

Practical Dilemmas and Countermeasures of Including Assisted Reproductive Technology in Basic Medical Insurance

Zihao Li*

Hebei University of Economics and Business, Shijiazhuang, Hebei, China

*1596962161@qq.com

Abstract

With social development, the problem of infertility has become increasingly prominent, and assisted reproductive technology has become a hope for many families. However, the high treatment costs have deterred numerous families. Including assisted reproductive technology in Basic Medical Insurance (BMI) is an important measure to alleviate the economic burden on families and boost fertility. By sorting out the practical experience of various regions in including assisted reproductive technology in BMI, this paper studies the policy background, implementation status, policy effects and problems encountered in the promotion of this technology's inclusion in BMI, and puts forward corresponding suggestions. It aims to provide reference for improving the medical insurance policy for assisted reproduction, as well as the rational application and popularization of assisted reproductive technology.

Keywords

Assisted Reproductive Technology; Basic Medical Insurance; Practical Analysis; Promotion Strategy.

1. Introduction

In recent years, the infertility rate has been on the rise. According to data from the National Bureau of Statistics, the current infertility rate in China has reached 12%-15%, meaning 1 in 8 couples face fertility difficulties. Assisted Reproductive Technology (ART) refers to medical-assisted techniques that help infertile couples achieve pregnancy, including artificial insemination, in vitro fertilization, embryo transfer (IVF-ET) and its derivative technologies. As an effective solution to infertility, ART has brought the hope of childbearing to many families. Nevertheless, the cost of ART is relatively high, with the expense of a single IVF cycle usually ranging from 30,000 to 80,000 yuan. This has become a heavy financial burden for many families and restricted the accessibility of such technology.

Against this backdrop, including ART in the scope of Basic Medical Insurance has become a social focus and a direction of policy development. Many regions have actively explored and practiced by formulating relevant policies to include some ART items in the medical insurance reimbursement scope, so as to reduce the economic burden on patients and promote reproductive health and the long-term balanced development of the population. Studying the practical dilemmas and countermeasures of including ART in Basic Medical Insurance is of great practical significance for improving the medical security system and solving people's livelihood issues.

2. Current Practical Situation of Including ART in Basic Medical Insurance

2.1. Policy Coverage and Advancement: From Pilot Breakthrough to National Implementation

By the end of 2023, under the guidance of the National Healthcare Security Administration (NHSA), four provincial-level regions including Beijing, Guangxi, Inner Mongolia and Gansu had included ART in medical insurance reimbursement. On October 19, 2024, the General Office of the State Council issued the **Several Measures on Accelerating the Improvement of the Fertility Support Policy System and Promoting the Construction of a Fertility-Friendly Society**, which clearly stated the need to "guide all regions to include appropriate assisted reproductive technologies in the scope of medical insurance reimbursement".^[1]

According to statistics from the NHSA, as of October 2025, all 31 provincial-level administrative regions and the Xinjiang Production and Construction Corps in China have issued documents to include ART in medical insurance reimbursement. Most provinces have included 8 to 12 basic ART services in medical insurance payment, focusing on core operations such as oocyte retrieval, embryo culture, embryo transfer and artificial insemination. For example, Guizhou Province has included 12 items, covering general diagnosis and treatment items (oocyte retrieval, artificial insemination, etc.) and special diagnosis and treatment items (embryo culture, intracytoplasmic sperm injection, etc.); Jiangxi Province has included 9 items such as "oocyte retrieval" and "artificial insemination" in the payment scope, while cities like Dandong and Anshan have clearly covered 8 core items.

2.2. Reimbursement Ratios and Payment Limits: A "Stepwise Stratification" in Eastern, Central and Western China

Reimbursement ratios and payment limits are directly related to the policy support intensity, forming a gradient pattern of "higher in the east, moderate in the central region and lower in the west" centered on the level of economic development.

Eastern economically developed provinces are characterized by "high ratios + high limits", focusing on reducing family burdens. Shenzhen's employee medical insurance offers a 90% reimbursement ratio for outpatient ART expenses with no annual payment limit. Jiangsu has implemented a "payment period linkage mechanism": employee medical insurance participants with continuous payment for 3 years enjoy a 65% reimbursement ratio, which increases by 2% for each additional year of continuous payment, up to a maximum of 80%, with an annual payment limit of 80,000 yuan. Fujian provides an additional 10% reimbursement ratio for employees with continuous payment for more than 5 years, with a maximum single-cycle reimbursement of 50,000 yuan.

Eastern-central transitional and central provinces adopt "fixed ratios + moderate limits" to balance security and fund safety. Beijing's employee medical insurance reimburses 70% of outpatient expenses and resident medical insurance 50%, with an annual payment limit of 50,000 yuan. Guangxi's employee medical insurance offers a 70% reimbursement ratio and resident medical insurance 50%, with no deductible but a limit of "a maximum of 2 transfer cycles per person". Hubei and Hunan have a unified reimbursement ratio of 60%-65% with an annual limit of 30,000 to 40,000 yuan, among which Hubei provides an additional 5% reimbursement ratio for elderly pregnant women over 35 years old.

Western less developed provinces adopt "low ratios + low limits" to control fund expenditure, prioritizing coverage of core needs. Qinghai and Gansu have a unified 50% reimbursement ratio for both employee and resident medical insurance, covering only basic operations such as artificial insemination and the first-generation IVF, with an annual payment limit of 10,000 to 20,000 yuan. Guizhou's employee medical insurance reimburses 70% for general diagnosis and treatment items and 50% for special ones, but the benefit is only available to "families

complying with the three-child policy" with an annual limit of 25,000 yuan. Xinjiang only includes artificial insemination in reimbursement with a 40% ratio and a maximum single-cycle reimbursement of 15,000 yuan.^[2]

2.3. Eligibility for Beneficiaries: Differentiation between "General Thresholds" and "Special Adaptations"

All provinces have generally set "basic access conditions", but there are significant adaptability differences for different groups, mainly reflected in identity restrictions, age thresholds and protection for special groups.

90% of provinces take "legal childbearing + designated medical treatment" as the core threshold – requiring the provision of both spouses' ID cards, marriage certificates, an infertility diagnosis certificate issued by a second-class or above hospital, and treatment is only allowed in designated institutions filed with the National Health Commission. Eight provincial-level regions including Sichuan and Chongqing have an additional requirement of "1 year of local medical insurance participation", excluding floating population with short-term insurance participation.

Most provinces set an age cap of "females ≤ 35 years old and males ≤ 50 years old", and the reimbursement ratio is reduced by 10%-20% for those exceeding the age limit (e.g., Shandong reduces the reimbursement ratio for women over 35 from 60% to 50%). Restrictions on the number of treatment cycles are more unified: 20 provinces including Sichuan, Gansu and Liaoning clearly stipulate "a maximum of 2 treatment cycles reimbursed for life per person". Only Beijing and Shanghai have no cycle limits but require the re-submission of a diagnosis and treatment evaluation report for each cycle.

Some provinces have launched supplementary policies for high-demand groups, forming a "group adaptation advantage". Zhejiang provides an additional 20% subsidy for families who have lost their only child with no age limit; Beijing allows such families to stack maternity insurance reimbursement, with an additional maximum single-cycle subsidy of 28,000 yuan; Nanning has broken traditional identity restrictions to include unmarried partners and single women in reimbursement, becoming the first city in China to cancel marriage restrictions; Yunnan increases the reimbursement ratio by 10% and the annual limit by 10,000 yuan for military personnel and their family members as well as families with disabilities.^[3]

2.4. Settlement Process: The Gap between "Local Convenience" and "Interregional Barriers"

Settlement efficiency directly affects policy experience, and there are significant procedural differences between "local and interregional" as well as "eastern and western regions", forming a "differentiation zone" in service experience.

Eastern provinces have generally realized "direct outpatient settlement", where insured persons can enjoy real-time deduction of medical insurance expenses at designated institutions without advance cash payment; Guangzhou and Shenzhen support "self-service machine settlement + mobile APP reimbursement", eliminating the need to queue at manual windows. Among central and western provinces, Guangxi and Hubei have also realized direct settlement, but Shaanxi and Shanxi still require "submitting materials to the medical insurance bureau for review within 3 working days after treatment", resulting in a time-consuming process.

Only the three urban agglomerations of Beijing-Tianjin-Hebei, the Yangtze River Delta and the Pearl River Delta have realized interprovincial direct settlement. After filing through the National Healthcare Security Service Platform, insured persons can enjoy the same reimbursement benefits as local residents at designated institutions in the region. Other regions still mainly adopt "cash advance + manual reimbursement at the insured location", with an additional condition of "reduced reimbursement ratio" – for example, insured persons in

Henan who receive treatment in other provinces have their reimbursement ratio reduced from 60% to 50%, and are required to provide more than 10 materials such as the hospital grade certificate and expense details. Cities such as Dandong and Jiamusi clearly stipulate that "interprovincial ART expenses are not temporarily included in the payment scope", completely excluding the possibility of interprovincial reimbursement.

3. Practical Dilemmas of Including ART in Basic Medical Insurance

3.1. Systematic Risks to the Sustainability of the Medical Insurance Fund

While the people-benefiting policy of including ART in medical insurance releases fertility demand, it poses systematic challenges to the sustainability of the medical insurance fund. Its characteristics of "high cost, long cycle and high demand" create multiple payment pressures.

In terms of cost, ART has a significant cost threshold: the average cost of a single IVF cycle reaches 35,000 to 80,000 yuan, among which the first and second generations cost about 30,000 to 50,000 yuan, and the third generation can rise to 80,000 to 150,000 yuan due to links such as genetic screening. More crucially, the limited success rate of the technology leads to a lengthy treatment cycle: patients need to go through an average of 2.3 treatment cycles to achieve a successful pregnancy, and the cumulative cost for a single patient often exceeds 100,000 yuan, forming a continuous fund payment pressure.

The explosive growth in demand has further exacerbated the pressure. As of October 2025, 31 provincial-level regions in China have included ART in medical insurance, and the demand release effect after policy implementation is immediate. Data from Shaanxi Province in September 2024 shows that the number of outpatient visits surged by 18% month-on-month in the first month of inclusion in medical insurance, and the proportion of medical insurance expenditure on ART in total outpatient expenses of some medical institutions reached as high as 12%, directly triggering the fund early warning mechanism. Behind this phenomenon is a huge potential demand – about 9.6 million infertile couples in China have a demand for ART services, and policy subsidies have greatly lowered the medical treatment threshold.

From a national perspective, the pressure of fund expenditure has taken shape. Estimates show that if the current reimbursement policy is fully implemented, the annual additional expenditure of the medical insurance fund will exceed 20 billion yuan, which is equivalent to 5%-8% of the annual medical insurance fund expenditure of some provinces. More alarmingly, there is a structural risk: the resident medical insurance fund is more severely impacted. Under the scenario of high penetration rate, the proportion of ART expenditure in the resident medical insurance fund will reach 0.72% in 2030, three times that of the employee medical insurance fund, and the resident medical insurance in some regions even faces the risk of fund depletion.

3.2. Fragmented Policy Design Aggravates Implementation Contradictions

Due to the lack of unified national norms, the medical insurance policy for ART shows obvious fragmentation characteristics, which not only causes confusion in implementation standards but also breeds multiple implementation contradictions such as overmedicalization and regional imbalance.

At present, there are 15 differentiated reimbursement models nationwide, with significant differences in key dimensions such as ratios, coverage and limits. In terms of reimbursement ratios, they range from 30% to 70%: for example, Shanxi's employee medical insurance has a 70% reimbursement ratio and resident medical insurance 60%, local employee medical insurance in Yancheng can reach 80%, while some provinces only offer 30%. There are also differences in covered items: Sichuan and Shanxi have included 13 technologies, while Hunan and Guangdong have only included 8, and some provinces set upper limits on the number of embryo cryopreservation tubes. Payment methods are more diverse: Yunnan's employee

medical insurance provides a maximum fixed subsidy of 3,000 yuan, while Guizhou reimburses after distinguishing self-payment ratios by project type.

23% of provinces have not clearly defined the indication scope of ART, only generally referring to medical norms for implementation. Although the state has integrated guidelines for 12 core items, poor local connection has provided space for overmedicalization. For example, after the implementation of the policy in Henan Province, the proportion of patients with polycystic ovary syndrome (PCOS) soared from 18% to 37%, and some patients whose conditions can be improved through conventional treatment turned to ART, which not only occupied resources but also increased the fund burden.

At present, only 12% of provinces have established a linkage model between reimbursement ratios and fund surpluses, and most policies have been fixed for a long time. For example, after Liaoning Province implemented the policy of limiting reimbursement to 2 cycles in January 2025, some patients turned to medical treatment in provinces such as Shanxi and Ningxia where restrictions are not strict, while Yancheng reduces the reimbursement ratio by 10% for interregional treatment, further exacerbating regional unfairness. In contrast, provinces such as Sichuan and Guizhou that have set cycle limits also face the hidden danger of inadequate policy adaptation due to the lack of linkage with fund operation. This fragmented pattern has seriously weakened the policy inclusiveness and restricted the effect of fertility support.

3.3. Regional Differentiation in the Allocation of Medical Resources

The allocation of ART medical resources shows an obvious pattern of "dense in the east and sparse in the west, strong in urban areas and weak in rural areas". This structural imbalance not only weakens the inclusiveness of fertility support policies but also exacerbates the supply-demand contradiction of high-quality resources.

In terms of geographical distribution, there is a huge difference in resource concentration. As of 2025, among the 702 ART institutions nationwide, 45.7% are in eastern provinces, with Guangdong Province ranking first with 68 institutions; the institutional density per million population in Beijing and Shanghai reaches 3.2. In contrast, western provinces account for only 22.1% of the institutions, with a mere 1.0 institution per million population, and there is only 1 ART institution in the entire Xizang Autonomous Region. This results in 94.9% of residents in western counties needing to travel more than 2 hours to reach a service point.

The stratification of technical qualifications has further widened the gap: 63% of the 89 institutions nationwide with qualification for the third generation of IVF are concentrated in the Yangtze River Delta and Pearl River Delta, making it difficult for patients in central and western regions to access high-end diagnosis and treatment services.

Urban-rural and hierarchical gaps are also prominent. Due to inadequate equipment and a shortage of technical personnel, the implementation rate of ART in primary medical institutions is less than 20%, and only 10.1% of institutions can provide more than 5 complete technical services, with most only able to carry out basic artificial insemination projects. This capability gap results in 76.8% of the population being unable to reach a service institution within 1 hour, making medical treatment particularly inconvenient for rural patients.

Resource imbalance has triggered a chain reaction: 41% of patients are forced to seek medical treatment across provinces, not only bearing additional costs such as high-speed rail tickets and accommodation (the hidden cost of a single interregional treatment is about 16,000 yuan) but also concentrating the demand pressure on eastern provinces and provincial capitals. Taking Sichuan Province as an example, after the policy implementation in August 2024, the number of patients received by 7 IVF institutions in Chengdu surged by 45%, the bed turnover rate dropped by 23%, and the waiting period for leading institutions such as West China Second University Hospital extended to 2-7 years. Some patients missed the optimal treatment time due to long waiting periods. This "siphon effect" not only increases the burden on high-quality

institutions but also leaves patients in remote areas facing the dilemma of "wanting treatment but having difficulty accessing it".

3.4. Loopholes in the Ethical Supervision System

While including ART in medical insurance releases fertility demand, loopholes in the ethical supervision system have increased the risk of illegal and irregular acts. The policy dividend of medical insurance reimbursement may become a "catalyst" for illegal acts, and problems such as illegal surrogacy, gender selection and underground egg collection and supply have shown a rising trend. In 2024, Qingdao investigated a case of illegal surrogacy where intermediaries colluded with medical staff of top three hospitals to carry out oocyte retrieval and embryo transfer in an underground laboratory, and there was also an industrial chain of selling birth certificates at marked prices.

The current regulatory laws and regulations have obvious shortcomings. The *Measures for the Administration of Human Assisted Reproductive Technology*, as the core basis, is only a departmental regulation with a low legal level, and its norms on core ethical issues such as embryo ownership and multiple pregnancy reduction are vague – a case in Jiangsu where the parents of both spouses fought for frozen embryos after the couple's death highlighted the blank in legal definition. At the same time, insufficient punishment is unable to form an effective deterrent; even though the involved doctors in the Qingdao case had their licenses revoked, it still cannot curb the profit-driven impulse of the underground industrial chain.

Technical supervision methods are also lagging behind. A unified national efficacy and ethical tracking system for ART has not been established. Although the state has piloted relevant monitoring platforms, they have not been fully deployed. This not only makes it impossible to effectively evaluate the long-term safety of the technology but also difficult to investigate and deal with irregular operations – abnormal records such as "painless oocyte retrieval" for a 73-year-old and "in vitro fertilization" for an 86-year-old have appeared in the medical insurance system, which not only exposes audit loopholes but also reflects the lack of whole-cycle supervision. The absence of supervision not only endangers the security of the medical insurance fund but also impacts the social ethical order.

4. Promotion Strategies for Including Assisted Reproductive Technology in Basic Medical Insurance

4.1. Improving the Design of Medical Insurance Policies

Reasonably determine the scope and ratio of medical insurance reimbursement, and appropriately differentiate according to factors such as ART items and patients' economic affordability, on the basis of considering the affordability of the medical insurance fund and patients' demand. Establish a medical insurance cost control mechanism, strengthen the review and monitoring of ART medical expenses, and avoid overmedicalization and expense abuse. Introduce payment methods such as disease-based payment and global budget payment to guide medical institutions to reasonably control costs. For example, if the proportion of chromosomal testing for birth defects using IVF technology reaches a certain level, a disease-based payment can be formulated for the application of IVF technology and a disease-specific payment standard can be formed, prompting medical institutions to optimize treatment plans and reduce medical expenses. Strengthen the coordination with other fertility support policies such as maternity benefits and tax incentives to form a comprehensive fertility support policy system and further reduce the family burden of childbearing.^[4]

4.2. Promoting Policy Coordination to Resolve Fragmentation Contradictions

Explore an interregional co-insurance model for insurance, set unified national reimbursement standards for core technologies for some basic items, such as including basic items such as tubal obstruction in national joint insurance, to avoid inconsistent protection in the same region. Develop "policy convergence insurance" and reasonably formulate flexible clauses for local additional items to make up for policy gaps. Insurance companies can take the lead in formulating specific provincial implementation rules and reasonably determine differentiated reimbursement standards through actuarial calculation, such as setting a reasonable annual compensation cap for controversial items such as polycystic ovary syndrome, to ensure policy flexibility and fund sustainability.

4.3. Optimizing the Allocation of Medical Resources

Increase investment in ART medical services in primary and remote areas, and guide and support medical institutions to carry out ART medical services in these areas through policy support, financial support and other forms. Strengthen talent training to improve the professional level of primary medical staff and ensure that patients can enjoy high-quality local ART medical services. Formulate a regional medical cooperation mechanism to promote the sharing of high-quality medical resources. Large hospitals in big cities can provide assistance to primary medical institutions and offer technical support and guidance to primary patients through telemedicine, expert consultation and other forms. Strengthen the supervision of ART medical institutions and personnel, standardize the practice of ART medical services, and ensure medical quality and safety.

4.4. Strengthening Ethical Supervision and Legal Protection

Formulate relevant ethical guidelines and legal norms for ART, and clarify the ethical boundaries and legal liabilities of medical insurance reimbursement. Strengthen the ethical education and legal training of medical institutions and their staff to improve their ethical awareness and legal literacy. Establish an ethical review mechanism to conduct strict ethical reviews on the implementation of ART and ensure that the application of the technology complies with ethical requirements. Increase the crackdown on illegal acts such as surrogacy to safeguard the dignity of the law and public order and good morals. Improve the public's cognition of ethical and legal issues related to ART through publicity and education, and guide the public to view ART and medical insurance policies correctly.^[5]

4.5. Innovating Commercial Insurance Products and Building a Multi-level Security System

Explore diversified products for expenses outside the medical insurance catalog, such as "embryo cryopreservation insurance" and "supplementary insurance for genetic screening", through a combination of government subsidies and market-oriented pricing. Provide "whole-cycle pregnancy insurance" for special groups such as families with genetic diseases, which packages genetic testing, embryo transfer and prenatal care with hierarchical pricing. Explore the concept of "insurance + health management", provide comprehensive health management services for patients from treatment to health care, and offer value-added services such as nutritional and physical-mental intervention guidance to reduce the occurrence of complications. Guide insurance funds to enter the field of ART, and accelerate the accessibility of ART through long-term investment to realize the benign development of "security - service - technology".

5. Conclusion

Including assisted reproductive technology (ART) in basic medical insurance is a key measure for China to improve its fertility support system and respond to people's livelihood needs. At present, this policy has been fully implemented nationwide, and all regions have developed graduated reimbursement mechanisms and targeted eligibility criteria for different groups based on their economic development levels. This has effectively reduced the economic burden on infertile families, unlocked latent fertility demand, and accumulated practical experience for building a childbirth-friendly society.

However, the policy rollout has exposed a number of problems: the medical insurance fund is confronted with systemic payment risks, fragmented policy design has triggered implementation conflicts, the structural imbalance of medical resources-concentrated in the east and scarce in the west-has worsened healthcare inequity, and loopholes in the ethical supervision system have given rise to irregularities such as illegal surrogacy. These systemic predicaments have restricted the policy's inclusiveness and implementation effectiveness.

Addressing these issues requires a coordinated multi-pronged approach: scientifically designing medical insurance policies to safeguard the fund security bottom line, unifying core national standards to resolve fragmentation conflicts, increasing investment in medical resources at the grassroots level and in western regions to achieve balanced allocation, improving the ethical supervision and legal guarantee system, and complementing the basic medical insurance with innovative commercial insurance products to build a multi-tiered security system.

Going forward, ART-related medical insurance policies must adhere to the unity of a people-centered orientation and sustainability, and be continuously refined to enhance their fairness and scientificity. Only in this way can the policies truly fulfill their fertility support role and boost the long-term balanced development of China's population.

References

- [1] Fan X Q. Quantitative Text Analysis of China's Human Assisted Reproductive Technology Policies[J]. *Medicine and Society*, 2025, 38(10):33-39.
- [2] Yan Y F. Current Situation, Institutional Dilemmas and Optimization Paths of China's Standard System for Eugenics and Good Childcare[J/OL]. *Medicine and Law*, 1-9[2025-10-17].
- [3] Yang H L, Cao S Z,Zhuang W C, et al. The Impact of Including Assisted Reproductive Technology in Medical Insurance Reimbursement on the Fund[J]. *China Health Insurance*, 2024,(11):34-47.
- [4] Zheng S Y. Research on the Economic Burden of Disease and Medical Insurance Financing Model for Patients Undergoing Assisted Reproductive Technology Treatment[D]. Huazhong University of Science and Technology, 2024.
- [5] He S C. An Analysis of Including Assisted Reproductive Technology in Reimbursement Medical Insurance[J]. *Insurance Theory and Practice*, 2022,(11):79-89.