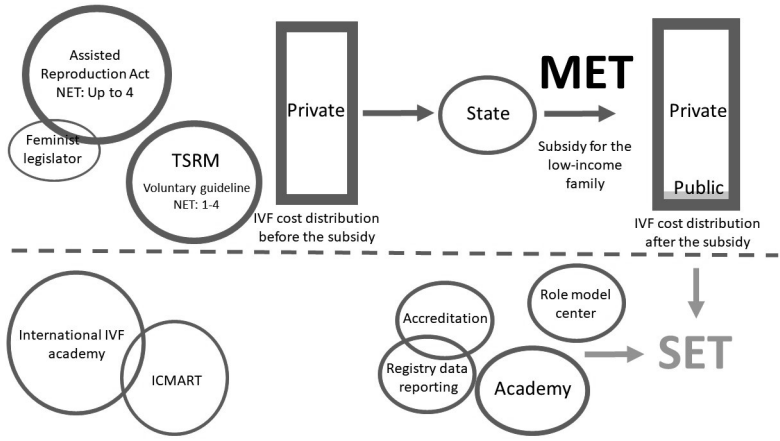


FIGURE 4.1. The Disconnected Patchworks of Single Embryo Transfer (SET) and the Dominance of Multiple Embryo Transfer (MET) in Taiwan, 2005–20. (IVF= in vitro fertilization; NET = number of embryos transferred; TSRM = Taiwan Society for Reproductive Medicine; ICMART = International Committee for Monitoring Assisted Reproductive Technologies.) © Chia-Ling Wu

These trends, as well as warnings from international monitoring organizations such as the ICMART, are cognitively known to the major actors in Taiwan and sometimes serve as the guiding value of each patchwork. However, without integrating the patchwork, the SET rate only reaches 25 percent in Taiwan, one of the lowest percentages in the world.

The ensemble of SET fails, and the MET network remains strong. The upper half of figure 4.1 shows that the permissive legal regulation (up to four embryos to transfer) and the lenient TSRM guideline permit competition among the IVF centers to use MET to meet the promissory capital. The main anticipation still lies in high success rates, and MET is the answer.

Conclusion

Two civic groups in Taiwan, representing the interests of premature babies and mothers, confronted the medical societies and attempted to frame the direction of anticipation on health risk. However, the dilemma of how to balance the success rates against prevention of health risk eventually led to a lenient regulation. IVF doctors

managed to build a flexible standardization. Some reflexive IVF practitioners and researchers, engaged governmental officials, and concerned activists have endeavored to promote SET, which is the most effective way to reduce multiple pregnancy/birth. The lack of connected patchworks, which could lead to a SET guideline similar to the ones that Belgium and Japan have established, means that multiple pregnancy remains common in Taiwan.

This chapter also illuminates the specificity of interaction between global and local anticipatory governance. Table 4.4 summarizes the regulatory trajectory of multiple embryo transfer in Taiwan within the analytical framework of global/local dynamics. In different historical periods, the specific Taiwanese stakeholders selected different preferred global forms as a future that Taiwan could follow, such as Britain's code of ethics in the 1990s, the American guideline in the early 2000s, and the European trend in the mid-2000s. The term "global" here is heterogeneous. The configuration of these selected global forms depended on the encountering local network. The British model could serve, at most, as a rhetorical tool for early dissenters in Taiwan because strong pressure had not yet emerged there, as it had in Britain, to limit the number of embryos transferred; moreover, the Taiwanese decision-making structure in IVF regulation favored doctors' autonomy in clinical procedures. When pressure did increase in Taiwan, the American voluntary guideline became a useful policy template for the TSRM to use to balance between the need for self-regulation and market competition. When Taiwanese legislators included number of embryos transferred in the 2007 Assisted Reproduction Act, the international trends acted only to justify legal enforcement, while local statistics became the crucial criterion for specifying "no more than four." The failure to seriously consider adopting the British regulation, the neglect of the JSOG model, the preference for the American guideline (by adding one embryo to its figures), the use of subsidy programs such as that of Belgium as an excuse, and the gap between "no more than four" and the cited European trend all show that Taiwan required a local network as a recontextualized assemblage in order to execute (or not execute) the introduced global model.

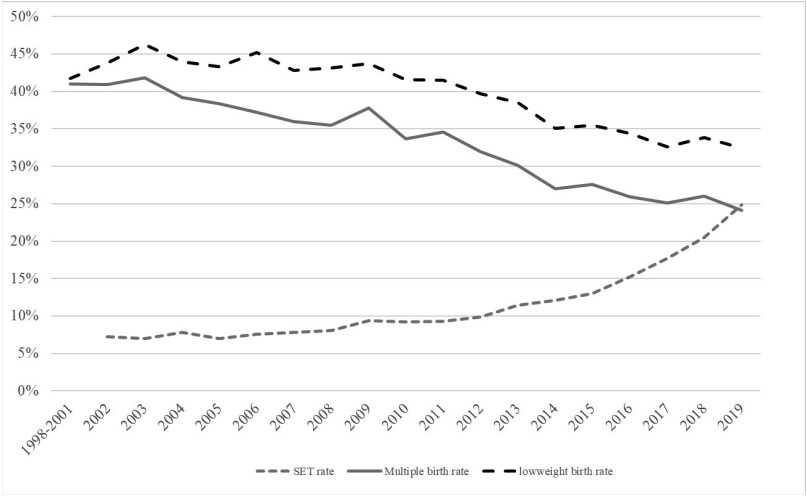
The "global" in this case is neither an advanced ideal to copy nor an encompassing force to follow. Due to easy visibility or favored affinity, various stakeholders presented diverse global forms at different stages. The local network further transformed the selected global form, confining it to rhetoric only or tailoring it to local needs. The analytical framework presented here may be most revealing

TABLE 4.4. The Making of Multiple Embryo Transfer (MET) Regulation in Taiwan, 1980s–2020. (IVF = in vitro fertilization; TSRM = Taiwan Society for Reproductive Medicine; PBFT = Premature Baby Foundation of Taiwan; ASRM = American Society for Reproductive Medicine.) © Chia-Ling Wu

Time period	Key stakeholders	Selected global form	Encountering local network	Recontextualized assemblage
1990s–2000s	Leading IVF experts; the media; TSRM	British model (as a rhetorical tool in addressing the issue of regulating multiple-embryo transfer)	Medical professional dominance; reluctance of the state to intervene in clinical practices	No clinical regulation
2000s–2005	TSRM; PBFT	ASRM guideline (as policy template for guideline formulation)	Professional autonomy & market competition	"American model plus one" (TSRM guideline)
2006–2007	TSRM; feminist legislator; Department of Health	European trends (as justification for legal enforcement); subsidy programs in European countries (as reasons to explain why Taiwan could not practice SET)	Women's health movement & domestic clinical performance	"No more than four" (Assisted Reproduction Act)
2012–2020	TSRM; Ministry of Health	ASRM guidelines	TSRM's preference of flexible standardization	TSRM revised guideline of 1–4 embryos by woman's age

for latecomers, who often turn to international regulatory models for inspiration, but might be useful when analyzing forerunners as well. For example, Franklin (1997: 86–87) argues that the British Parliament limited the use of commercial surrogacy in the 1980s in part because the general public resisted the "Americanisation" of Britain under Thatcher.

The permissive legal regulation and guidelines on the number of embryos to transfer, plus the disconnected patchworks on eSET, mean that multiple embryo transfer (MET) remains a common practice in Taiwan. Graph 4.3 shows that SET increased slowly. Though the graph stops at 2018, in 2019 SET reached 24.9 percent (though some of these are probably compulsory SET rather than eSET); the multiple pregnancy rate declined to 24.1 percent (much higher than the 3 percent in Japan, and the 10 percent goal in UK); and around one-third of test-tube babies were born with low birthweight. Under



GRAPH 4.3. Trends of Single Embryo Transfer (SET), Multiple Pregnancy, and Low Birthweight Babies in Taiwan, 1998–2019. (ET = embryos transferred.) Source: ROC Ministry of Health and Welfare 2021a. © Chia-Ling Wu

Taiwan's anticipatory governance, "IVF" is almost synonymous with MET and multiple pregnancy in the country. What have women gone through in the IVF regime? Chapters 5, 6, and 7 explore their optimization and "anticipatory labor."

Notes

1. For the history and major contributions of TWL, please see its website: http://twl.ngo.org.tw/about-en (accessed 21 May 2021).
2. MacKay Memorial Hospital's website lists the cumulative pregnancy rate for eSET as 54 percent. See https://ivflab.mmh.org.tw/result (accessed 31 May 2021). However, cumulative live birth rate would be a better indicator.
3. The subsidy is NT 100,000–150,000 dollars (roughly 3,000–5,000 US dollars) for each couple annually. Each IVF cycle costs about NT 120,000–200,000 dollars, so the financial support covers roughly one free cycle.