Article title: Short-term Effects of Social Health Insurance Coverage of Assisted Reproductive Technologies on Pregnancies in Guangxi, China: An Interrupted Time Series Study

Journal name: International Journal of Health Policy and Management (IJHPM)

Authors' information: Chengkun Lyu[1,2], Qihang Zhao[2], Yang Wang[3,2], Yu He[4], Jin Xu[2,5]*

[1]School of public health, Peking University, Beijing, China.

[2]China Center for Health Development Studies, Peking University, Beijing, China.

[3]Faculty of Health and Wellness, City University of Macau, Macau, China.

[4]Chinese Preventive Medicine Association, Beijing, China.

[5]National Health Commission Key Laboratory of Health System Reform and Governance, Peking University, Beijing, China.

***Correspondence to:** Jin Xu; Email: xujin@hsc.pku.edu.cn

Citation: Lyu C, Zhao Q, Wang Y, He Y, Xu J. Short-term effects of social health insurance coverage of assisted reproductive technologies on pregnancies in Guangxi, China: an interrupted time series study. Int J Health Policy Manag. 2026;15:9766. doi:10.34172/ijhpm.9766

Supplementary file 1

Table S1: Selected Therapeutic Assisted Reproductive Technology Reimbursement Items in Guangxi Zhuang Autonomous Region

No.	Project Name	Project Description	Price, 2023 CNY (Tertiary Hospital)
1	Oocyte Retrieval	Clinical procedure to obtain oocytes. Includes human resources and basic material consumption during puncture, oocyte retrieval, follicle flushing, counting, and evaluation. Excludes ultrasound guidance.	2400 yuan
2	Embryo Culture	In vitro combination and cultivation of sperm and eggs. Includes human resources and basic material consumption during fertilization, cultivation, observation, and evaluation to obtain embryos (blastocysts). Excludes ICSI.	4200 yuan
	Embryo Culture - Blastocyst Culture (Additional Charge)	Additional charge for blastocyst cultivation.	1360 yuan

3	Embryo Transfer	Transfer of embryos or blastocysts into the uterine cavity. Includes human resources and basic material consumption during embryo evaluation and transfer.	2300 yuan
	Embryo Transfer - Frozen-Thawed Embryo (Additional Charge)	Additional charge for frozen-thawed embryo transfer.	1244 yuan
4	Embryo Assisted Hatching	Physical or chemical methods to create a breach in the zona pellucida to improve implantation success. Includes human resources and basic material consumption during screening, adjustment, zona treatment, and documentation.	761 yuan
5	Tissue/Cell Biopsy (Assisted Reproduction)	Separation of test specimens from blastocysts/cleavage-stage embryos/oocytes. Includes human resources and basic material consumption during screening, evaluation, zona treatment, and specimen extraction.	1560 yuan
6	Artificial Insemination	Clinical procedure to inject semen into the uterine cavity. Includes human resources and basic material consumption during semen injection and observation.	500 yuan
7	Sperm Optimization	Laboratory-based selection of high-quality sperm. Includes human resources and basic material consumption during semen collection, analysis, processing, screening, and evaluation.	900 yuan
8	Sperm Retrieval	Injection of processed sperm into oocytes to promote embryo formation. Includes human resources and basic material consumption during sperm immobilization, aspiration, and intracytoplasmic injection. Excludes sperm optimization.	718 yuan
9	Intracytoplasmic Sperm Injection (ICSI)	Injection of processed sperm into oocytes to promote embryo formation. Includes human resources and basic material consumption during sperm immobilization, aspiration, and intracytoplasmic injection. Excludes sperm optimization.	3346 yuan
	ICSI - Oocyte Activation (Additional Charge)	Additional charge for oocyte activation during ICSI.	800 yuan

Note: Prices were obtained from the official Guangxi ART reimbursement fee schedule issued in 2023 and are presented in 2023 Chinese yuan. As this table is used only to describe reimbursable ART items rather than to conduct a cost or economic evaluation, no inflation adjustment was applied.

Table S2 List of Assisted Reproductive Institutions in Guangxi

City	No.	Medical Institution Name
Nanning	1	Guangxi Zhuang Autonomous Region People's Hospital
	2	Guangxi Zhuang Autonomous Region Maternal and Child Health Hospital
	3	Guangxi Zhuang Autonomous Region Reproductive Hospital
	4	First Affiliated Hospital of Guangxi Medical University
	5	Nanning Maternal and Child Health Care Hospital
	6	Nanning Second People's Hospital
Liuzhou	7	Liuzhou People's Hospital
	8	Liuzhou Workers' Hospital
	9	Liuzhou Maternal and Child Health Hospital
Guilin	10	Guangxi Zhuang Autonomous Region Nanxishan Hospital
	11	Affiliated Hospital of Guilin Medical University
	12	Guilin Maternal and Child Health Hospital
Wuzhou	13	Wuzhou Workers' Hospital
Qinzhou	14	Qinzhou Maternal and Child Health Hospital
Guigang	15	Guigang People's Hospital
	16	Guiping People's Hospital
Yulin	17	Yulin Maternal and Child Health Hospital
	18	Yulin First People's Hospital
Baise	19	Affiliated Hospital of Youjiang Medical University for Nationalities
	20	Baise People's Hospital
Hezhou	21	Hezhou People's Hospital
Hechi	22	Hechi People's Hospital

Table S3 Interrupted time series estimates using absolute values for monthly ART pregnancies and multiple pregnancy proportion

	Pregnancies		multiple pregnancy proportion	
	Estimate	P	Estimate	P
Baseline level of the outcome (β_0)	158.04	<0.001	13.89	<0.001
Pre-intervention trend (β_1)	4.27	0.001	-0.04	0.560
Level change after intervention (β_2)	131.72	<0.001	0.13	0.914

Slope change after intervention (β_3)	9.46	0.001	-0.15	0.326

Table S4 Effects of Intervention on Number of Pregnancies with ARTs by age

	<40		⩾40	
	Estimate	P	Estimate	P
Baseline level of the outcome (β_0)	0.862	<0.001	0.790	<0.001
Pre-intervention trend (β_1)	0.022	<0.001	0.024	0.013
Level change after intervention (β_2)	0.702	<0.001	0.681	<0.001
Slope change after intervention (β_3)	0.050	0.010	0.049	0.054

Table S5 Effects of Intervention on Multiple Pregnancies Rate by proportion

	<40		⩾40	
	Estimate	P	Estimate	P
Baseline level of the outcome (β_0)	0.634	<0.001	0.927	<0.001
Pre-intervention trend (β_1)	0.001	0.845	-0.004	0.487
Level change after intervention (β_2)	-0.045	0.794	0.026	0.823
Slope change after intervention (β_3)	-0.019	0.540	-0.005	0.828

Table S6 Effects of Intervention on Multiple Pregnancies proportion by SHI Schemes

	URRBMI		UEBMI	
	Estimate	P	Estimate	P
Baseline level of the outcome (β_0)	0.991	<0.001	0.802	<0.001
Pre-intervention trend (β_1)	-0.007	0.388	0.000	0.932
Level change after intervention (β_2)	0.169	0.379	-0.069	0.590
Slope change after intervention (β_3)	-0.013	0.709	-0.008	0.726

Table S7 CITS Effects of Intervention on Numbers of Pregnancies with ARTs and Multiple Pregnancy proportion among Such Pregnancies

	Pregnancies		Multiple Pregnancy Rates	
	Estimate	P	Estimate	P
Baseline level of the outcome for the control series (β_0)	0.796	< 0.001	0.958	<0.001
Preintervention trend for the control series (β_1)	-0.002	0.673	-0.002	0.599

Level change for the control series post-intervention (β_2)	0.180	0.059	-0.017	0.861
Slope change for the control series post-intervention (β_3)	-0.005	0.785	0.007	0.696
Baseline level difference between treatment and control series (β_4)	0.035	0.647	-0.110	0.182
Preintervention trend difference (β_5)	0.024	< 0.001	0.000	0.960
Level change difference post-intervention (β_6)	0.513	< 0.001	0.024	0.862
Slope change difference post-intervention (β_7)	0.054	0.023	-0.016	0.516

Table S8 One-month lagged sensitivity analysis of indexed monthly ART pregnancies

	Indexed ART pregnancies	
	Estimate	P
Baseline level of the outcome (β_0)	0.832	<0.001
Pre-intervention trend (β_1)	0.022	<0.001
Transition month: November 2023	0.583	0.001
Level change after lagged intervention (β_2)	0.760	<0.001
Slope change after lagged intervention (β_3)	0.038	0.117

Note: The outcome was indexed to the January 2022 baseline. November 2023 was modeled as a transition month, and the lagged intervention period was defined as beginning in December 2023.