



Cumulative live birth rates of *in vitro* fertilization/intracytoplasmic sperm injection after multiple complete cycles in China

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Supplementary Table 1 Live birth rates per complete cycle and cumulative live birth rates per woman

Cycle number (i)	Number of women starting cycle (Ni)	Number of live births (LBi)	Cycle-specific live birth rate (95% CI) (pi)	Conservative live birth rate (95% CI) (CCLi)	Optimal live birth rate (95% CI) (OCLi)
1	14311	5801	40.54% (41.34%, 39.74%)	40.54% (39.74%, 41.34%)	40.54% (39.74%, 41.34%)
2	2489	459	18.44% (19.08%, 17.80%)	43.74% (42.93%, 44.55%)	51.50% (50.69%, 52.32%)
3	419	60	14.32% (14.89%, 13.75%)	44.16% (43.35%, 44.97%)	58.45% (57.64%, 59.26%)
4	96	11	11.46% (11.98%, 10.94%)	44.24% (43.43%, 45.05%)	63.21% (62.42%, 64.00%)

Note: Cycle-specific live birth rate (pi)=Number of live births/Number of women starting cycle=LBi/Ni

SE(pi)=[pi×(1-pi)/Ni]^{1/2}

95% CI (pi)=pi±1.96×SE(pi)

Conservative live birth rate (CCLi)=Number of live births/Number of women at 1st cycle=(ΣLBi)/N1

SE(CCLi)=[CCLi×(1-CCLi)/N1]^{1/2}

95% CI (CCLi)=CCLi±1.96×SE(CCLi)

Optimal live birth rate=OCL_{i-1}+pi×(1-OCL_{i-1}) Product-limit estimate

SE(OCLi)=[OCLi×(1-OCLi)/N1]^{1/2}

95% CI (OCLi)=OCLi±1.96×SE(OCLi)

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Supplementary Table 2 Live birth rates per complete cycle and cumulative live birth rates per woman by female age

Age (year)	Cycle number	Number of women starting cycle	Number of live births	Cycle-specific live birth rate (95% CI)	Conservative live birth rate (95% CI)	Optimal live birth rate (95% CI)
≤30	1	6990	3452	49.38% (48.21%, 50.55%)	49.38% (48.21%, 50.55%)	49.38% (48.21%, 50.55%)
	2	927	221	23.84% (21.10%, 26.58%)	52.55% (51.38%, 53.72%)	61.45% (60.31%, 62.59%)
	3	107	23	21.50% (13.72%, 29.28%)	52.88% (51.71%, 54.05%)	69.74% (68.66%, 70.81%)
	4	20	5	25.00% (6.02%, 43.98%)	52.95% (51.78%, 54.12%)	77.30% (76.32%, 78.28%)
30–34	1	4245	1615	38.04% (36.58%, 39.50%)	38.04% (36.58%, 39.50%)	38.04% (36.58%, 39.50%)
	2	758	143	18.87% (16.08%, 21.66%)	41.41% (39.93%, 42.89%)	49.73% (48.23%, 51.24%)
	3	135	21	15.56% (9.45%, 21.67%)	41.91% (40.43%, 43.39%)	57.55% (56.07%, 59.04%)
	4	26	4	15.38% (1.51%, 29.25%)	42.00% (40.52%, 43.48%)	64.08% (62.64%, 65.53%)
34–37	1	1816	537	29.57% (27.47%, 31.67%)	29.57% (27.47%, 31.67%)	29.57% (27.47%, 31.67%)
	2	416	67	16.11% (12.58%, 19.64%)	33.26% (31.09%, 35.43%)	40.92% (38.65%, 43.18%)
	3	80	13	16.25% (8.17%, 24.33%)	33.98% (31.80%, 36.16%)	50.52% (48.22%, 52.82%)
	4	18	1	5.56% (0.00%, 16.15%)	34.03% (30.02%, 38.04%)	53.27% (50.97%, 55.56%)
>37	1	1260	197	15.63% (13.62%, 17.64%)	15.63% (13.62%, 17.64%)	15.63% (13.62%, 17.64%)
	2	388	28	7.22% (4.64%, 9.80%)	17.86% (15.75%, 19.97%)	21.72% (19.44%, 24.00%)
	3	97	3	3.09% (0.00%, 6.53%)	18.10% (15.97%, 20.23%)	24.14% (21.78%, 26.50%)
	4	32	1	3.13% (0.00%, 9.16%)	18.17% (16.04%, 20.30%)	26.51% (24.08%, 28.95%)

Supplementary Table 3 Live birth rates per complete cycle and cumulative live birth rates per woman by body mass index

Body mass index (kg/m ²)	Cycle number	Number of women starting cycle	Number of live births	Cycle-specific live birth rate (95% CI)	Conservative live birth rate (95% CI)	Optimal live birth rate (95% CI)
<18.5	1	963	406	42.16% (39.04%, 45.28%)	42.16% (39.04%, 45.28%)	42.16% (39.04%, 45.28%)
	2	154	34	22.08% (15.53%, 28.63%)	45.69% (42.54%, 48.84%)	54.93% (51.79%, 58.07%)
	3	15	4	26.67% (4.29%, 49.05%)	46.11% (42.96%, 49.26%)	66.95% (63.98%, 69.92%)
	4	1	0	26.67% (4.29%, 49.05%)	46.11% (42.96%, 49.26%)	66.95% (63.98%, 69.92%)
18.5–24	1	8753	3718	42.56% (41.52%, 43.60%)	42.48% (41.44%, 43.52%)	42.56% (41.52%, 43.60%)
	2	1411	288	20.41% (18.31%, 22.51%)	45.77% (44.73%, 46.81%)	54.28% (53.24%, 55.33%)
	3	238	40	16.81% (12.06%, 21.56%)	46.22% (45.18%, 47.26%)	61.97% (60.95%, 62.99%)
	4	45	8	17.78% (6.61%, 28.95%)	46.32% (45.28%, 47.36%)	68.73% (67.76%, 69.70%)

Supplementary Table 3 Live birth rates per complete cycle and cumulative live birth rates per woman by body mass index
(continued)

Body mass index (kg/m ²)	Cycle number	Number of women starting cycle	Number of live births	Cycle-specific live birth rate (95% CI)	Conservative live birth rate (95% CI)	Optimal live birth rate (95% CI)
24–28	1	3238	1352	41.75% (40.05%, 43.45%)	41.75% (40.05%, 43.45%)	41.75% (40.05%, 43.45%)
	2	487	100	20.53% (16.94%, 24.12%)	44.84% (43.13%, 46.55%)	53.71% (51.99%, 55.43%)
	3	58	8	13.79% (4.92%, 22.66%)	45.09% (43.38%, 46.80%)	60.09% (58.41%, 61.78%)
	4	10	1	10.00% (0.00%, 28.59%)	45.12% (43.41%, 46.83%)	64.08% (62.43%, 65.74%)
≥28	1	996	300	30.12% (27.27%, 32.97%)	30.12% (27.27%, 32.97%)	30.12% (27.27%, 32.97%)
	2	157	34	21.66% (15.22%, 28.10%)	33.53% (30.60%, 36.46%)	45.26% (42.16%, 48.35%)
	3	19	3	15.79% (0.00%, 32.19%)	33.84% (30.90%, 36.78%)	53.90% (50.80%, 57.00%)
	4	5	2	40.00% (0.00%, 82.94%)	34.04% (31.10%, 36.98%)	72.34% (69.56%, 75.12%)

Supplementary Table 4 Live birth rates per complete cycle and cumulative live birth rates per woman by duration of infertility

Duration of infertility (year)	Cycle number	Number of women starting cycle	Number of live births	Cycle-specific live birth rate (95% CI)	Conservative live birth rate (95% CI)	Optimal live birth rate (95% CI)
<2	1	2693	1184	43.97% (42.10%, 45.84%)	43.97% (42.10%, 45.84%)	43.97% (42.10%, 45.84%)
	2	393	83	21.12% (17.08%, 25.16%)	47.05% (45.16%, 48.94%)	55.80% (53.93%, 57.68%)
	3	61	9	14.75% (5.85%, 23.65%)	47.38% (45.49%, 49.27%)	62.32% (60.49%, 64.15%)
	4	8	1	12.50% (10.42%, 35.42%)	47.42% (45.53%, 49.31%)	67.03% (65.26%, 68.81%)
2–3	1	2684	1154	43.00% (41.13%, 44.87%)	43.00% (41.13%, 44.87%)	43.00% (41.13%, 44.87%)
	2	433	111	25.64% (21.53%, 29.75%)	47.13% (45.24%, 49.02%)	57.61% (55.75%, 59.48%)
	3	69	10	14.49% (6.18%, 22.80%)	47.50% (45.61%, 49.39%)	63.76% (61.94%, 65.58%)
	4	13	4	30.77% (5.68%, 55.86%)	47.65% (45.76%, 49.54%)	74.91% (73.27%, 76.55%)
3–5	1	3911	1691	43.24% (41.69%, 44.79%)	43.24% (41.69%, 44.79%)	43.24% (41.69%, 44.79%)
	2	589	109	18.51% (15.37%, 21.65%)	46.02% (44.46%, 47.58%)	53.75% (52.18%, 55.31%)
	3	98	20	20.41% (12.43%, 28.39%)	46.54% (44.98%, 48.10%)	63.19% (61.68%, 64.70%)
	4	16	2	12.50% (0.00%, 28.71%)	46.59% (45.03%, 48.15%)	67.79% (66.32%, 69.25%)
≥5	1	4447	1591	35.78% (34.37%, 37.19%)	35.78% (34.37%, 37.19%)	35.78% (34.37%, 37.19%)
	2	838	142	16.95% (14.41%, 19.49%)	38.97% (37.54%, 40.40%)	46.67% (45.20%, 48.13%)
	3	130	18	13.85% (7.91%, 19.79%)	39.37% (37.93%, 40.81%)	54.05% (52.59%, 55.52%)
	4	25	4	16.00% (1.63%, 30.37%)	39.46% (38.02%, 40.90%)	61.40% (59.97%, 62.83%)

Supplementary Table 5 Live birth rates per complete cycle and cumulative live birth rates per woman by endometrial thickness

Endometrial thickness (mm)	Cycle number	Number of women starting cycle	Number of live births	Cycle-specific live birth rate (95% CI)	Conservative live birth rate (95% CI)	Optimal live birth rate (95% CI)
<7	1	415	113	27.23% (22.95%, 31.51%)	27.23% (22.95%, 31.51%)	27.23% (22.95%, 31.51%)
	2	90	19	21.11% (12.68%, 29.54%)	31.81% (27.33%, 36.29%)	42.59% (37.83%, 47.35%)
	3	16	1	6.25% (0.00%, 18.11%)	32.05% (27.56%, 36.54%)	46.18% (41.38%, 50.98%)
	4	1	0	6.25% (0.00%, 18.11%)	32.05% (27.56%, 36.54%)	46.18% (41.38%, 50.98%)
≥7	1	10 602	4378	41.29% (40.35%, 42.23%)	41.29% (40.35%, 42.23%)	41.29% (40.35%, 42.23%)
	2	1761	306	17.38% (15.61%, 19.15%)	44.18% (43.23%, 45.13%)	51.49% (50.54%, 52.45%)
	3	327	45	13.76% (10.03%, 17.49%)	44.60% (43.65%, 45.55%)	58.17% (57.23%, 59.11%)
	4	84	10	11.90% (4.98%, 18.82%)	44.70% (43.75%, 45.65%)	63.15% (62.23%, 64.06%)

Supplementary Table 6 Live birth rates per complete cycle and cumulative live birth rates per woman by type of infertility

Type of infertility	Cycle number	Number of women starting cycle	Number of live births	Cycle-specific live birth rate (95% CI)	Conservative live birth rate (95% CI)	Optimal live birth rate (95% CI)
Secondary infertility	1	5761	2221	38.55% (37.29%, 39.81%)	38.55% (37.29%, 39.81%)	38.55% (37.29%, 39.81%)
	2	999	190	19.02% (16.59%, 21.45%)	41.85% (40.58%, 43.12%)	50.24% (48.95%, 51.53%)
	3	175	20	11.43% (6.72%, 16.14%)	42.20% (40.92%, 43.48%)	55.93% (54.64%, 57.21%)
	4	42	4	9.52% (0.64%, 18.40%)	42.27% (40.99%, 43.55%)	60.12% (58.86%, 61.39%)
Primary infertility	1	8387	3579	42.67% (41.61%, 43.73%)	42.67% (41.61%, 43.73%)	42.67% (41.61%, 43.73%)
	2	1331	267	20.06% (17.91%, 22.21%)	45.86% (44.79%, 46.93%)	54.17% (53.10%, 55.24%)
	3	216	39	18.06% (12.93%, 23.19%)	46.32% (45.25%, 47.39%)	62.45% (61.41%, 63.48%)
	4	48	7	14.58% (4.60%, 24.56%)	46.41% (45.34%, 47.48%)	67.92% (66.92%, 68.92%)

Supplementary Table 7 Live birth rates per complete cycle and cumulative live birth rates per woman by infertility diagnosis

Infertility diagnosis	Cycle number	Number of women starting cycle	Number of live births	Cycle-specific live birth rate (95% CI)	Conservative live birth rate (95% CI)	Optimal live birth rate (95% CI)
Male	1	3169	1831	57.78% (56.06%, 59.50%)	57.78% (56.06%, 59.50%)	57.78% (56.06%, 59.50%)
	2	480	112	23.33% (19.55%, 27.11%)	61.31% (59.61%, 63.01%)	67.63% (66.00%, 69.26%)
	3	72	14	19.44% (10.30%, 28.58%)	61.75% (60.06%, 63.44%)	73.92% (72.39%, 75.45%)
	4	16	1	6.25% (0.00%, 18.11%)	61.79% (60.10%, 63.48%)	75.55% (74.06%, 77.05%)
Endometriosis	1	1118	506	45.26% (42.34%, 48.18%)	45.26% (42.34%, 48.18%)	45.26% (42.34%, 48.18%)
	2	217	37	17.05% (12.05%, 22.05%)	48.57% (45.64%, 51.50%)	54.59% (51.67%, 57.51%)
	3	56	8	14.29% (5.12%, 23.46%)	49.28% (46.35%, 52.21%)	61.08% (58.22%, 63.94%)
	4	12	1	8.33% (0.00%, 23.97%)	49.37% (46.44%, 52.30%)	64.32% (61.52%, 67.13%)

Supplementary Table 7 Live birth rates per complete cycle and cumulative live birth rates per woman by infertility diagnosis
(continued)

Infertility diagnosis	Cycle number	Number of women starting cycle	Number of live births	Cycle-specific live birth rate (95% CI)	Conservative live birth rate (95% CI)	Optimal live birth rate (95% CI)
Ovulation disorder or PCOS*	1	1559	744	47.72% (45.24%, 50.20%)	47.72% (45.24%, 50.20%)	47.72% (45.24%, 50.20%)
	2	231	58	25.11% (19.52%, 30.70%)	51.44% (48.96%, 53.92%)	60.85% (58.42%, 63.27%)
	3	21	2	9.52% (0.00%, 22.07%)	51.57% (49.09%, 54.05%)	64.57% (62.20%, 66.95%)
	4	4	1	25.00% (0.00%, 67.44%)	51.64% (49.16%, 54.12%)	73.43% (71.24%, 75.62%)
Tubal	1	8941	3424	38.30% (37.29%, 39.31%)	38.30% (37.29%, 39.31%)	38.30% (37.29%, 39.31%)
	2	1586	298	18.79% (16.87%, 20.71%)	41.63% (40.61%, 42.65%)	49.89% (48.86%, 50.93%)
	3	252	38	15.08% (10.66%, 19.50%)	42.05% (41.03%, 43.07%)	57.45% (56.42%, 58.47%)
	4	55	4	7.27% (0.41%, 14.13%)	42.10% (41.08%, 43.12%)	60.54% (59.53%, 61.56%)
Unexplained	1	475	232	48.84% (44.34%, 53.34%)	48.84% (44.34%, 53.34%)	48.84% (44.34%, 53.34%)
	2	60	7	11.67% (3.55%, 19.79%)	50.32% (45.82%, 54.82%)	54.81% (50.33%, 59.29%)
	3	11	1	9.09% (0.00%, 26.08%)	50.53% (46.03%, 55.03%)	58.92% (54.49%, 63.34%)
	4	3	0	0.00% (0.00%, 26.08%)	50.53% (46.03%, 55.03%)	58.92% (54.49%, 63.34%)

*PCOS: polycystic ovarian syndrome.

Supplementary Table 8 Live birth rates per complete cycle and cumulative live birth rates per woman by insemination method

Insemination method	Cycle number	Number of women starting cycle	Number of live births	Cycle-specific live birth rate (95% CI)	Conservative live birth rate (95% CI)	Optimal live birth rate (95% CI)
ICSI	1	3063	1327	43.32% (41.57%, 45.07%)	43.32% (41.57%, 45.07%)	43.32% (41.57%, 45.07%)
	2	526	102	19.39% (16.01%, 22.77%)	46.65% (44.88%, 48.42%)	54.31% (52.55%, 56.07%)
	3	74	16	21.62% (12.24%, 31.00%)	47.18% (45.41%, 48.95%)	64.19% (62.49%, 65.89%)
	4	10	2	20.00% (0.00%, 44.79%)	47.24% (45.47%, 49.01%)	71.35% (69.75%, 72.95%)
IVF	1	10325	4139	40.09% (39.14%, 41.04%)	40.09% (39.14%, 41.04%)	40.09% (39.14%, 41.04%)
	2	1712	318	18.57% (16.73%, 20.41%)	43.17% (42.21%, 44.13%)	51.22% (50.25%, 52.18%)
	3	267	37	13.86% (9.72%, 18.00%)	43.53% (42.57%, 44.49%)	57.98% (57.02%, 58.93%)
	4	49	8	16.33% (5.98%, 26.68%)	43.60% (42.64%, 44.56%)	64.84% (63.92%, 65.76%)
IVF+ICSI	1	602	262	43.52% (39.56%, 47.48%)	43.52% (39.56%, 47.48%)	43.52% (39.56%, 47.48%)
	2	83	30	36.14% (25.80%, 46.48%)	48.50% (44.51%, 52.49%)	63.93% (60.10%, 67.77%)
	3	13	3	23.08% (0.18%, 45.98%)	49.00% (45.01%, 52.99%)	72.26% (68.68%, 75.83%)
	4	2	0	23.08% (0.18%, 45.98%)	49.00% (45.01%, 52.99%)	72.26% (68.68%, 75.83%)

ICSI: intracytoplasmic sperm injection; IVF: *in vitro* fertilization.