Council on Human Reproductive Technology 2019 Annual Statistics

Updated in June 2021*

* Statistics on live birth events in relation to reproductive procedures performed in 2019 are covered in this final version.

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Key Terms used in the Annual Statistics

Terms	Description
Artificial insemination by husband (AIH)	The placing of sperm inside a woman's vagina or uterus (i.e. womb) by means other than sexual intercourse. In artificial insemination by husband (AIH), the husband's sperm is used.
Clinical pregnancy	A pregnancy documented by one or more gestational sacs on ultrasound or the histological confirmation of gestational products in miscarriages or ectopic pregnancies.
Clinical pregnancy rate	Clinical pregnancy rate is expressed as number of clinical pregnancies per 100 treatment cycles started/commenced or per 100 cycles reaching the stage of attempted oocyte recovery/retrieval or embryo transfer (ET).
Donor insemination (DI)	Also known as artificial insemination by donor (AID). DI is an artificial insemination whereby sperm collected from a man who is not the woman's husband is used.
Ectopic pregnancy	A pregnancy in which implantation has taken place outside the uterine cavity.
Heterotopic pregnancy	Simultaneous existence of intrauterine and ectopic pregnancy.
In vitro fertilisation (IVF)	 In vitro fertilization (a) means the fertilization of an egg by sperm outside the human body, whether or not the egg was originally removed from the body of that or any other woman; (b) includes any procedure involving the induction or aspiration of an egg, or the culture of an egg for the purposes of any such fertilization. It includes IVF without ICSI and IVF with ICSI.
Intracytoplasmic sperm injection (ICSI)	A method of gamete micromanipulation by which a single sperm is injected into the inner cellular structure of the egg.
Live birth event	For the purposes of the Code of Practice on Reproductive Technology and Embryo Research issued by the Council, live birth event shall mean an event of the birth of one or more than one live child from one single pregnancy. The birth of live twins, triplets and so on will therefore be considered as a single "live birth event".
Live birth event rate	Unless otherwise specified, live birth event (single and multiple live births included) rate is expressed per 100 treatment cycles started, i.e. live birth event rate = Number of live birth events/Number of treatment cycles x 100%
Microsurgical epididymal sperm aspiration/extraction (MESA/MESE)	A surgical procedure performed with the assistance of an operating microscope to retrieve sperm from the epididymis of men with obstructive azoospermia. In the absence of optical magnification, any surgical procedure to retrieve sperm from the epididymis should also be registered as MESE.

Terms	Description
Miscarriage (Spontaneous abortion)	A loss of an intrauterine pregnancy detected clinically or by ultrasound, and less than 24 weeks' gestation (as estimated by the day of embryo transfer or day of ovulation).
Multiple live birth event rate	Unless otherwise specified, multiple live birth event rate is expressed per 100 treatment cycles started, i.e. Multiple live birth event rate = Number of multiple live birth events/Number of treatment cycles x 100%
No. of no pregnancy	The number of treatment cycles started and reported by the licensed centre with an outcome of "no pregnancy", including those abandoned and those ending with elective cryopreservation of embryos.
Ongoing pregnancy	Ongoing pregnancy with foetal cardiac activity during the period of the year being reported on.
Ongoing pregnancy rate	Ongoing pregnancy rate is expressed as number of ongoing pregnancies per 100 treatment cycles started /commenced or per 100 cycles reaching the stage of attempted oocyte retrieval or embryo transfer.
Testicular sperm aspiration/extraction (TESA/TESE)	A surgical procedure involving one or more testicular biopsies or needle aspirations to obtain sperm for use in IVF and/or ICSI.
Treatment cycle	The process in which a reproductive technology (RT) procedure is carried out, where a woman has undergone ovarian stimulation or monitoring with the intent of having RT procedure, or frozen embryos have been thawed with the intent of transferring them to a woman. A treatment cycle starts (a) on the day when superovulatory drugs were commenced or (b) from the date of the last menstrual period. This annual statistics only covered treatment cycles that led to (1) Gamete transfer/embryo replacement/insemination, or stopped because of (2) Elective cryopreservation of all embryos or (3) Cycle abandonment.

Key Statistics and Charts

Key Statistics for 2019

A (for non-donor IVF cycles only)

	pe of RT procedure	-	2 Patient diagno	neie3 /%	()						
-					-						
	Please refer to Chart		(Please refer to		•	tor 00 7	Tubal	www.blows	1 2	Multiple	
IV	/F ¹ (with ICSI ²)	35.62	Single caus	e	Male lac	tor 22.7	Tubar	problem	4.3	Multiple	causes
IV	/F (without ICSI)	9.80	Endometriosis	2.6	Ovulat probl	-	. Other	r Causes	13.2	Female & ma facto	
Fi	rozen-thawed ET	54.58	Immunologic problem		Tubo-periton probl) Une.	xplained	11.7	Female facto	ors 7.7 nly
			-				Age G	roup ⁴			
Preg	gnancy & Live Birth (Outcomes		25 or below	26-30	31-35	36-40	41-45	46-5	60 51 or above	All/ <i>Overall%</i>
3	Fresh embryos from	m patient	couple's own gan	netes							
а	Number of patients	s		21	248	1238	1704	579	40	0	3830
b	Number of treatme	ent cycles ⁵		26	261	1377	2016	878	68	NA	4626
с	Number of treatme transferred	ent cycles	with embryo	4	57	430	708	208	11	NA	1418
d	Average number of	f embryo t	ransferred	1.75	1.26	1.23	1.36	1.71	1.64	4 NA	1.37
е	Clinical pregnancy	rate ⁶ (%)		0.0	11.1	13.5	11.0	3.0	0.0) NA	10.0
f	Live birth event rat	te ⁷ (%)		NA	8.4	11.0	7.7	1.6	NA	NA	7.4
g	Singleton live birth	event rate	e ⁸ (%)	NA	7.3	10.3	7.2	1.6	NA	NA	6.9
h	Multiple live birth e	event rate ^s	9 (%)	NA	1.1	0.7	0.5	0.0	NA	NA	0.5
4	Frozen embryos fro	om patient	: couple's own ga	metes							
а	Number of patients	s		21	274	1330	1779	599	36	1	4040
b	Number of treatme	ent cycles ⁵		26	348	1889	2472	776	47	1	5559
с	Number of treatme transferred	ent cycles	with embryo	26	346	1874	2447	769	45	1	5508
d	Average number of	f embryo t	ransferred	1.54	1.34	1.28	1.26	1.49	1.79	9 1.00	1.31
е	Clinical pregnancy	rate ⁶ (%)		61.5	64.4	48.9	42.4	28.9	2.1	0.0	43.8
f	Live birth event rat	te ⁷ (%)		53.8	50.6	38.3	29.7	14.2	0.0) NA	31.6
g	Singleton live birth	event rate	e ⁸ (%)	38.5	43.1	34.4	26.9	13.5	0.0) NA	28.4
-	Multiple live birth e			15.4	7.5	3.9	2.8	0.6	0.0		3.2
5	Trends of RT Proce										
а	Number of patients		tment cycles					Ple	ase ref	fer to Chart A	5(a)
	Proportion of ICSI		-							er to Chart A	
С	Number of live birt	h events a	and babies born					Ple	ase ret	fer to Chart A	5(c)
d	Live birth event rat	te (%)						Ple	ase ref	fer to Chart A	5(d)
е	Percentage of trea events by one, two					g in live	birth	Ple	ase ret	fer to Chart A	5(e)
_											

В

 1
 Storage of Gametes and Embryos

 a
 Number of gametes and embryos stored by RT centres
 Please refer to Chart B1(a)

 b
 Number of gametes or embryos stored or used for research
 Please refer to Chart B1(b)

Remarks:

- NA Not applicable
- (1) In vitro fertilization (IVF) (a) means the fertilization of an egg by sperm outside the human body, whether or not the egg was originally removed from the body of that or any other woman; (b) includes any procedure involving the induction or aspiration of an egg, or the culture of an egg for the purposes of any such fertilization.

It includes Conventional IVF (IVF without ICSI) and IVF with ICSI.

- (2) **Intracytoplasmic sperm injection (ICSI)** means a method of gamete micromanipulation by which a single sperm is injected into the inner cellular structure of the egg.
- (3) Total patient diagnosis percentages may be greater than 100% because more than one diagnosis can be reported for each treatment cycle.
- (4) The age of wife has been used in calculating the age of patient.
- (5) (i) Treatment cycles refers to the process in which a reproductive technology (RT) procedure is carried out, where a woman has undergone ovarian stimulation or monitoring with the intent of having RT procedure, or frozen embryos have been thawed with the intent of transferring them to a woman. A treatment cycle starts (a) on the day when superovulatory drugs were commenced or (b) from the date of the last menstrual period.

This annual statistics only covered treatment cycles that led to (1) Gamete transfer/embryo replacement/insemination, or stopped because of (2) Elective cryopreservation of all embryos or (3) Cycle abandonment.

- (ii) In this Key Statistics, the treatment cycles for (a) RT procedures involving donated gametes/embryos and
 (b) involving artificial insemination (i.e. AlH and DI) are <u>excluded</u> in the above table and separately shown in Table 2. To avoid double counting, treatment cycles of one patient engaging in more than one type of RT procedures in one cycle (e.g. IVF and FET) are also <u>excluded</u> in the above table.
- (6) (i) **Clinical pregnancy** means a pregnancy documented by one or more gestational sacs on ultrasound or the histological confirmation of gestational products in miscarriages or ectopic pregnancies.
 - (ii) **Clinical pregnancy rate** is expressed as number of clinical pregnancies per 100 treatment cycles started /commenced or per 100 cycles reaching the stage of attempted oocyte retrieval or embryo transfer. i.e. Clinical pregnancy rate = Number of clinical pregnancies/Number of treatment cycles x 100%
- (7) (i) **Live birth event** means an event of the birth of one or more than one live child from one single pregnancy. The birth of live twins, triplets and so on will therefore be considered as a single "live birth event".
 - (ii) Live birth event rate (single and multiple live births included) is expressed per 100 treatment cycles started,
 i.e. Live birth event rate [3(f) or 4(f)] = Number of live birth events/Number of treatment cycles [3(b) or 4(b)]
 x 100%
- (8) (i) **Singleton live birth event** means an event of the birth in Hong Kong of <u>one live child from one single</u> <u>pregnancy</u>.
 - (ii) Singleton live birth event rate is expressed per 100 treatment cycles started, i.e. Singleton live birth event rate[3(g) or 4(g)] = Number of live birth events with one live child born/Number of treatment cycles [3(b) or 4(b)] x 100%
- (9) (i) **Multiple live birth event** means an event of the birth in Hong Kong of <u>more than one live child from one single</u> <u>pregnancy</u>.
 - (ii) Multiple live birth event rate is expressed per 100 treatment cycles started, i.e. Multiple live birth event rate[3(h) or 4(h)] = Number of live birth events with more than one live child born/Number of treatment cycles [3(b) or 4(b)] x 100%

Charts for selected Key Statistics

Chart A1 - Type of RT Procedures taken by Patients (%) (for non-donor IVF cycles only)



- (1) In vitro fertilization (IVF) (a) means the fertilization of an egg by sperm outside the human body, whether or not the egg was originally removed from the body of that or any other woman; (b) includes any procedure involving the induction or aspiration of an egg, or the culture of an egg for the purposes of any such fertilization. It includes IVF without ICSI and IVF with ICSI.
- (2) **Intracytoplasmic sperm injection (ICSI)** means a method of gamete micromanipulation by which a single sperm is injected into the inner cellular structure of the egg.
- (3) (i) Treatment cycles refers to the process in which a reproductive technology (RT) procedure is carried out, where a woman has undergone ovarian stimulation or monitoring with the intent of having RT procedure, or frozen embryos have been thawed with the intent of transferring them to a woman. A treatment cycle starts (a) on the day when superovulatory drugs were commenced or (b) from the date of the last menstrual period.
 - (ii) In this chart, the treatment cycles for (a) RT procedures involving donated gametes/embryos and (b) involving artificial insemination (i.e. AIH and DI) are <u>excluded</u> in the above chart and separately shown in Table 2. To avoid double counting, treatment cycles of one patient engaging in more than one type of RT procedures in one cycle (e.g. IVF and FET) are also <u>excluded</u> in the above chart.

Chart A2 - Patients Diagnosis (%) (for non-donor IVF cycles only)



Remarks:

(1) "Other causes" of infertility diagnosis reported by RT centres included advanced maternal age, reduced ovarian reserve, coital problem, polycystic ovary syndrome, etc.

Chart A5(a) - Number of Patients and Treatment Cycles (for non-donor IVF cycles only)



Number of Patients

Number of Treatment Cycles²



- (1) The age of wife has been used in calculating the age of patient.
- (2) (i) Treatment cycles refers to the process in which a reproductive technology (RT) procedure is carried out, where a woman has undergone ovarian stimulation or monitoring with the intent of having RT procedure, or frozen embryos have been thawed with the intent of transferring them to a woman. A treatment cycle starts (a) on the day when superovulatory drugs were commenced or (b) from the date of the last menstrual period.
 - (ii) In this chart, the treatment cycles for (a) RT procedures involving donated gametes/embryos and (b) involving artificial insemination (i.e. AIH and DI) are <u>excluded</u> from the above chart and separately shown in Table 2. To avoid double counting, treatment cycles of one patient engaging in more than one type of RT procedures in one cycle (e.g. IVF and FET) are also <u>excluded</u> from the above chart.

Chart A5(b) - Proportion of ICSI¹ Cycles (%) (amongst all non-donor IVF cycles²)



- (1) **Intracytoplasmic sperm injection (ICSI)** means a method of gamete micromanipulation by which a single sperm is injected into the inner cellular structure of the egg.
- (2) (i) Treatment cycles refers to the process in which a reproductive technology (RT) procedure is carried out, where a woman has undergone ovarian stimulation or monitoring with the intent of having RT procedure, or frozen embryos have been thawed with the intent of transferring them to a woman. A treatment cycle starts (a) on the day when superovulatory drugs were commenced or (b) from the date of the last menstrual period.
 - (ii) In this chart, the treatment cycles for (a) RT procedures involving donated gametes/embryos and (b) involving artificial insemination (i.e. AIH and DI) are <u>excluded</u> from the above chart and separately shown in Table 2. To avoid double counting, treatment cycles of one patient engaging in more than one type of RT procedures in one cycle (e.g. IVF and FET) are also <u>excluded</u> from the above chart.

Chart A5(c) - Number of Live Birth Events¹ and Babies Born (for non-donor IVF cycles only)



- (1) **Live birth event** means an event of the birth of one or more than one live child from one single pregnancy. The birth of live twins, triplets and so on will therefore be considered as a single "live birth event".
- (2) Singleton live birth event means an event of the birth of <u>one live child from one single pregnancy</u>.
- (3) Multiple live birth event means an event of the birth of more than one live child from one single pregnancy.

Chart A5(d) - Live Birth Event¹ Rate (%) (for non-donor IVF cycles only)



- (1) (i) **Live birth event** means an event of the birth of <u>one or more than one live child from one single pregnancy</u>. The birth of live twins, triplets and so on will therefore be considered as a single "live birth event".
 - (ii) **Live birth event rate** (single and multiple live births included) is expressed per 100 treatment cycles started, i.e. Live birth event rate = Number of live birth events/Number of treatment cycles x 100%
- (2) (i) Singleton live birth event means an event of the birth of <u>one live child from one single pregnancy</u>.
 - (ii) **Singleton live birth event rate** is expressed per 100 treatment cycles started, i.e. Singleton live birth event rate = Number of live birth events with one live child born/Number of treatment cycles x 100%
- (3) (i) Multiple live birth event means an event of the birth of more than one live child from one single pregnancy.
 - (ii) Multiple live birth event rate is expressed per 100 treatment cycles started, i.e. Multiple live birth event rate
 = Number of live birth events with more than one live child born/Number of treatment cycles x 100%

Chart A5(e) - Percentage of Treatment Cycles (with Embryo Transferred) Resulting in Live Birth Events¹ by One, Two and Three Embryos Transferred (%) (for non-donor IVF cycles only)



- (1) (i) **Live birth event** means an event of the birth of one or more than one live child from one single pregnancy. The birth of live twins, triplets and so on will therefore be considered as a single "live birth event".
 - (ii) Live birth event rate (single and multiple live births included) is expressed per 100 treatment cycles started, i.e. live birth event rate = Number of live birth events/Number of treatment cycles x 100%

Chart B1(a) - Number of gametes and embryos stored by RT centres



Chart B1(b) - Number of donated gametes or embryos stored or used for research



	Number of Donated Embryos Used for Research in 2019
Embryos	96

Detailed Statistics Tables

Table 1 - Gamete and Embryos Donations Made in 2019

(Based on the information on Annual Statistics Forms received in the calendar year)

	Gam	nete	Emt	oryo	Total	
Age Group	Female Donors	Male Donors	Female Donors	Male Donors	TOLAT	
25 or below	2	4	0	0	6	
26-30	3	10	0	0	13	
31-35	3	8	0	0	11	
36-40	1	7	0	0	8	
41-45	0	0	0	0	0	
46-50	0	0	0	0	0	
51 or above	0	0	0	0	0	
Total	9	29	0	0	38	

a) Gamete and Embryo Donors by Age Group and Sex

b) Donors and Donated Materials

Donated Materials	Number of Donors	Number of Donations Made
Semen	29	117
Eggs (oocytes)	9	9
Embryos ¹	0	0

Remark:

(1) Both the female and male donors of the couple will be counted for an embryo donation.

Source (for RT Centres) AS Form 8

Table 2 - Pregnancy and Birth Outcomes for Main Types of RTProcedures in 2019

(Based on the information on Data Collection Forms received in the calendar year)

			RT proc	edures <u>invo</u> gametes/	lving patient 'embryos	<u>s' own</u>	RT procedures involving donated gametes/embryos		
Iter	n		IV with ICSI ²	F ¹ without ICSI	Frozen- thawed ET	AIH ³	DI ³	RT procedures other than DI	
1		Number of patients	2947	883	4040	2727	6	53	
2		Number of treatment cycles ⁴	3628	998	5559	4109	13	89	
3		Number of treatment cycles with embryo transferred	965	453	5508	NA	NA	67	
4		Number of cycles of insemination	NA	NA	NA	4096	13	NA	
Tre	atr	nent Outcome ⁵							
5a		Number of clinical pregnancy6(i)	297	165	2435	546	2	33	
	i	Number of ongoing pregnancy ⁷⁽ⁱ⁾	250	151	2040	475	2	30	
	ii	Number of miscarriage ⁸	42	10	374	59	0	3	
	iii	Number of hydatidiform mole	0	0	2	0	0	0	
	iv	Number of ectopic pregnancy ⁹	5	4	18	12	0	0	
	v	Number of heterotopic pregnancy ¹⁰	0	0	0	0	0	0	
	vi	Number of termination of pregnancy	0	0	1	0	0	0	
5b		Number of no pregnancy ¹¹	3331	833	3119	3517	11	56	
5c		Number of lost to follow up ¹²	0	0	5	46	0	0	
5d		Clinical pregnancy rate ⁶⁽ⁱⁱ⁾ (per treatment cycle) (%)	8.2	16.5	43.8	13.3	15.4	37.1	
	ii	Clinical pregnancy rate (per treatment cycle with embryo transferred) (%)	30.8	36.4	44.2	NA	NA	49.3	
	111	Clinical pregnancy rate (per cycle of insemination) (%)	NA	NA	NA	13.3	15.4	NA	
5e	I	Ongoing pregnancy rate ⁷⁽ⁱⁱ⁾ (per treatment cycle) (%)	6.9	15.1	36.7	11.6	15.4	33.7	
	ii	Ongoing pregnancy rate (per treatment cycle with embryo transferred) (%)	25.9	33.3	37.0	NA	NA	44.8	
	iii	Ongoing pregnancy rate (per cycle of insemination) (%)	NA	NA	NA	11.6	15.4	NA	
	-	ancy Outcome							
6a		Number of lost to follow up	0	2	45	23	0	0	
6b		Number of live birth events ¹³⁽ⁱ⁾	217	126	1756	372	2	28	
		Number of singleton live birth events ¹⁴⁽ⁱ⁾	200	120	1578	341	2	26	
		Number of multiple live birth events ¹⁵⁽ⁱ⁾	17	6	178	31	0	2	
6c		Live birth event rate ¹³⁽ⁱⁱ⁾ (%)	6.0	12.6	31.6	9.1	15.4	31.5	
		Singleton live birth event rate ¹⁴⁽ⁱⁱ⁾ (%)	5.5	12.0	28.4	8.3	15.4	29.2	
	ii	Multiple live birth event rate ¹⁵⁽ⁱⁱ⁾ (%)	0.5	0.6	3.2	0.8	0.0	2.2	
6d		Total number of babies born	234	132	1936	403	2	30	

Remarks:

- NA Not applicable
- (1) In vitro fertilization (IVF) (a) means the fertilization of an egg by sperm outside the human body, whether or not the egg was originally removed from the body of that or any other woman; (b) includes any procedure involving the induction or aspiration of an egg, or the culture of an egg for the purposes of any such fertilization. It includes IVF without ICSI and IVF with ICSI.
- (2) **Intracytoplasmic sperm injection (ICSI)** means a method of gamete micromanipulation by which a single sperm is injected into the inner cellular structure of the egg.
- (3) Artificial insemination refers to the placing of sperm inside a woman's vagina or uterus (i.e. womb) by means other than sexual intercourse. In artificial insemination by husband (AIH), the husband's sperm is used. In artificial insemination by donor (AID or DI), sperm collected from a man who is not the woman's husband is used.
- (4) (i) Treatment cycles refers to the process in which a reproductive technology (RT) procedure is carried out, where a woman has undergone ovarian stimulation or monitoring with the intent of having RT procedure, or frozen embryos have been thawed with the intent of transferring them to a woman. A treatment cycle starts (a) on the day when superovulatory drugs were commenced or (b) from the date of the last menstrual period.

This annual statistics only covered treatment cycles that led to (1) Gamete transfer/embryo replacement/insemination, or stopped because of (2) Elective cryopreservation of all embryos or (3) Cycle abandonment.

- (ii) In this table, the treatment cycles for RT procedures involving donated gametes/embryos and those involving artificial insemination (i.e. AIH and DI) are shown. To avoid double counting, treatment cycles of one patient engaging in more than one type of RT procedures in one cycle (e.g. IVF and FET) are excluded from the above table.
- (5) Figures on **treatment outcome** reported in the interim statistics will be replaced when outcome of pregnancy is available in the final statistics. RT centres are required to report the details concerning **pregnancy outcome** within 12 months after treatment.
- (6) (i) **Clinical pregnancy** means pregnancy documented by one or more gestational sacs on ultrasound or the histological confirmation of gestational products in miscarriages or ectopic pregnancies.
 - (ii) **Clinical pregnancy rate** is expressed as number of clinical pregnancies per 100 treatment cycles started /commenced or per 100 cycles reaching the stage of attempted oocyte retrieval or embryo transfer.
 - Clinical pregnancy rate per treatment cycles [Item 5d(i)] = Number of clinical pregnancies [Item 5a]/Number of treatment cycles[Item 2] x 100%
 - Clinical pregnancy rate per treatment cycles with embryo transferred [Item 5d(ii)] = Number of clinical pregnancies [Item 5a]/Number of treatment cycles with embryo transferred [Item 3] x 100%
 - Clinical pregnancy rate per cycles of insemination [Item 5d(iii)] = Number of clinical pregnancies [Item 5a]/ Number of cycles of insemination [Item 4] x 100%
- (7) (i) Ongoing pregnancy means ongoing pregnancy with foetal cardiac activity during the period of the year being reported on.
 - (ii) **Ongoing pregnancy rate** is expressed as number of ongoing pregnancies per 100 treatment cycles started /commenced or per 100 cycles reaching the stage of attempted oocyte retrieval or embryo transfer.
 - Ongoing pregnancy rate per treatment cycles [Item 5e(i)] = Number of ongoing pregnancies [Item 5a(i)]/ Number of treatment cycles [Item 2] x 100%
 - Ongoing pregnancy rate per treatment cycles with embryo transferred [Item 5e(ii)] = Number of ongoing pregnancies [Item 5a(i)]/Number of treatment cycles with embryo transferred [Item 3] x 100%
 - Ongoing pregnancy rate per cycles of insemination [Item 5e(iii)] = Number of ongoing pregnancies [Item 5a(i)]/Number of cycles of insemination [Item 4] x 100%
- (8) Miscarriage (Spontaneous abortion) refers to loss of an intrauterine pregnancy detected clinically or by ultrasound, and less than 24 weeks' gestation (as estimated by the day of embryo transfer or day of ovulation).
- (9) Ectopic pregnancy refers to a pregnancy in which implantation has taken place outside the uterine cavity.
- (10) Heterotopic pregnancy refers to simultaneous existence of intrauterine and ectopic pregnancy.

- (11) Number of no pregnancy refers to the number of treatment cycles started and reported by the licensed centre with an outcome of "no pregnancy", including those abandoned and those ending with elective cryopreservation of embryos.
- (12) Figures on number of lost to follow up cases will be reported in the interim statistics and it will be updated when pregnancy outcome is available in the final statistics.
- (13) (i) Live birth event means an event of the birth of one or more than one live child from one single pregnancy. The birth of live twins, triplets and so on will therefore be considered as a single "live birth event".
 - (ii) Live birth event rate (single and multiple live births included) is expressed per 100 treatment cycles started,
 i.e. Live birth event rate [Item 6c] = Number of live birth events [Item 6b]/Number of treatment cycles [Item 2] x 100%
- (14) (i) Singleton live birth event means an event of the birth of one live child from one single pregnancy.
 - (ii) Singleton live birth event rate is expressed per 100 treatment cycles started,

i.e. Singleton live birth event rate [Item 6c(i)] = Number of live birth events with one live child born [6b(i)]/Number of treatment cycles [Item 2] x 100%

- (15) (i) Multiple live birth event means an event of the birth of more than one live child from one single pregnancy.
 - (ii) Multiple live birth event rate is expressed per 100 treatment cycles started,

i.e. Multiple live birth event rate [Item 6c(ii)] = Number of live birth events with more than one live child born [6b(ii)]/Number of treatment cycles [Item 2] x 100%

Source (for RT Centres) DC Form 1, 2, 3, 4 & 7

Table 3 - Pregnancy and Birth Outcomes by Age Group and Main Type of **RT Procedures in 2019**

(for non-donor IVF cycles only) (Based on the information on Data Collection Forms received in the calendar year)

	mation on Data CC		(with ICSI ²)				
Age Group ⁴	Number of Patients	Number of Treatment Cycles ⁵	Number of Treatment Cycles with Embryo		going nancy ⁶	Live Bir	th Event ⁷
			Transferred	n ⁶⁽ⁱ⁾	<i>(%)</i> 6(ii)	n ⁷⁽ⁱ⁾	<i>(%)</i> 7 ⁽ⁱⁱ⁾
25 or below	19	24	4	4 0 (0	(0.0)
26-30	222	233	44	18	(7.7)	15	(6.4)
31-35	935	1062	272	101	(9.5)	91	(8.6)
36-40	1239	1504	460	115	(7.6)	100	(6.6)
41-45	496	742	174	16	(2.2)	11	(1.5)
46-50	36	63	11	0	(0.0)	0	(0.0)
51 or above	0	NA	NA	١	NA	١	١A
Total	2947	3628	965	250	(6.9)	217	(6.0)
		IVF (v	vithout ICSI)	L			
Age Group	Number of Patients	Number of Treatment Cycles	Number of Treatment Cycles with Embryo	Ongoing Pregnancy		Live Bir	th Event
			Transferred	n	(%)	n	(%)
25 or below	2	2	0	0	(0.0)	0	(0.0)
26-30	26	28	13	8 (28.6)		7	(25.0)
31-35	303	315	158	67	(21.3)	61	(19.4)
36-40	465	512	248	71	(13.9)	55	(10.7)
41-45	83	136	34	5	(3.7)	3	(2.2)
46-50	4	5	0	0	(0.0)	0	(0.0)
51 or above	0	NA	NA	١	NA	١	١A
Total	883	998	453	151	(15.1)	126	(12.6)
		All IVF	(Fresh cycles	5)			
Age Group	Number of Patients Cycles		Number of Treatment Cycles with Embryo		going nancy	Live Birth Event	
			Transferred	n	(%)	n	(%)
25 or below	21	26	4	0	(0.0)	0	(0.0)
26-30	248	261	57	26	(10.0)	22	(8.4)
31-35	1238	1377	430	168	(12.2)	152	(11.0)
36-40	1704	2016	708	186	(9.2)	155	(7.7)
41-45	579	878	208	21	(2.4)	14	(1.6)
46-50	40	68	11	0	(0.0)	0	(0.0)
51 or above	0	NA	NA	1	NA	١	JA
Total	3830	4626	1418	401	(8.7)	343	(7.4)

		Froze	n-thawed ET					
Age Group	Number of Patients	Number of Treatment Cycles	Number of Treatment Cycles with Embryo Transferred	Ongoing Pregnancy n <i>(%)</i>		Live Birth Event		
25 or below	21	26	26	14	(53.8)	14	(53.8)	
26-30	274	348	346	197	(56.6)	176	(50.6)	
31-35	1330	1889	1874	793	(42.0)	723	(38.3)	
36-40	1779	2472	2447	875	(35.4)	733	(29.7)	
41-45	599	776	769	161	(20.7)	110	(14.2)	
46-50	36	47	45	0	(0.0)	0	(0.0)	
51 or above	1	1	1	0 (0.0)		0	(0.0)	
Total	4040 5559		5508	2040	(36.7)	1756	(31.6)	
			AIH ³					
Age Group	Number of Patients	Number of Treatment Cycles	Number of cycles of insemination		going nancy	Live Birth Event		
				n	(%)	n	(%)	
25 or below	14	17	17	3	(17.6)	1	(5.9)	
26-30	308	445	444	66	(14.8)	56	(12.6)	
31-35	1203	1848	1838	239	(12.9)	192	(10.4)	
36-40	964	1419	1418	153	(10.8)	113	(8.0)	
41-45	219	353	352	14	(4.0)	10	(2.8)	
46-50	19	27	27	0	(0.0)	0	(0.0)	
51 or above	0	NA	NA	Ν	JA	Ν	JA	
Total	2727	4109	4096	475	(11.6)	372	(9.1)	

- NA Not applicable
- (1) In vitro fertilization (IVF) (a) means the fertilization of an egg by sperm outside the human body, whether or not the egg was originally removed from the body of that or any other woman; (b) includes any procedure involving the induction or aspiration of an egg, or the culture of an egg for the purposes of any such fertilization. It includes IVF without ICSI and IVF with ICSI.
- (2) **Intracytoplasmic sperm injection (ICSI)** means a method of gamete micromanipulation by which a single sperm is injected into the inner cellular structure of the egg.
- (3) Artificial insemination refers to the placing of sperm inside a woman's vagina or uterus (i.e. womb) by means other than sexual intercourse. In artificial insemination by husband (AIH), the husband's sperm is used. In artificial insemination by donor (AID or DI), sperm collected from a man who is not the woman's husband is used.
- (4) The age of wife has been used in calculating the age of patient.
- (5) (i) Treatment cycles refers to the process in which a reproductive technology (RT) procedure is carried out, where a woman has undergone ovarian stimulation or monitoring with the intent of having RT procedure, or frozen embryos have been thawed with the intent of transferring them to a woman. A treatment cycle starts (a) on the day when superovulatory drugs were commenced or (b) from the date of the last menstrual period.

This annual statistics only covered treatment cycles that led to (1) gamete transfer/embryo replacement/insemination, or stopped because of (2) elective cryopreservation of all embryos or (3) cycle abandonment.

- (ii) In this table, the treatment cycles for RT procedures involving donated gametes/embryos are excluded from the above table and separately shown in Table 2. To avoid double counting, treatment cycles of one patient engaging in more than one type of RT procedures in one cycle (e.g. IVF and FET) are also excluded from the above table.
- (6) **Ongoing pregnancy** means ongoing pregnancy with foetal cardiac activity during the period of the year being reported on.
 - (i) n = Number of ongoing pregnancies
 - (ii) **Ongoing pregnancy rate** is expressed as number of ongoing pregnancies per 100 treatment cycles started /commenced or per 100 cycles reaching the stage of attempted oocyte retrieval or embryo transfer. i.e. Ongoing pregnancy rate = number of ongoing pregnancies [n]/Number of treatment cycles x 100%
- (7) **Live birth event** means an event of the birth of one or more than one live child from one single pregnancy. The birth of live twins, triplets and so on will therefore be considered as a single "live birth event".
 - (i) n = Number of live birth events
 - (ii) Live birth event rate (single and multiple live births included) is expressed per 100 treatment cycles started, i.e. live birth event rate = Number of live birth events [n]/Number of treatment cycles x 100%

Source (for RT Centres)

DC Form 1, 4 & 7

Table 4 - Effect of One/Two/Three Embryo(s) Transferred (Fresh/FrozenCycle with or without ICSI1) on Pregnancy and Birth Outcomes2 in 2019(for non-donor IVF cycles only)

(Based on the information on Data Collection Forms received in the calendar year)

One Embryo Transferred													
Age Group ³	Number of Patients	Number of Treatment Cycles ⁴ with Embryo Transferred		ioing hancy ⁵	MILITINIA		tiple Events ⁶ Birth Events ⁷		Events ⁸		Number of Babies born		
			n ⁵⁽ⁱ⁾	<i>(%)</i> 5(ii)	n	(%)	n ⁶⁽ⁱ⁾	<i>(%)</i> 6(ii)	n ⁷⁽ⁱ⁾	<i>(%)</i> 7 ⁽ⁱⁱ⁾	n ⁸⁽ⁱ⁾	<i>(%)</i> ^{B(ii)}	
25 or below	13	13	7	(53.8)	1	(7.7)	7	(53.8)	6	(46.2)	1	(7.7)	8
26-30	226	269	147	(54.6)	4	(1.5)	132	(49.1)	128	(47.6)	4	(1.5)	136
31-35	1266	1691	704	(41.6)	19	(1.1)	638	(37.7)	622	(36.8)	16	(0.9)	654
36-40	1648	2269	722	(31.8)	15	(0.7)	597	(26.3)	587	(25.9)	10	(0.4)	607
41-45	428	519	101	(19.5)	0	(0.0)	71	(13.7)	71	(13.7)	0	(0.0)	71
46-50	18	20	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0
51 or above	1	1	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0
Total	3600	4782	1681	(35.2)	39	(0.8)	1445	(30.2)	1414	(29.6)	31	(0.6)	1476

Two Embryos Transferred													
Age Group ³	Number of Patients	Number of Treatment Cycles ⁴ with Embryo Transferred		going nancy ⁵	Ongoing Multiple Pregnancy		Events ⁶		Birth Events ⁷		Multiple Birth Events ⁸		Number of Babies born
			n ⁵⁽ⁱ⁾	<i>(%)</i> Б(ii)	n	(%)	n ⁶⁽ⁱ⁾	<i>(%)</i> 6(ii)	n ⁷⁽ⁱ⁾	<i>(%)</i> 7 ⁽ⁱⁱ⁾	n ⁸⁽ⁱ⁾	<i>(%)</i> ^{B(ii)}	
25 or below	13	17	7	(41.2)	3	(17.6)	7	(41.2)	4	(23.5)	3	(17.6)	10
26-30	116	132	74	(56.1)	24	(18.2)	64	(48.5)	41	(31.1)	23	(17.4)	87
31-35	508	591	251	(42.5)	76	(12.9)	231	(39.1)	163	(27.6)	68	(11.5)	300
36-40	732	846	328	(38.8)	80	(9.5)	283	(33.5)	217	(25.7)	66	(7.8)	350
41-45	316	380	67	(17.6)	4	(1.1)	45	(11.8)	41	(10.8)	4	(1.1)	49
46-50	21	26	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0
51 or above	0	NA	١	NA	NA		NA		NA		NA		NA
Total	1706	1992	727	(36.5)	187	(9.4)	630	(31.6)	466	(23.4)	164	(8.2)	796

	Three Embryos Transferred												
Age Group ³	Number of Patients	Number of Treatment Cycles ⁴ with Embryo Transferred		going nancy ⁵	Ongoing Multiple Pregnancy		Live Birth Events ⁶		ts ⁶ Birth Events ⁷		Multiple Birth Events ⁸		Number of Babies born
			n ⁵⁽	i) <i>(%)</i> 5(ii)		n <i>(%)</i>	n ⁶⁽⁾	i) <i>(%)</i> 6(ii)	n ⁷⁽	i) <i>(%)</i> 7(ii)	n ⁸⁽ⁱ) <i>(%)</i> ⁸⁽ⁱⁱ⁾	
25 or below	0	NA		NA		NA	I	NA		NA	١	NA	NA
26-30	2	2	2	(100. 0)	2	(100. 0)	2	(100. 0)	0	(0.0)	2	(100. 0)	4
31-35	21	22	6	(27.3)	1	(4.5)	6	(27.3)	6	(27.3)	0	(0.0)	6
36-40	37	40	11	(27.5)	3	(7.5)	8	(20.0)	5	(12.5)	3	(7.5)	11
41-45	70	78	14	(17.9)	1	(1.3)	8	(10.3)	7	(9.0)	1	(1.3)	9
46-50	8	10	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0
51 or above	0	NA		NA	NA		NA		NA NA		NA		NA
Total	138	152	33	(21.7)	7	(4.6)	24	(15.8)	18	(11.8)	6	(3.9)	30

Remarks:

- NA Not applicable
- (1) **Intracytoplasmic sperm injection (ICSI)** means a method of gamete micromanipulation by which a single sperm is injected into the inner cellular structure of the egg.
- (2) Figures on **treatment outcome** reported in the interim statistics will be replaced when pregnancy outcome is available in the final statistics. RT centres are required to report the details concerning **pregnancy outcome** within 12 months after treatment.
- (3) The age of wife has been used in calculating the age of patient.
- (4) (i) Treatment cycles refers to the process in which a reproductive technology (RT) procedure is carried out, where a woman has undergone ovarian stimulation or monitoring with the intent of having RT procedure, or frozen embryos have been thawed with the intent of transferring them to a woman. A treatment cycle starts (a) on the day when superovulatory drugs were commenced or (b) from the date of the last menstrual period.

This annual statistics only covered treatment cycles that led to (1) gamete transfer/embryo replacement/insemination, or stopped because of (2) elective cryopreservation of all embryos or (3) cycle abandonment.

- (ii) In this table, treatment cycles for (a) RT procedures involving donated gametes/embryos and (b) involving artificial insemination (i.e. AlH and DI) are excluded from the above table and separately shown in Table 2. To avoid double counting, treatment cycles of one patient engaging in more than one type of RT procedures in one cycle (e.g. IVF and FET) are also excluded from the above table.
- (5) **Ongoing pregnancy** means ongoing pregnancy with foetal cardiac activity during the period of the year being reported on.
 - (i) n = Number of ongoing pregnancies with single foetus and multiple foetuses.
 - (ii) Ongoing pregnancy rate is expressed as number of ongoing pregnancies per 100 treatment cycles started /commenced or per 100 cycles reaching the stage of attempted oocyte retrieval or embryo transfer. i.e. Ongoing pregnancy rate = number of ongoing pregnancies [n]/Number of treatment cycles with embryo transferred x 100%
- (6) **Live birth event** means an event of the birth of one or more than one live child from one single pregnancy. The birth of live twins, triplets and so on will therefore be considered as a single "live birth event".
 - (i) n = Number of live birth events
 - (ii) Live birth event rate (single and multiple live births included) is expressed per 100 treatment cycles started, i.e. live birth event rate = Number of live birth events [n]/Number of treatment cycles with embryo transferred x 100%

- (7) **Singleton live birth event** means an event of the birth of one live child from one single pregnancy.
 - (i) n = Number of live birth events of one live child from one single pregnancy.
 - (ii) Singleton live birth event rate is expressed per 100 treatment cycles started, i.e. Singleton live birth event rate = Number of live birth events with one live child born [n]/Number of treatment cycles with embryo transferred x 100%
- (8) **Multiple live birth event** means an event of the birth of more than one live child from one single pregnancy.
 - (i) n = Number of live birth events of more than one live child from one single pregnancy.
 - (ii) Multiple live birth event rate is expressed per 100 treatment cycles started, i.e. Multiple live birth event rate = Number of live birth events with more than one live child born [n] /Number of treatment cycles with embryo transferred x 100%

Source (for RT Centres) DC Form 1 & 4

Table 5 - Pregnancy and Birth Outcomes by Age Group using Fresh/Frozen Oocytes (Fresh Cycles) in 2019 (for non-donor IVF cycles only)

(Based on the information on Data Collection Forms received in the calendar year)

	Fresh Cycles Using Fresh Oocytes									
Age Group ¹	Number of Patients	Number of Treatment Cycles ²	Number of Treatment Cycles with Embryo		soing nancy ³	Live Bir	th Event⁴			
			Transferred	n ³⁽ⁱ⁾	<i>(%)</i> ^{B(ii)}	n ⁴⁽ⁱ⁾	<i>(%)</i> 4(ii)			
25 or below	20	25	4	0	(0.0)	0	(0.0)			
26-30	243	256	57	26	(10.2)	22	(8.6)			
31-35	1196	1329	427	167	(12.6)	152	(11.4)			
36-40	1605	1888	694	185	(9.8)	154	(8.2)			
41-45	527	773	208	21	(2.7)	14	(1.8)			
46-50	35	50	11	0	(0.0)	0	(0.0)			
51 or above	0	NA	NA	NA		NA				
Total	3626	4321	1401	399	(9.2)	342	(7.9)			

Fresh Cycles Using Frozen Oocytes									
Age Group	Number of Patients	Number of Treatment Cycles	Number of Treatment Cycles with Embryo	Treatment Ongoing Cycles with Pregnancy		Live Birth Event			
			Transferred	n	(%)	n	(%)		
25 or below	0	NA	NA	NA		NA			
26-30	3	4	0	NA		NA			
31-35	5	6	2	1	(16.7)	0	(0.0)		
36-40	15	17	13	1	(5.9)	1	(5.9)		
41-45	4	4	1	0	(0.0)	0	(0.0)		
46-50	0	NA	NA	NA		NA			
51 or above	0	NA	NA	NA		NA			
Total	27	31	16	2	(6.5)	1	(3.2)		

Remarks:

NA Not applicable

(1) The age of wife has been used in calculating the age of patient.

- (2) (i) Treatment cycles refers to the process in which a reproductive technology (RT) procedure is carried out, where a woman has undergone ovarian stimulation or monitoring with the intent of having RT procedure, or frozen embryos have been thawed with the intent of transferring them to a woman. A treatment cycle starts (a) on the day when superovulatory drugs were commenced or (b) from the date of the last menstrual period.
 - (ii) In this table, treatment cycles for (a) RT procedures involving donated gametes/embryos and (b) involving artificial insemination (i.e. AIH and DI) are excluded from the above table and separately shown in Table 2. To avoid double counting, treatment cycles of one patient engaging in more than one type of RT procedures in one cycle (e.g. IVF and FET) are also excluded from the above table.

- (3) **Ongoing pregnancy** means ongoing pregnancy with foetal cardiac activity during the period of the year being reported on.
 - (i) n = Number of ongoing pregnancies
 - (ii) **Ongoing pregnancy rate** is expressed as number of ongoing pregnancies per 100 treatment cycles started /commenced or per 100 cycles reaching the stage of attempted oocyte retrieval or embryo transfer.

i.e. Ongoing pregnancy rate = number of ongoing pregnancies [n]/Number of treatment cycles x 100%

- (4) **Live birth event** means an event of the birth of one or more than one live child from one single pregnancy. The birth of live twins, triplets and so on will therefore be considered as a single "live birth event".
 - (i) n = Number of live birth events
 - (ii) Live birth event rate (single and multiple live births included) is expressed per 100 treatment cycles started, i.e. live birth event rate = Number of live birth events [n]/Number of treatment cycles x 100%

Source (for RT Centres) DC Form 1 & 4

Table 6 - Infertility Diagnosis of Patients in 2019

(Based on the information on Data Collection Forms received in the calendar year)

A) Infertility Diagnosis by Age of Wives Receiving RT Procedures (other than DI and AIH)

	Age Group (Number of Patients)							
Diagnosis	25 or below	26-30	31-35	36-40	41-45	46-50	51 or above	All
Male factor	7	115	499	627	118	3	0	1369
Tubal problem	2	26	96	107	29	0	0	260
Endometriosis	2	8	66	63	17	0	0	156
Immunologic problem	0	0	6	11	5	0	0	22
Tubo-peritoneal problem	0	11	74	89	9	0	0	183
Ovulatory problem	0	10	73	84	21	0	0	188
Unexplained	2	41	244	340	72	3	0	702
Other causes ³	6	40	167	321	231	27	1	793
Multiple causes - female & male factors	11	105	546	843	348	27	0	1880
Multiple causes - female factors only	2	23	146	206	85	4	0	466
Total	32	379	1917	2691	935	64	1	6019

Remark:

(1) All treatment cycles for RT procedures involving donated gametes/embryos are excluded.

B) Infertility Diagnosis by Age of Wives Receiving AIH

	Age Group (Number of Patients)							
Diagnosis	25 or below	26-30	31-35	36-40	41-45	46-50	51 or above	All
Male factor	2	115	444	342	55	6	0	964
Endometriosis	0	7	26	29	3	0	0	65
Ovulatory problem	2	40	86	67	8	0	0	203
Unexplained	3	57	278	177	32	5	0	552
Other causes ³	3	25	101	128	57	5	0	319
Multiple causes - female & male factors	3	53	216	177	53	2	0	504
Multiple causes - female factors only	1	11	52	44	11	1	0	120
Total	14	308	1203	964	219	19	0	2727

C) Reasons for Treatment by Age of Husbands - DI

	Age Group (Number of Patients)							
Reasons	25 or below	26-30	31-35	36-40	41-45	46-50	51 or above	All
Obstructive azoospermia	0	0	0	0	0	1	0	1
Non-obstructive azoospermia	0	0	2	0	1	0	0	3
Severe deficits in semen quality in couples who do not wish to undergo intracytoplasmic sperm injection	0	0	0	0	0	0	0	0
Genetic	0	0	0	0	0	0	0	0
Infectious disease in the male partner (such as HIV)	0	0	0	0	0	0	0	0
Severe rhesus isoimmunisation	0	0	0	0	0	0	0	0
Others	0	0	0	1	0	0	0	1
Multiple causes	0	0	0	0	0	0	1	1
Total	0	0	2	1	1	1	1	6

Remarks:

(1) Age of wife is used in calculating the age of patient in Infertility Diagnosis by Age of Patients Receiving RT Procedures (other than DI and AIH) and receiving AIH procedures while the age of husband is used in calculating the age of patient in Reasons for Treatment by Age of Patients - DI.

(2) One patient may undergo more than one type of RT procedure during the calendar year (e.g. both IVF and AIH).

(3) "Other causes" of infertility diagnosis reported by RT centres included advanced maternal age, reduced ovarian reserve, coital problem, polycystic ovary syndrome, etc.

Source (for RT Centres)	
DC Form 1, 7 and 3 respectively	

Table 7 - Current Research Projects ending December 2019

Name of Licensed Centre	Name of Project	Project Duration (in months)
Assisted Reproductive Technology Unit (IVFHK), Prince of Wales Hospital / The Chinese University of Hong Kong	A case-series study to establish preimplantation genetic screening (PGS) and its clinical application	36
Assisted Reproductive Technology Unit (IVFHK), Prince of Wales Hospital / The Chinese University of Hong Kong	Molecular analysis of culture medium samples from embryos of in-vitro fertilisation (IVF) patients	36
Department of Obstetrics & Gynaecology, The University of Hong Kong	Deviation of Human Expanded Pluripotent Stem Cells (EPSCs) from Human Preimplantation Embryos	36

Remark:

(1) The full list of all research projects approved by the Council on Human Reproductive Technology ("the Council") could be accessed at the Council's website.

https://www.chrt.org.hk/english/embryo/embryo_app.html