National Perinatal Epidemiology and Statistics Unit (NPESU)

Assisted Reproductive Technology in New Zealand 2020

January 2024

Foreword

The Advisory Committee on Assisted Reproductive Technology (ACART) is pleased to present this report, Assisted Reproductive Technology in New Zealand 2020, the twelfth New Zealand-specific report based on the Australian and New Zealand Assisted Reproduction Database (ANZARD). The report provides a quantitative summary of the numbers, types and outcomes of assisted reproductive technology (ART) in Aotearoa New Zealand.

ACART commissions this report every year as part of its statutory role to monitor the outcomes of ART in Aotearoa New Zealand.

We trust that the report and associated twelve years of data trends obtained from these reports (in table form, available among the monitoring reports, at acart.health.govt.nz) will be useful to the sector including consumers, and researchers of ART health outcomes.

It is interesting to note the overall increase in use of ART cycles throughout recent years. The number of cycles per 1,000 women of reproductive age has risen steadily from 6.5 in 2014 to 8.2 in 2020. This is also the second ANZARD report to include reporting on outcomes by ethnicity which is consistent with other reporting in Aotearoa New Zealand. While it is still too early to identify trends in this ethnicity data, we hope that this will provide useful insights in the coming years.

ACART thanks the Ministry of Health for procuring this report. We also thank the National Perinatal Epidemiology and Statistics Unit at the University of New South Wales for collaborating with ACART to develop the report.

Calum Barrett
Chair, Advisory Committee on Assisted Reproductive Technology
November 2023

Acknowledgments

The authors of this report acknowledge the Traditional Owners of Country throughout Australia. We pay our respects to the people, the culture, and the Elders past and present. We acknowledge Māori as the tangata whenua of Aotearoa and recognise our responsibility under Te Tiriti o Waitangi to deliver better health outcomes for iwi, hapū, whānau Māori and Māori communities.

The Australian and New Zealand Assisted Reproduction Database (ANZARD) is a collaborative effort between the National Perinatal Epidemiology and Statistics Unit (NPESU), the Fertility Society of Australia and New Zealand (FSANZ), and fertility clinics in Australia and New Zealand. The NPESU is a unit within the Centre for Big Data Research in Health and the School of Women's and Children's Health of the University of New South Wales (UNSW), Sydney.

We would like to thank all staff in the fertility centres for their efforts in compiling the data and providing additional information when requested. A list of all contributing fertility clinics can be found in Appendix A.

Abbreviations

ANZARD	Australian and New Zealand Assisted Reproduction Database
ART	assisted reproductive technology
DET	double embryo transfer
DI	donor sperm insemination
FSANZ	Fertility Society of Australia and New Zealand
FSH	follicle stimulating hormone
GIFT	gamete intrafallopian transfer
ICSI	intracytoplasmic sperm injection
IVF	in vitro fertilisation
IUI	Intrauterine insemination
LMP	Last menstrual period
NPESU	National Perinatal Epidemiology and Statistics Unit
OHSS	Ovarian hyperstimulation syndrome
OPU	oocyte pick-up
PGT	preimplantation genetic testing
RTAC	Reproductive Technology Accreditation Committee
SD	standard deviation
SET	single embryo transfer

UNSW	University of New South Wales
WHO	World Health Organization

Symbols

..	not applicable

Contents

Foreword ..... **ii**
Acknowledgments ..... **iii**
Abbreviations ..... **iii**
Symbols ..... **iv**
Summary ..... **vi**
1 Introduction **1**
2 Overview of ART treatment in 2020 ..... **4**
3 Autologous and donation/recipient cycles in 2020 ..... **7**
4 Pregnancy and birth outcomes following autologous and recipient cycles in 2020 ..... **18**
5 Preimplantation genetic testing in 2020 ..... **23**
6 Donor insemination cycles in 2020 ..... **24**
7 Trends in ART treatment and outcomes 2016-2020 ..... **25**
8 Cumulative success rates for women undertaking autologous treatment 2018-2020 ..... **26**
9 Cumulative success rates for women undertaking autologous treatment 2017-2020 ..... **34**
Appendix A: Contributing fertility clinics **42**
Appendix B: Data used in this report **43**
Glossary **45**
References **49**
List of tables **50**

Summary

ART treatment cycles

There were 8,382 assisted reproductive technology (ART) treatment cycles reported from New Zealand fertility clinics in 2020. This represented 8.2 cycles per 1,000 women of reproductive age (15-44 years) in New Zealand. Women used their own oocytes/embryos (autologous) in 93.3% of treatments and 48.3% of these autologous cycles involved frozen/thawed embryos.

Treatment outcomes and number of babies

Of all the ART treatments in 2020, 29.3% (2,460) resulted in a clinical pregnancy, 23.8% (1,998) resulted in a birth, and 23.7% (1,987) in a live birth. There were 2,011 liveborn babies, of which 85.9% (1,727) were singletons at term (gestational age of 37-41 weeks) with normal birthweight (≥ 2,500 grams).

Women's age and parity

The average age of women undertaking autologous and oocyte/embryo recipient cycles was 35.5 years. For women undergoing oocyte/embryo recipient cycles, the mean age was 39.9 years, four years older than for autologous cycles (mean 35.2 years). Of all autologous and oocyte/embryo recipient cycles, 17.9% were undertaken by women aged 40 years or older. Where parity was stated, 59.2% of autologous cycles were undertaken by nulliparous women compared with 45.9% for oocyte/embryo recipient cycles.

Autologous fresh cycles

The overall live birth rate per autologous fresh embryo transfer cycle was 31%. The highest live birth rate per autologous fresh embryo transfer cycle was in women aged 30 – 34 years (43.3%) and declined with an increase in women's age. Overall, 97.1% of autologous fresh embryo transfer cycles were single embryo transfer (SET) cycles, 2.9% were double embryo transfer (DET) cycles. The rates of clinical pregnancy and live birth were higher in blastocyst transfer cycles than in cleavage stage embryo transfer cycles regardless of a woman's age.

Autologous thaw cycles

The overall live birth rate per autologous thaw embryo transfer cycle was 35.1%. The highest live birth rate per embryo transfer cycle was in women aged less than 30 years (47%). Of the 3,757 frozen/thawed embryo transfer cycles 98.1% were SET cycles and 1.8% were DET cycles. The rates of clinical pregnancy and live birth overall, were higher in blastocyst transfer cycles than in cleavage stage embryo transfer cycles.

Births by plurality and maternal age

Of the 1,980 births following autologous and recipient cycles in 2020, 1.3% were multiple gestation births. The proportion of multiple gestation births was less than 2% in all age groups.

Cumulative live birth rates

ANZARD includes data items which make it possible to follow a woman from her first fresh ART treatment cycle through subsequent fresh and thaw cycles. There were 1,874 women identified as having their first fresh autologous cycle in 2018. These women were followed through their subsequent fresh and thaw cycles until 31st December 2020 or until they achieved a live birth (up to October 2021). For women identified in this cohort, the cumulative live birth rate was 31.5% after the first cycle, increasing to 47.2% after two cycles, 55.1% after three cycles, 58.4% after four cycles and 60.2% after five cycles.

1 Introduction

It is estimated that around 15% of couples at any given time experience infertility, representing the source of much personal suffering to millions around the world (World Health Organization, 2010). The common medical definition of 'infertility' is the failure to achieve a clinical pregnancy after 12 or more months of regular unprotected sexual intercourse (Zegers-Hochschild et al. 2017). Infertility is increasingly being overcome through advancements in fertility treatment, such as assisted reproductive technologies (ARTs). ARTs have evolved over the last four decades into a suite of mainstream medical interventions that have resulted in the birth of more than 10 million children worldwide (ESHRE, n.d.).

The purpose of this annual report is to inform clinicians, researchers, government, patients and the community about ART treatment and the resulting pregnancy and birth outcomes; to provide ongoing monitoring of ART treatment practices, success rates, and perinatal outcomes; and to facilitate national and international comparisons.

As a joint initiative of the NPESU at UNSW Sydney and FSANZ, ANZARD was upgraded in 2020 to the ANZARD 3.0 Data Dictionary for treatments performed in 2020 to accommodate new treatment types and reflect different types of patients involved in ART treatments. ANZARD 3.0 collects more information about the intending parents, causes of infertility, period of infertility, PGT, lab-only cycles and fertility preservation. The Fertility Society of Australia and New Zealand (FSANZ), in collaboration with the University of New South Wales (UNSW), is committed to providing informative annual statistics on ART treatments and is pleased to present the first annual report using the ANZARD 3.0 data dictionary on the use of ART in New Zealand in 2020.

Treatments covered in this report

ART is a group of procedures that involve the *in vitro* (outside of body) handling of human oocytes (eggs) and sperm or embryos for the purposes of establishing a pregnancy (Zegers-Hochschild et al. 2017). A typical fresh *in vitro* fertilisation (IVF) cycle involves the following five steps:

1. Controlled ovarian hyperstimulation during which an ovarian stimulation regimen, typically using follicle stimulating hormone (FSH) or gonadotrophins, is administered to a woman over a number of days to induce the maturation of multiple oocytes (eggs).
2. Oocyte pick-up (OPU) where mature oocytes are aspirated from ovarian follicles.
3. Fertilisation of the collected oocytes using the male intending parent or donor sperm.
4. Embryo maturation during which a fertilised oocyte is cultured for 2–4 days to form a cleavage stage embryo (6–8 cells) or 5–6 days to create a blastocyst (60–100 cells).
5. Transfer of one fresh embryo into the uterus in order to achieve a pregnancy.

Treatment may be discontinued at any stage during a treatment cycle due to various reasons including suboptimal response ovarian stimulation, failure to obtain oocytes, failure of oocyte fertilisation, inadequate embryo growth, or patient choice.

Over the last four decades, ART has evolved to encompass complex ovarian hyperstimulation protocols and numerous variations to the typical fresh IVF treatment cycle described above. Some of these variations include:

- Intracytoplasmic sperm injection (ICSI) – when a single sperm is injected directly into the oocyte

- Assisted hatching – when the outer layer of the embryo, the zona pellucida, is either thinned or perforated in the laboratory to aid 'hatching' of the embryo
- Gamete intrafallopian transfer (GIFT) – when mature oocytes and sperm are placed directly into a woman's fallopian tubes so that fertilisation may take place *in vivo* (inside the body). While once popular, this procedure now accounts for only a very small percentage of ART cycles.
- Preimplantation genetic testing (PGT) – when DNA from oocytes or embryos is tested for chromosomal disorders or genetic diseases before embryo transfer.
- Oocyte donation – when a female patient donates her oocytes to others.
- Oocyte/embryo recipient – when a female patient receives oocytes or embryos from another individual/couple.
- Cryopreservation and storage of embryos that are not transferred in the initial fresh treatment cycle. Once thawed or warmed, the embryos can be transferred in subsequent treatment cycles. Cryopreservation techniques include both the traditional slow freezing method and vitrification. Vitrification can be used to cryopreserve gametes and embryos, and uses an ultra-rapid temperature change with exposure to higher concentrations of cryoprotectants.
- Cryopreservation and storage of oocytes and embryos for medical and non-medical fertility preservation
- Freeze-all cycles where all oocytes or embryos resulting from an OPU are cryopreserved for potential future use.
- Surrogacy arrangement – where a female patient, known as the 'gestational carrier' or 'surrogate', agrees to carry a child for another person or couple, known as the 'intending parent(s)', with the intention that the child will be raised by the intending parent(s). The oocytes and/or sperm used to create the embryo(s) in the cycle can be either from the intending parent(s) or from a donor(s).

Along with ART, there are other fertility treatments that are undertaken in New Zealand. Artificial insemination is one such treatment by which sperm are placed into the female genital tract (for example, intracervical or intrauterine), and can be used with controlled ovarian hyperstimulation or in natural cycles. Artificial insemination can be undertaken using a partner's sperm, or donated sperm, also known as 'donor sperm insemination' (DI). Only DI performed at an ART Unit is reported to ANZARD.

Data used in this report

This report provides information on ART and DI treatments and the resulting pregnancy and birth outcomes. Also included is an analysis of trends in ART treatments and outcomes in the five years from 2016 to 2020. The data presented in this report were supplied by eight fertility centres and compiled into the Australian and New Zealand Assisted Reproduction Database (ANZARD). The full list of contributing ART Units can be found in Appendix A.

ANZARD is a data collection which uses a statistical linkage key (SLK) that links successive treatment cycles undertaken by one female patient. The SLK is a combination of the first two letters of a female patient's first name, the first two letters of her surname and her date of birth. The SLK enables the number of female patients undergoing treatment across time to be reported.

A more detailed description of ANZARD 3.0 can be found in Appendix B.

Structure of this report

This report has nine chapters, including this introductory chapter (Chapter 1).

Chapter 2 – 'Overview of ART treatment in 2020', provides an outline of the numbers and outcomes of all ART treatments undertaken in New Zealand.

Chapter 3 – 'Autologous and donation/recipient cycles in 2020', presents data on women undergoing treatment, cycle types, and the outcomes of treatment.

Chapter 4 – 'Pregnancy and birth outcomes following autologous and recipient cycles in 2020', presents data on the outcomes of clinical pregnancies and births following autologous and recipient cycles including a description of perinatal outcomes.

Chapter 5 – 'Preimplantation genetic testing in 2020', includes information on the numbers of embryos that had cells removed and analysed for chromosomal disorders or genetic diseases before transfer.

Chapter 6 – 'Donor insemination cycles in 2020', presents data on DI cycles and their outcomes, including a description of pregnancy and perinatal outcomes.

Chapter 7 – 'Trends in ART treatment and outcomes 2016-2020', presents trends in ART treatment over the last five years of data collection in New Zealand.

Chapter 8 – 'Cumulative success rates for women undertaking autologous treatment 2018-2020', presents information on all women who started their first autologous fresh ART treatment cycle between 1st January 2018 and 31st December 2018.

Chapter 9 – 'Cumulative success rates for women undertaking autologous treatment 2017-2020', presents information on all women who started their first autologous fresh ART treatment cycle between 1st January 2017 and 31st December 2017.

Appendices – Appendix A lists the contributing fertility clinics. Appendix B provides an overview of the ANZARD 3.0 data collection that was used to prepare this report.

2 Overview of ART treatment in 2020

There were 8,382 assisted reproductive technology (ART) treatment cycles reported from New Zealand clinics in 2020. This represented 8.2 cycles per 1,000 women of reproductive age (15-44 years) in New Zealand (Statistics New Zealand, 2020). Of these, 93.3% of cycles were autologous cycles (where a woman used or intended to use her own oocytes or embryos).

There were, 7,821 autologous cycles in 2020. Of these, 4,045 (51.7%) were fresh cycles and 3,776 (48.3%) were thaw cycles. Other treatment cycles accounted for a small proportion of cycles comprising 3.3% oocyte recipient cycles, 0.7% embryo recipient cycles, 2% oocyte/embryo donation cycles and 0.7% surrogacy cycles.

Of all the ART cycles in 2020 in New Zealand, 2,460 (29.3%) resulted in a clinical pregnancy, 1,998 (23.8%) resulted in a birth and 1,987 (23.7%) resulted in a live birth. Of the 2,011 liveborn babies, 1,727 (85.9%) were singletons at term (gestational age of 37-41 weeks) with normal birthweight (≥ 2,500 grams).

Table 1: Number of initiated ART treatment cycles by treatment type, New Zealand, 2020

Treatment type	Number of initiated ART cycles	Percent of treatment types	Number of clinical pregnancies	Number of live births	Number of liveborn babies	Number of liveborn singletons at term with normal birthweight
Autologous	7,821	93.3	2,302	1,858	1,881	1,616
Fresh	*4,045*	*48.3*	*660*	*538*	*543*	*464*
Thaw	*3,776*	*45.1*	*1,642*	*1,320*	*1,338*	*1,152*
Oocyte recipient	275	3.3	110	88	89	75
Embryo recipient	56	0.7	28	23	23	19
Oocyte donation	157	1.9	..	..	..	..
Embryo donation	14	0.2	..	..	..	..
Surrogacy arrangement cycles	59	0.7	20	18	18	17
Commissioning cycles[(a)]	*13*	*0.2*	*..*	*..*	*..*	*..*
Gestational carrier cycles[(b)]	*46*	*0.6*	*20*	*18*	*18*	*17*
Total	**8,382**	**100.0**	**2,460**	**1,987**	**2,011**	**1,727**

(a) A variety of cycle types undertaken as part of surrogacy arrangements, e.g. cycles undertaken by intended parents or women donating their oocytes or embryos for use by the gestational carrier.
(b) A cycle undertaken by a woman who carries, or intends to carry, a pregnancy on behalf of the intended parents with an agreement that the child will be raised by the intended parent(s).
Note: 'not applicable' is denoted by ..

Ethnicity

In 2020, there were 4,876 women that undertook 8,323 initiated ART treatment cycles (excluding surrogacy cycles) (Table 2 and Table 3). The largest proportion of these cycles was undertaken by women of European ethnicity (54.6%), followed by women of Asian ethnicity (20.9%) (Table 2).

In 2020, there were 171 oocyte/embryo donation cycles and 331 oocyte/embryo recipient cycles. Noting that, oocytes/embryos in a recipient cycle may be from a donation cycle that occurred in 2020, or a previous treatment year or may have been received from overseas.

Table 2: Number of initiated ART treatment cycles (excluding surrogacy) by ethnicity, New Zealand, 2020

	Autologous							
Ethnicity[a]	**Fresh**	**Thaw**	**Oocyte recipient**	**Embryo recipient**	**Oocyte donation**	**Embryo donation**	**Total**	**Mean age (years) [b]**
				n				
European	2,118	2,089	196	35	104	5	4,542	35.4
Maori	154	152	9	4	8	2	327	34.4
Pacific Peoples	86	67	5	0	3	0	161	34.9
Asian	901	811	15	3	8	4	1,738	35.2
Middle Eastern/Latin American/African	141	103	6	1	2	0	253	36.0
Other ethnicity	48	89	9	1	6	0	153	36.0
Residual categories[c]	597	465	35	12	26	3	1,135	35.6
Total	**4,045**	**3,776**	**275**	**56**	**157**	**14**	**8,323**	**35.4**
				%				
European	52.4	55.3	71.3	62.5	66.2	35.7	54.6	n/a
Maori	3.8	4.0	3.3	7.1	5.1	14.3	4.0	n/a
Pacific Peoples	2.1	1.8	1.8	0.0	1.9	0.0	1.9	n/a
Asian	22.3	21.5	5.5	5.4	5.1	28.6	20.9	n/a
Middle Eastern/Latin American/African	3.5	2.7	2.2	1.8	1.3	0.0	3.0	n/a
Other ethnicity	1.2	2.4	3.3	1.8	3.8	0.0	1.8	n/a
Residual categories[c]	14.8	12.3	12.7	21.4	16.6	21.4	13.7	n/a
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	n/a

(a) Ethnicity groups descriptions are sourced from the Ministry of Health, New Zealand website.
(b) Age at start of initiated treatment cycle.
(c) Cycles where ethnicity data was not provided by ART Units or was reported as “Don’t know”, “Refused to answer”, “Response unidentifiable” or “Not stated”.

Note: Data are collected for each treatment cycle. Therefore, some individuals may be counted more than once

There were 4,876 women that undertook at least one ART treatment cycle (excluding surrogacy) in 2020. Of these, 1,969 women (40.4%) had a live birth. The mean age of women undertaking ART treatment cycles was 35.3 years. Women of European ethnicity made up more than half (56%) of the women that had a live birth. Approximately 28% of women who reported more than one ethnicity had a live birth (Table 3).

Table 3: Number of women undertaking ART treatment cycles (excluding surrogacy) by ethnicity, New Zealand, 2020

	Women		Women who had a live birth[b]		Mean age (years) [c]
Ethnicity[a]	**n**	**%**	**n**	**%**	
European	2,602	53.4	1,102	56.0	35.2
Maori	201	4.1	77	3.9	34.1
Pacific Peoples	99	2.0	30	1.5	34.9
Asian	1,033	21.2	390	19.8	35.3
Middle Eastern/Latin American/African	148	3.0	63	3.2	35.9
Other ethnicity	91	1.9	36	1.8	35.6
Residual categories	663	13.6	260	13.2	35.6
Multiple ethnicities[d]	39	0.8	11	0.6	36.1
Total	**4,876**	**100.0**	**1,969**	**100.0**	**35.3**

(a) Ethnicity groups descriptions are sourced from the Ministry of Health, New Zealand website.
(b) Excludes oocyte donation cycles because oocyte donation cycles do not involve and embryo transfer in that woman.
(c) Age at start of the first initiated treatment cycle in the treatment year.
(d) The woman reported more than one ethnicity.

3 Autologous and donation/recipient cycles in 2020

This chapter presents data on initiated autologous cycles, oocyte/embryo donation cycles and oocyte/embryo recipient cycles.

An ‘autologous cycle’ is defined as an ART treatment cycle in which a female intending parent intends to use or uses her own oocytes or embryos to achieve a pregnancy.

A ‘donation cycle’ is defined as an ART treatment cycle in which a female patient intends to donate or donates her oocytes to others. A donation cycle may result in the donation of either oocytes or embryos to a recipient intending parent. The use of donor sperm does not influence the donor status of the cycle.

A ‘recipient cycle’ is defined as an ART treatment cycle in which a female intending parent(s) receives oocytes or embryos from another female patient.

Autologous and donor/recipient cycles can involve the use of, or intended use of, either fresh or frozen/thawed oocytes or embryos.

3.1 Overview of autologous and recipient cycles

Age of women and their partners

The average age of women undertaking autologous and oocyte/embryo recipient cycles was 35.5 years (SD 4.5). For women undergoing oocyte/embryo recipient cycles, the mean age was 39.9 years (SD 5.3); four years older than women undertaking autologous cycles (mean 35.2 years; SD 4.2). Of all autologous and oocyte/embryo recipient cycles, 17.9% were undertaken by women aged 40 years or older (Table 4). The average age of male partners was 37.9 years (SD 6.2), with one-third (31.9%) aged 40 years or older (Table 5). For 8% of autologous and oocyte/embryo recipient cycles, the partner's age was not stated, or no partner was involved.

Table 4: Number of autologous and recipient cycles by women's age group and treatment type, New Zealand, 2020

	Autologous							
	Fresh		Thaw		Oocyte/Embryo Recipient		All	
Age group (years)[(a)]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<30	393	9.7	335	8.9	10	3.0	738	9.1
30-34	1,259	31.1	1,294	34.3	49	14.8	2,602	31.9
35-39	1,699	42.0	1,568	41.5	87	26.3	3,354	41.1
40-44	655	16.2	562	14.9	126	38.1	1,343	16.5
≥45	39	1.0	17	0.5	59	17.8	115	1.4
Total	**4,045**	**100.0**	**3,776**	**100.0**	**331**	**100.0**	**8,152**	**100.0**

(a) Age at start of treatment cycle.
Note: Data are collected for each treatment cycle. Therefore, some individuals may be counted more than once.

Table 5: Number of autologous and recipient cycles by women's male partners' age group and treatment type, New Zealand, 2020

	Autologous							
	Fresh		Thaw		Oocyte/Embryo Recipient		All	
Age group (years)[(a)]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<30	215	5.3	169	4.5	8	2.4	392	4.8
30-34	881	21.8	931	24.7	26	7.9	1,838	22.5
35-39	1,255	31.0	1,337	35.4	75	22.7	2,667	32.7
40-44	780	19.3	781	20.7	104	31.4	1,665	20.4
≥45	443	11.0	420	11.1	72	21.8	935	11.5
Not stated	471	11.6	138	3.7	46	13.9	655	8.0
Total	**4,045**	**100.0**	**3,776**	**100.0**	**331**	**100.0**	**8,152**	**100.0**

(a) Age at start of treatment cycle.
Note: Data are collected for each treatment cycle. Therefore, some individuals may be counted more than once.

Parity

Parity is the number of previous pregnancies of 20 weeks or more gestation experienced by a woman. A woman who has had no previous pregnancies of 20 or more weeks gestation is called nulliparous. A woman who has had at least one previous pregnancy of 20 weeks or more gestation is described as parous. Where parity was stated, 59.2% of autologous cycles compared with 45.9% of oocyte/embryo recipient cycles, were undertaken by nulliparous women (Table 6).

Table 6: Number of autologous and recipient cycles by parity and treatment type, New Zealand, 2020

	Autologous							
	Fresh		Thaw		Oocyte/Embryo Recipient		All	
Parity	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Nulliparous	2,760	68.2	1,869	49.5	152	45.9	4,781	58.6
Parous	1,285	31.8	1,907	50.5	179	54.1	3,371	41.4
Total	**4,045**	**100.0**	**3,776**	**100.0**	**331**	**100.0**	**8,152**	**100.0**

Note: Data are collected for each treatment cycle. Therefore, some individuals may be counted more than once.

Intracytoplasmic sperm injection (ICSI) procedures

Of the 3,359 autologous fresh cycles where fertilisation was attempted, 1,725 (51.4%) used ICSI procedures and 1,634 (48.6%) used IVF procedures.

Table 7: Number of autologous and recipient cycles with fertilisation attempted by treatment type and procedure, New Zealand, 2020

	Autologous				Oocyte/Embryo Recipient			
	Fresh[(a)]		Thaw[(b)]		Fresh[(a)]		Thaw[(b)]	
Procedure	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
IVF	1,634	48.6	1,816	48.3	9	45.0	136	43.7
ICSI[(c)]	1,725	51.4	1,941	51.7	11	55.0	173	55.6
Not stated	0	0.0	0	0.0	0	0.0	2	0.6
Total	**3,359**	**100.0**	**3,757**	**100.0**	**20**	**100.0**	**311**	**100.0**

(a) Fresh cycles where fertilisation was attempted.
(b) Thaw cycles where embryos were transferred.
(c) Mixed IVF/ICSI cycles were classed as ICSI cycles.

Number of embryos transferred

Of the 5,808 fresh and thawed autologous and recipient embryo transfer cycles, 97.8% were single embryo transfer (SET) cycles, 2.1% were double embryo transfer (DET) cycles and 0.1% involved the transfer of three or more embryos. In women aged under 35, 99% of embryo transfer cycles were SET cycles and 1% were DET cycles. In women aged 35 or older, 97% of cycles were SET cycles and 2.9% were DET cycles (Table 8).

Table 8: Number of embryo transfer cycles by number of embryos transferred per cycle and women's age group, New Zealand, 2020

	Number of embryos transferred							
	One		Two		Three or more		All	
Age group (years)[(a)]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<30	459	99.6	2	0.4	0	0.0	461	100.0
30-34	1,843	98.8	22	1.2	0	0.0	1,865	100.0
35-39	2,358	98.3	42	1.8	0	0.0	2,400	100.0
40-44	931	94.3	53	5.4	3	0.3	987	100.0
≥45	90	94.7	5	5.3	0	0.0	95	100.0
Total	**5,681**	**97.8**	**124**	**2.1**	**3**	**0.1**	**5,808**	**100.0**

(a) Age at start of a treatment cycle.

Stage of embryo development

Of the 5,808 embryo transfer cycles, 85.9% involved the transfer of blastocysts (day 5-6 embryos) with the remaining transfers involving cleavage stage embryos (day 2-4 embryos). Of autologous cycles, blastocyst transfers made up 98.8% of thaw cycles compared with 55.6% of fresh cycles (Table 9).

Table 9: Number of embryo transfer cycles by treatment type and stage of embryo development, New Zealand, 2020

	Autologous				Oocyte/embryo recipient			
	Fresh		Thaw		Fresh		Thaw	
Type and procedure	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Cleavage embryo	770	44.4	44	1.2	1	16.7	6	1.9
Blastocyst	966	55.6	3,713	98.8	5	83.3	303	98.1
Total	**1,736**	**100.0**	**3,757**	**100.0**	**6**	**100.0**	**309**	**100.0**

Transfer of cryopreserved embryos

Embryos created in a fresh cycle can be cryopreserved by either slow freezing or ultra-rapid cryopreservation (vitrification) methods. Slow frozen and vitrified embryos can be thawed/warmed and then transferred in subsequent cycles. Of the 4,066 frozen/thawed embryo transfer cycles, 92.1% involved the transfer of vitrified embryos.

Table 10: Number of embryo transfer cycles by freezing method and stage of embryo development, New Zealand, 2020

	Autologous				Oocyte/embryo recipient			
	Cleavage embryo		Blastocyst		Cleavage embryo		Blastocyst	
Type and procedure	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Slow frozen embryo	33	75.0	256	6.9	4	66.7	27	8.9
Vitrified embryo[(a)]	11	25.0	3,457	93.1	2	33.3	276	91.1
Total	**44**	**100.0**	**3,713**	**100.0**	**6**	**100.0**	**303**	**100.0**

(a) Ultra-rapid cryopreservation.

3.2 Autologous fresh cycles

Clinical pregnancies and live births from autologous fresh cycles by women's age

The highest live birth rate per embryo transfer cycle was in women aged 30 – 34 years (43.3%). The overall live birth rate per autologous fresh embryo transfer cycle was 31% and the overall live birth rate per initiated autologous fresh cycle (excluding freeze-all) was 22.8% (Table 11).

Table 11: Outcomes of autologous fresh cycles by women's age group, New Zealand, 2020

	Age group (years) [a]					
Stage/outcome of treatment	**< 30**	**30-34**	**35-39**	**40-44**	**≥ 45**	**All**
Initiated cycles	393	1,259	1,699	655	39	4,045
Freeze-all cycles	237	574	671	200	5	1,687
Cycles with OPU	369	1,178	1,545	583	32	3,707
Embryo transfers	117	533	755	312	19	1,736
Clinical pregnancies	44	266	298	51	1	660
Live births	38	231	236	33	0	538
Live births per initiated cycle (%)	*9.7*	*18.3*	*13.9*	*5.0*	*0.0*	*13.3*
Live births per initiated cycle (excluding freeze-all) (%)	*24.4*	*33.7*	*23.0*	*7.3*	*0.0*	*22.8*
Live births per embryo transfer cycle (%)	*32.5*	*43.3*	*31.3*	*10.6*	*0.0*	*31.0*
Live births per clinical pregnancy (%)	*86.4*	*86.8*	*79.2*	*64.7*	*0.0*	*81.5*

(a) Age at start of a treatment cycle.
(b) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.

Clinical pregnancies and live births by number of embryos transferred from autologous fresh cycles

Overall, 97.1% of autologous fresh embryo transfer cycles were SET cycles and 2.9% were DET cycles. Overall, the live birth rate per embryo transfer cycle was 31.4% for SET cycles and 18% for DET cycles (Table 12).

Table 12: Outcomes of autologous fresh embryo transfer cycles by women's age and number of embryos transferred, New Zealand, 2020

	Age group (years)[a]							
	< 35		**35-39**		**≥ 40**		**All**	
Stage/outcome of treatment	**SET[b]**	**DET[c]**	**SET[b]**	**DET[c]**	**SET[b]**	**DET[c]**	**SET[b]**	**DET[c]**
Embryo transfer cycles	642	8	741	14	302	28	1,685	50
Clinical pregnancies	308	2	293	5	45	7	646	14
Live births	268	1	231	5	30	3	529	9
Clinical pregnancies per embryo transfer cycle (%)	*48.0*	*25.0*	*39.5*	*35.7*	*14.9*	*25.0*	*38.3*	*28.0*
Live births per embryo transfer cycle (%)	*41.7*	*12.5*	*31.2*	*35.7*	*9.9*	*10.7*	*31.4*	*18.0*

(a) Age at start of a treatment cycle.
(b) SET: single embryo transfer.
(c) DET: double embryo transfer.

Clinical pregnancies and live births by stage of embryo development from autologous fresh cycles

The rates of clinical pregnancy and live birth were higher in blastocyst transfer cycles than in cleavage stage embryo transfer cycles regardless of a woman's age (Table 13). Overall, the live birth rate for blastocyst transfer cycles (38.7%) was 17 percentage points higher than for cleavage stage embryo transfer cycles (21.3%).

Table 13: Outcomes of autologous fresh embryo transfer cycles by women's age and stage of embryo development, New Zealand, 2020

	Age group (years)[a]							
	< 35		35-39		≥ 40		All	
Stage/outcome of treatment	**CL[b]**	**BL[c]**	**CL[b]**	**BL[c]**	**CL[b]**	**BL[c]**	**CL[b]**	**BL[c]**
Embryo transfer cycles	222	428	343	412	205	126	770	966
Clinical pregnancies	80	230	106	192	27	25	213	447
Live births	67	202	82	154	15	18	164	374
Clinical pregnancies per embryo transfer cycle (%)	*36.0*	*53.7*	*30.9*	*46.6*	*13.2*	*19.8*	*27.7*	*46.3*
Live births per embryo transfer cycle (%)	*30.2*	*47.2*	*23.9*	*37.4*	*7.3*	*14.3*	*21.3*	*38.7*

(a) Age at start of a treatment cycle.
(b) CL: cleavage stage embryo.
(c) BL: blastocyst.

3.3 Autologous thaw cycles

Clinical pregnancies and live births from autologous thaw cycles by women's age

The overall live birth rate per autologous thaw embryo transfer cycle was 35.1%. The highest live birth rate per embryo transfer cycle (47%) was in women aged less than 30 years and the highest live birth rate per clinical pregnancy was in women aged 45 years or more (Table 14). It is important to note that embryos thawed during a thaw cycle were created during an earlier initiated fresh cycle, therefore, a woman's age at the start of a thaw cycle is older than her age at the start of the initiated fresh cycle.

Table 14: Outcomes of autologous thaw cycles by women's age group, New Zealand, 2020

	Age group (years) [a]					
Stage/outcome of treatment	**<30**	**30-34**	**35-39**	**40-44**	**≥ 45**	**All**
Initiated cycles	335	1,294	1,568	562	17	3,776
Embryo transfers	334	1,288	1,563	555	17	3,757
Clinical pregnancies	179	614	674	172	3	1,642
Live births	157	503	531	126	3	1,320
Live births per initiated cycle (%)	*46.9*	*38.9*	*33.9*	*22.4*	*17.6*	*35.0*
Live births per embryo transfer cycle (%)	*47.0*	*39.1*	*34.0*	*22.7*	*17.6*	*35.1*
Live births per clinical pregnancy (%)	*87.7*	*81.9*	*78.8*	*73.3*	*100.0*	*80.4*

(a) Age at start of a treatment cycle.

Clinical pregnancies and live births by number of embryos transferred from autologous thaw cycles

Of the 3,757 autologous thaw embryo transfer cycles, 98.1% were SET cycles and 1.8% were DET cycles. There were two cycles where three or more embryos were transferred. In total, there were 1,642 clinical pregnancies and 1,320 live births. SET cycles had a higher percentage of live births per embryo transfer cycle (35.3%) than DET cycles (25.7%) (Table 15).

Table 15: Outcomes of autologous thaw embryo transfer cycles by women's age and number of embryos transferred, New Zealand, 2020

	Age group (years) [a]							
	<35		**35-39**		**≥ 40**		**All**	
Stage/outcome of treatment	**SET[b]**	**DET[c]**	**SET[b]**	**DET[c]**	**SET[b]**	**DET[c][d]**	**SET[b]**	**DET[c][d]**
Embryo transfer cycles	1,609	13	1,537	26	541	31	3,687	70
Clinical pregnancies	789	4	665	9	164	11	1,618	24
Live births	657	3	524	7	121	8	1,302	18
Clinical pregnancies per embryo transfer cycle (%)	*49.0*	*30.8*	*43.3*	*34.6*	*30.3*	*35.5*	*43.9*	*34.3*
Live births per embryo transfer cycle (%)	*40.8*	*23.1*	*34.1*	*26.9*	*22.4*	*25.8*	*35.3*	*25.7*

(a) Age at start of a treatment cycle.
(b) SET: single embryo transfer.
(c) DET: double embryo transfer.
(d) Includes the transfer of three or more embryos.

Clinical pregnancies and live births by stage of embryo development from autologous thaw cycles

The live birth rate was higher for blastocyst transfer cycles than for cleavage stage embryo transfer cycles for women aged less than 40 years. Overall, the rate of live birth for blastocyst transfer cycles (35.2%) was 6 percentage points higher than for cleavage stage embryo transfer cycles (29.5%) (Table 16).

Table 16: Outcomes of autologous thaw embryo transfer cycles by women's age and stage of embryo development, New Zealand, 2020

	Age group (years) [a]							
	<35		35-39		≥ 40		All	
Stage/outcome of treatment	**CL[b]**	**BL[c]**	**CL[b]**	**BL[c]**	**CL[b]**	**BL[c]**	**CL[b]**	**BL[c]**
Embryo transfer cycles	22	1,600	14	1,549	8	564	44	3,713
Clinical pregnancies	11	782	4	670	3	172	18	1,624
Live births	8	652	3	528	2	127	13	1,307
Clinical pregnancies per embryo transfer cycle (%)	*50.0*	*48.9*	*28.6*	*43.3*	*37.5*	*30.5*	*40.9*	*43.7*
Live births per embryo transfer cycle (%)	*36.4*	*40.8*	*21.4*	*34.1*	*25.0*	*22.5*	*29.5*	*35.2*

(a) Age at start of a treatment cycle.
(b) CL: cleavage stage embryo.
(c) BL: blastocyst.

3.4 Donation and recipient cycles

Oocyte/embryo donation cycles

Of the 171 cycles where the intention was to donate oocytes or embryos to a recipient/intending parent(s), all but three cycles proceeded to OPU (98.2%) and 153 (89.5%) of these resulted in oocytes or embryos being donated. The average age of women donating oocytes or embryos was 31.4 years with 30.4% of donation cycles undertaken by women aged 35 or older (Table 17).

Table 17: Number of oocyte/embryo donation cycles by donor's age group, New Zealand, 2020

Age group (years)[(a)]	Initiated cycles (number)	Cycles with OPU performed (number)	Cycles with OPU performed (percent)	Cycles with oocytes/embryos donated (number)	Cycles with oocytes/embryos donated (percent)
< 30	52	51	98.1	49	94.2
30-34	67	66	98.5	58	86.6
35-39	46	45	97.8	43	93.5
≥40	6	6	100.0	3	50.0
Total	**171**	**168**	**98.2**	**153**	**89.5**

(a) Age at start of a treatment cycle.

Clinical pregnancies and live births from oocyte/embryo recipient cycles by type of recipient cycle

There were 331 oocyte/embryo recipient cycles in 2020, the majority of which were oocyte recipient cycles (83.1%). Of the 275 cycles involving donated oocytes, 93.8% were thaw cycles (Table 18). Of the 256 thaw oocyte recipient cycles that proceeded to embryo transfer, 34% resulted in a live birth, nearly as similar rate per embryo transfer for fresh oocyte recipient cycles (33.3%). The live birth rate per embryo transfer for embryo recipient cycles was 41.1%.

Table 18: Outcomes of oocyte/embryo recipient cycles by treatment type, New Zealand, 2020

Stage/outcome of treatment	Oocyte recipient		Embryo recipient	All
	Fresh	Thaw		
Initiated cycles	17	258	56	331
Embryo transfers	3	256	56	315
Clinical pregnancies	1	109	28	138
Live births	1	87	23	111
Live births per initiated cycle (%)	*5.9*	*33.7*	*41.1*	*33.5*
Live births per embryo transfer cycle (%)	*33.3*	*34.0*	*41.1*	*35.2*
Live births per clinical pregnancy (%)	*100.0*	*79.8*	*82.1*	*80.4*

Clinical pregnancies and live births from oocyte/embryo recipient cycles by recipient's age

The live birth rates of recipient cycles varied by recipients' age group. The overall live birth rate per initiated cycle was 33.5%. Across the five age groups, live birth rates per initiated cycle ranged between 28.7% and 42.9% (Table 19). Recipients aged 30 to 34 years of age, had the highest live birth rate per initiated oocyte/embryo recipient cycle (42.9%). These rates are higher compared to live birth rates in Table 11 and Table 14 from autologous fresh and thaw cycles for women aged 30 to 34 years (33.7% and 38.9% respectively).

Table 19: Outcomes of oocyte/embryo recipient cycles by recipient's age group, New Zealand, 2020

	Age group (years)[a]					
Stage/outcome of treatment	**< 30**	**30-34**	**35-39**	**40-44**	**≥ 45**	**All**
Initiated cycles	10	49	87	126	59	331
Embryo transfers	10	44	82	120	59	315
Clinical pregnancies	5	24	29	55	25	138
Live births	4	21	25	42	19	111
Live births per initiated cycle (%)	*40.0*	*42.9*	*28.7*	*33.3*	*32.2*	*33.5*
Live births per embryo transfer cycle (%)	*40.0*	*47.7*	*30.5*	*35.0*	*32.2*	*35.2*
Live births per clinical pregnancy (%)	*80.0*	*87.5*	*86.2*	*76.4*	*76.0*	*80.4*

(a) Age at start of a treatment cycle.

Clinical pregnancies and live births from oocyte/embryo recipient cycles by donor's age

The overall live birth rate per embryo transfer cycle was 35.2%. Across age categories, the live birth rate per initiated cycle ranged between 10% and 39.2%, with the highest live birth rate in the less than 30 years old age group (Table 20).

Table 20: Outcomes of oocyte/embryo recipient cycles by donor's age group, New Zealand, 2020

	Age group (years)[a]				
Stage/outcome of treatment	**< 30**	**30-34**	**35-39**	**≥ 40**	**All[)]**
Initiated cycles	79	129	113	10	331
Embryo transfers	76	122	107	10	315
Clinical pregnancies	37	60	40	1	138
Live births	31	44	35	1	111
Live births per initiated cycle (%)	*39.2*	*34.1*	*31.0*	*10.0*	*33.5*
Live births per embryo transfer cycle (%)	*40.8*	*36.1*	*32.7*	*10.0*	*35.2*
Live births per clinical pregnancy (%)	*83.8*	*73.3*	*87.5*	*100.0*	*80.4*

(a) Age at start of treatment cycle.

4 Pregnancy and birth outcomes following autologous and recipient cycles in 2020

There were 2,440 clinical pregnancies following autologous and recipient embryo transfer cycles in 2020. Four out of five clinical pregnancies (81.1%) resulted in a birth and 18.8% resulted in early pregnancy loss (less than 20 weeks gestation or less than 400 grams birthweight). The outcomes of one clinical pregnancy were not known because the patient could not be followed up or contacted by the fertility centre.

Early pregnancy loss

Of the 459 early pregnancy losses, 94.3% were miscarriages, 2% were due to termination of pregnancy, and 3.9% were ectopic/heterotopic pregnancies. Pregnancies following SET resulted in a lower rate of early pregnancy loss (18.5%) than pregnancies following DET (26.3%).

Table 21: Early pregnancy losses by pregnancy outcome and treatment type, New Zealand, 2020

	Autologous							
	Fresh		Thaw		Oocyte/embryo recipient		All	
	n	%	n	%	n	%	n	%
Early pregnancy loss	121	18.3	313	19.1	25	18.1	459	18.8
Miscarriage	*113*	*17.1*	*296*	*18.0*	*24*	*17.4*	*433*	*17.7*
Termination	*1*	*0.2*	*7*	*0.4*	*1*	*0.7*	*9*	*0.4*
Ectopic or heterotopic pregnancy	*7*	*1.1*	*10*	*0.6*	*0*	*0.0*	*17*	*0.7*
Birth	539	81.7	1328	80.9	113	81.9	1,980	81.1
Not stated	0	0.0	1	0.1	0	0.0	1	0.0
Total	**660**	**100.0**	**1,642**	**100.0**	**138**	**100.0**	**2,440**	**100.0**

Birth outcomes and treatment type

There were 1,980 women who gave birth to at least one baby of 20 weeks or more gestation or at least 400 grams birthweight following embryo transfer cycles. Of these, 99.4% (1,969) gave birth to at least one liveborn baby (live birth) (Table 22).

Table 22: Births by birth outcome and treatment type, New Zealand, 2020

	Autologous							
	Fresh		Thaw		Oocyte/embryo recipient		All	
	n	%	n	%	n	%	n	%
Live birth	538	99.8	1320	99.4	111	98.2	1,969	99.4
< 37 weeks	*48*	*8.9*	*125*	*9.4*	*13*	*11.5*	*186*	*9.4*
≥ 37 weeks	*490*	*90.9*	*1195*	*90.0*	*98*	*86.7*	*1,783*	*90.1*
Gestational age unknown	*0*	*0.0*	*0*	*0.0*	*0*	*0.0*	*0*	*0.0*
Stillbirth[(a)]	1	0.2	5	0.4	0	0.0	6	0.3
Not stated	0	0.0	3	0.2	2	1.8	5	0.3
Total	**539**	**100.0**	**1,328**	**100.0**	**113**	**100.0**	**1,980**	**100.0**

(a) Stillbirth is reported by patients to fertility centre staff. These data are not vital statistics.

Births by plurality and maternal age

The average age of women at the time of birth was 35.6 years. Of the 1,980 autologous and recipient births, 1.3% were multiple gestation births (Table 23).

Table 23: Births by plurality and maternal age, New Zealand, 2020

	Age group (years)[a]								
	< 35			35-39			≥ 40		
	One embryo	Two embryos	All	One embryo	Two embryos	All[b]	One embryo	Two embryos	All[b]
				n					
Singleton	807	2	809	835	12	847	289	9	299
Multiple	10	2	12	7	2	9	3	1	4
Twin	*10*	*2*	*12*	*7*	*2*	*9*	*3*	*1*	*4*
Higher order multiple	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Total	**817**	**4**	**821**	**842**	**14**	**856**	**292**	**10**	**303**
				%					
Singleton	98.8	50.0	98.5	99.2	85.7	98.9	99.0	90.0	98.7
Multiple	1.2	50.0	1.5	0.8	14.3	1.1	1.0	10.0	1.3
Twin	*1.2*	*50.0*	*1.5*	*0.8*	*14.3*	*1.1*	*1.0*	*10.0*	*1.3*
Higher order multiple	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Age at time of birth.
(b) Includes three or more embryos.

Gestational age of babies

The average gestational age of babies born following autologous and recipient embryo transfer cycles was 38.4 weeks (Table 24). One in ten babies (10.5%) were preterm (less than 37 weeks gestation); the average gestational age of ART singletons was 38.5 weeks, while the average gestational age for ART twins was 33.4 weeks.

Table 24: Babies by gestational age and plurality, New Zealand, 2020

Gestational age (weeks)	Singletons		Twins		Higher order multiples		Total	
Mean (SD)	*38.5 (2.4)*		*33.4 (3.5)*		-		*38.4 (2.5)*	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
≤ 27	27	1.4	6	12.0	0	0.0	33	1.6
28-31	10	0.5	4	8.0	0	0.0	14	0.7
32-36	132	6.8	32	64.0	0	0.0	164	8.2
≥ 37	1,786	91.4	8	16.0	0	0.0	1,794	89.5
Total	**1,955**	**100.0**	**50**	**100.0**	**0**	**0.0**	**2,005**	**100.0**

Birth outcomes

The average birthweight for liveborn babies to women who had autologous and recipient embryo transfer cycles was 3,319 grams. Of all liveborn babies, 8% were low birthweight (less than 2,500 grams) (Table 25). The average birthweight was 3,384 grams and 2,189 grams for liveborn ART singletons and twins, respectively. Low birthweight was reported for 7% of liveborn singletons following SET.

Table 25: Liveborn babies by birthweight group and plurality, New Zealand, 2020

	Singletons				
Birthweight (grams)	**SET[a]**	**DET[b]**	**Twins**	**Higher order multiples**	**Total**
			n		
< 1,000	*16*	*0*	*4*	*0*	*20*
1,000-1,499	*17*	*0*	*4*	*0*	*21*
1,500-1,999	*22*	*0*	*10*	*0*	*32*
2,000-2,499	*79*	*0*	*8*	*0*	*87*
< 2,500	134	0	26	0	160
2,500-2,999	259	2	14	0	275
3,000-3,499	644	10	2	0	656
3,500-3,999	598	9	4	0	611
≥ 4,000	263	2	0	0	265
Not stated	23	0	2	0	25
Total	**1,921**	**23**	**48**	**0**	**1,992**
			%		
< 1,000	*0.8*	*0.0*	*8.3*	..	*1.0*
1,000-1,499	*0.9*	*0.0*	*8.3*	..	*1.1*
1,500-1,999	*1.1*	*0.0*	*20.8*	..	*1.6*
2,000-2,499	*4.1*	*0.0*	*16.7*	..	*4.4*
< 2,500	7.0	0.0	54.2	..	8.0
2,500-2,999	13.5	8.7	29.2	..	13.8
3,000-3,499	33.5	43.5	4.2	..	32.9
3,500-3,999	31.1	39.1	8.3	..	30.7
≥ 4,000	13.7	8.7	0.0	..	13.3
Not stated	1.2	0.0	4.2	..	1.3
Total	**100.0**	**100.0**	**100.0**	..	**100.0**

(a) SET: single embryo transfer.
(b) DET: double embryo transfer.
.. not applicable

5 Preimplantation genetic testing in 2020

Preimplantation genetic testing (PGT) is a procedure where DNA from oocytes or embryos is tested for chromosomal disorders or genetic diseases before embryo transfer. This term includes PGT for aneuploidies (PGT-A), PGT for monogenic/single gene defects (PGT-M) and PGT for chromosomal structural rearrangements (PGT-SR).

In 2020, PGT was performed in 825 cycles, representing 11.2% of cycles in which embryos were created or thawed. Among the 825 PGT cycles, 361 (43.8%) were part of a freeze-all cycle. Of the 464 PGT cycles (excluding freeze-all cycles), 459 (98.9%) had embryos transferred, resulting in 206 (44.4%) clinical pregnancies and 173 (37.3%) live births.

Table 26: Number of cycles with PGT by type of embryo, New Zealand, 2020

	Stage of treatment			
Type of embryo	**Number of cycles with fresh or thawed embryos**	**Number of cycles with PGT**	**Number of embryo transfers following PGT**	**Number of live births following PGT**
Fresh	3,260	401	40	14
Freeze-all cycles	*1,390*	*361*	*..*	*..*
Thaw	4,087	424	419	159
Total	**7,347**	**825**	**459**	**173**

.. not applicable
PGT: Preimplantation genetic testing
Note: The ANZARD 2.0 PGT definition was applied to the ANZARD 3.0 data used to create this table.

6 Donor insemination cycles in 2020

Donor sperm insemination (DI) covers a range of techniques of placing sperm into the female genital tract using donated sperm from a man who is not the woman's partner. The information presented in this section only describes DI cycles undertaken in fertility centres in New Zealand and does not include DI undertaken outside of this setting.

In 2020, there were 350 DI cycles reported, which included 10 (2.9%) undertaken with controlled ovarian hyperstimulation and 340 (97.1%) undertaken in unstimulated cycles. Of all DI cycles, 19.4% resulted in a clinical pregnancy and 16.0% resulted in a live birth (Table 27). There were two multiple births following DI cycles in 2020. The average age of women who had a DI cycle was 35.8 years. The clinical pregnancy rate and live birth rate per DI cycle were highest in women aged less than 30 years. Of the DI cycles in women aged under 35 years, 19.2% resulted in a live birth, compared with 4.5% of DI cycles in women aged 40 years or older (Table 25).

Table 27: Outcomes of DI cycles by women's age group, New Zealand, 2020

	Age group (years)[a]				
	< 30	**30-34**	**35-39**	**≥ 40**	**Overall**
DI cycles	23	128	132	67	350
Controlled ovarian hyperstimulation	*0*	*3*	*0*	*7*	*10*
Unstimulated cycles	*23*	*125*	*132*	*60*	*340*
Clinical pregnancies	11	25	26	6	68
Live births	10	19	24	3	56
Clinical pregnancies per DI cycle (%)	*47.8*	*19.5*	*19.7*	*9.0*	*19.4*
Live births per DI cycle (%)	*43.5*	*14.8*	*18.2*	*4.5*	*16.0*
Live births per clinical pregnancy (%)	*90.9*	*76.0*	*92.3*	*50.0*	*82.4*

(a) Age at start of treatment cycle.
DI: Donor sperm insemination

Clinical pregnancies

Of the 68 clinical pregnancies following DI cycles, 11 (16.2%) ended in early pregnancy loss. Of the 57 births, 56 were live births and 1 was a stillbirth. Of the live births, 54 (96.4%) were singleton births and 2 (3.6%) were twin births.

Perinatal outcomes of babies

There were 58 babies born to women who had DI treatment, comprising one neonatal death. Of these, 6 were born preterm (less than 37 weeks gestation). The mean birthweight of liveborn babies was 3,291 grams (SD 862 grams). There were 6 liveborn babies (10.5%) born with low birthweight (less than 2,500 grams).

7 Trends in ART treatment and outcomes 2016-2020

This section includes autologous cycles, donation/recipient cycles, and surrogacy cycles undertaken in New Zealand from 2016 to 2020. It does not include DI cycles or lab-only cycles.

In 2020, 8,382 initiated fresh or thaw ART treatment cycles were undertaken in New Zealand. This was an increase of 6.4% compared to 2019 and an increase of 25% from 2016 (Table 28). Between 2016 and 2020, the live birth rates per initiated cycle ranged from 21.9% to 23.7%. In the same time period, the live birth rate per initiated cycle (excluding freeze-all) has been relatively stable between 25.8% and 29.7% (Table 28).

Table 28: Number of fresh and thaw cycles by stage/outcome of treatment, New Zealand, 2016-2020

Stage/outcome of treatment	2016	2017	2018	2019	2020
Initiated cycles[(a)]	6,705	7,273	7,723	7,880	8,382
Cycles with OPU[(b)]	3,404	3,488	3,502	3,537	3,882
Freeze-all	766	986	1,213	1,327	1,687
Embryo transfers	4,884	5,055	5,416	5,457	5,852
Clinical pregnancies	1,924	2,060	2,194	2,276	2,460
Live births	1,556	1,625	1,755	1,729	1,987
Clinical pregnancies per initiated cycle (%)	*28.7*	*28.3*	*28.4*	*28.9*	*29.3*
Clinical pregnancies per embryo transfer (%)	*39.4*	*40.8*	*40.5*	*41.7*	*42.0*
Live births per initiated cycle (%)	*23.2*	*22.3*	*22.7*	*21.9*	*23.7*
Live births per initiated cycle (excluding freeze-all[(c)]) (%)	*26.2*	*25.8*	*27.0*	*26.4*	*29.7*
Live births per embryo transfer (%)	*31.9*	*32.1*	*32.4*	*31.7*	*34.0*

(a) Included autologous cycles, oocyte donation cycles, oocyte/embryo recipient cycles, and surrogacy cycles.
(b) Cycles with OPU included cycles where no oocytes were collected during the procedure.
(c) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.

8 Cumulative success rates for women undertaking autologous treatment 2018-2020

This section presents information on all women who started their first autologous fresh ART treatment cycle between 1st January 2018 and 31st December 2018. The first cycle is identified according to first stimulation data reported by clinics plus the first occurrence of the woman's autologous fresh cycle in 2018. Women were followed from the start of their first autologous fresh cycle through subsequent fresh and thaw cycles, excluding freeze-all cycles, until 31st December 2020 or until they achieved a live birth (a birth of at least one liveborn baby) up to and including 31st October 2021. This longitudinal perspective provides a measure of the outcomes of successive ART treatment cycles undertaken by the same woman up to her first birth following ART treatment. These women might have had additional treatment cycles after 2020 and their treatment information and resulting outcomes will be captured in subsequent annual reports. Therefore, in this dynamic cohort of women undergoing their first autologous fresh ART treatment between 1st January 2018 and 31st December 2018, the cumulative success rates may increase over time as women return for treatment at a later date.

ART treatment cycles presented in Tables 29 to 34 include all initiated autologous fresh and thaw cycles, excluding freeze-all cycles. Cycles which were cancelled at any stage and did not proceed to oocyte collection or embryo transfer are included. Donor sperm insemination cycles, oocyte/embryo recipient cycles, oocyte/embryo donation cycles, surrogacy arrangement cycles, and gamete intrafallopian transfer (GIFT) cycles are not included. A pregnancy that ends before 20 weeks gestation or a stillbirth are not counted as a live birth.

Table 29 presents the number of cycles by women's age group. Tables 30 to 34 present cycle-specific live birth rates, non-progression rates, and cumulative live birth rates for all age groups and women aged under 30 years, between 30-34 years, between 35-39 years and over 40 years. Only the first five cycles are presented due to the small number of women undertaking six or more treatment cycles between 1st January 2018 and 31st December 2020.

Definitions and calculations

- The cycle-specific live birth rate for a specific number of cycles is calculated as the number of live births resulting from the specific number of cycles divided by the number of women who undertook that cycle number. For instance, in Table 30, the cycle-specific live birth rate of 25.7% for cycle number three represents the proportion of women who undertook a third cycle and achieved a live birth in that cycle.
- The non-progression rate for a specific cycle is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that cycle. For example, the non-progression rate of 24.6% for a third cycle represents the proportion of women who did not achieve a live birth in their third cycle and did not progress to a fourth cycle (Table 30). The reasons surrounding a woman's or couple's choice to not return to or progress with further treatment, include poor prognosis, natural pregnancy, migration, financial, psychological, and other unrelated reasons; these are not collected by ANZARD.

  The cumulative live birth rate for a specific cycle is calculated as the total number of live births following this cycle and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2018

and 31st December 2018. For example, the cumulative live birth rate of 55.1% for the third cycle represents the proportion of women who started ART treatment in 2018 and achieved a live birth following their first three cycles (Table 30). Note that only the first birth to a woman is counted in cumulative live birth rates.

Table 29: Number of cycles by women's age group for all women who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2018 and 31st December 2018, New Zealand

	Age group (years)[b]				
Cycle number	**< 30**	**30-34**	**35-39**	**≥ 40**	**All**
			n		
One	122	289	274	145	830
Two	46	189	164	72	471
Three	38	93	92	29	252
Four	10	45	65	19	139
Five or more	18	63	75	26	182
Total	**234**	**679**	**670**	**291**	**1,874**
			%		
One	52.1	42.6	40.9	49.8	44.3
Two	19.7	27.8	24.5	24.7	25.1
Three	16.2	13.7	13.7	10.0	13.4
Four	4.3	6.6	9.7	6.5	7.4
Five or more	7.7	9.3	11.2	8.9	9.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Age at start of first autologous fresh ART treatment cycle undertaken in 2018.

Note: Women who started their first autologous fresh ART treatment cycle between 1st January 2018 and 31st December 2018 were followed through subsequent fresh and thaw cycles (excluding freeze-all cycles) until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021. Totals and subtotals may not equal 100.0 due to rounding. Data should be interpreted with caution due to small numbers in certain cells.

Table 30: Cycle-specific and cumulative live birth rates for all women who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2018 and 31st December 2018, New Zealand, 2018-2020

Cycle Number[b]	Number of women starting cycle	Number of women who had a live birth[c]	Cycle-specific live birth rate (%)[d]	Number of women who did not progress to next treatment	Non-progression rate (%)[e]	Cumulative live birth rate (%)[f]
One	1,874	591	31.5	239	18.6	31.5
Two	1,044	294	28.2	177	23.6	47.2
Three	573	147	25.7	105	24.6	55.1
Four	321	62	19.3	77	29.7	58.4
Five	182	35	19.2	54	36.7	60.2

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Cycle one represents a woman's first autologous (excluding freeze-all) fresh ART treatment cycle between 1st January 2018 and 31st December 2018. Cycles two to five could be either a fresh or thaw cycle (excluding freeze-all cycles) undertaken by a woman until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021.
(c) A live birth is the birth of one or more liveborn infants, with the birth of twins or higher order multiples counted as one live birth.
(d) The cycle-specific live birth rate is calculated as the number of live births resulting from a specific 'cycle number' divided by the number of women who undertook that same 'cycle number'.
(e) The non-progression rate for a specific 'cycle number' is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that 'cycle number'.
(f) The cumulative live birth rate for a specific 'cycle number' is calculated as the total number of live births following this 'cycle number' and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2018 and 31st December 2018.

Note: Further treatment cycles after the fifth cycle and resulting live births are not presented in this table due to small numbers. Data should be interpreted with caution due to small numbers in certain cells and measures of statistical variance are not supplied.

Table 31: Cycle-specific and cumulative live birth rates for women aged less than 30 years who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2018 and 31st December 2018, New Zealand, 2018-2020

Cycle number[b]	Number of women starting cycle	Number of women who had a live birth[c]	Cycle-specific live birth rate (%)[d]	Number of women who did not progress to next treatment	Non-progression rate (%)[e]	Cumulative live birth rate (%)[f]
One	234	107	45.7	15	11.8	45.7
Two	112	37	33.0	9	12.0	61.5
Three	66	27	40.9	11	28.2	73.1
Four	28	7	25.0	3	14.3	76.1
Five	18	1	5.6	5	29.4	76.5

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.

(b) Cycle one represents a woman's first autologous (excluding freeze-all) fresh ART treatment cycle between 1st January 2018 and 31st December 2018. Cycles two to five could be either a fresh or thaw cycle (excluding freeze-all cycles) undertaken by a woman until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021.

(c) A live birth is the birth of one or more liveborn infants, with the birth of twins or higher order multiples counted as one live birth.

(d) The cycle-specific live birth rate is calculated as the number of live births resulting from a specific 'cycle number' divided by the number of women who undertook that same 'cycle number'.

(e) The non-progression rate for a specific 'cycle number' is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that 'cycle number'.

(f) The cumulative live birth rate for a specific 'cycle number' is calculated as the total number of live births following this 'cycle number' and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2018 and 31st December 2018.

Note: Further treatment cycles after the fifth cycle and resulting live births are not presented in this table due to small numbers. Data should be interpreted with caution due to small numbers in certain cells and measures of statistical variance are not supplied.

Table 32: Cycle-specific and cumulative live birth rates for women aged 30-34 years who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2018 and 31st December 2018, New Zealand, 2018-2020

Cycle number[b]	Number of women starting cycle	Number of women who had a live birth[c]	Cycle-specific live birth rate (%)[d]	Number of women who did not progress to next treatment	Non-progression rate (%)[e]	Cumulative live birth rate (%)[f]
One	679	251	37.0	38	8.9	37.0
Two	390	143	36.7	46	18.6	58.0
Three	201	59	29.4	34	23.9	66.7
Four	108	24	22.2	21	25.0	70.3
Five	63	18	28.6	12	26.7	72.9

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Cycle one represents a woman's first autologous (excluding freeze-all) fresh ART treatment cycle between 1st January 2018 and 31st December 2018. Cycles two to five could be either a fresh or thaw cycle (excluding freeze-all cycles) undertaken by a woman until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021.
(c) A live birth is the birth of one or more liveborn infants, with the birth of twins or higher order multiples counted as one live birth.
(d) The cycle-specific live birth rate is calculated as the number of live births resulting from a specific 'cycle number' divided by the number of women who undertook that same 'cycle number'.
(e) The non-progression rate for a specific 'cycle number' is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that 'cycle number'.
(f) The cumulative live birth rate for a specific 'cycle number' is calculated as the total number of live births following this 'cycle number' and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2018 and 31st December 2018.

Note: Further treatment cycles after the fifth cycle and resulting live births are not presented in this table due to small numbers. Data should be interpreted with caution due to small numbers in certain cells and measures of statistical variance are not supplied.

Table 33: Cycle-specific and cumulative live birth rates for women aged 35-39 years who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2018 and 31st December 2018, New Zealand, 2018-2020

Cycle number[b]	Number of women starting cycle	Number of women who had a live birth[c]	Cycle-specific live birth rate (%)[d]	Number of women who did not progress to next treatment	Non-progression rate (%)[e]	Cumulative live birth rate (%)[f]
One	670	201	30.0	73	15.6	30.0
Two	396	97	24.5	67	22.4	44.5
Three	232	50	21.6	42	23.1	51.9
Four	140	26	18.6	39	34.2	55.8
Five	75	12	16.0	21	33.3	57.6

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Cycle one represents a woman's first autologous (excluding freeze-all) fresh ART treatment cycle between 1st January 2018 and 31st December 2018. Cycles two to five could be either a fresh or thaw cycle (excluding freeze-all cycles) undertaken by a woman until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021.
(c) A live birth is the birth of one or more liveborn infants, with the birth of twins or higher order multiples counted as one live birth.
(d) The cycle-specific live birth rate is calculated as the number of live births resulting from a specific 'cycle number' divided by the number of women who undertook that same 'cycle number'.
(e) The non-progression rate for a specific 'cycle number' is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that 'cycle number'.
(f) The cumulative live birth rate for a specific 'cycle number' is calculated as the total number of live births following this 'cycle number' and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2018 and 31st December 2018.

Note: Further treatment cycles after the fifth cycle and resulting live births are not presented in this table due to small numbers. Data should be interpreted with caution due to small numbers in certain cells and measures of statistical variance are not supplied.

Table 34: Cycle-specific and cumulative live birth rates for women aged 40 years and over who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2018 and 31st December 2018, New Zealand, 2018-2020

Cycle number[b]	Number of women starting cycle	Number of women who had a live birth[c]	Cycle-specific live birth rate (%)[d]	Number of women who did not progress to next treatment	Non-progression rate (%)[e]	Cumulative live birth rate (%)[f]
One	291	32	11.0	113	43.6	11.0
Two	146	17	11.6	55	42.6	16.8
Three	74	11	14.9	18	28.6	20.6
Four	45	5	11.1	14	35.0	22.3
Five	26	4	15.4	16	72.7	23.7

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Cycle one represents a woman's first autologous (excluding freeze-all) fresh ART treatment cycle between 1st January 2018 and 31st December 2018. Cycles two to five could be either a fresh or thaw cycle (excluding freeze-all cycles) undertaken by a woman until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021.
(c) A live birth is the birth of one or more liveborn infants, with the birth of twins or higher order multiples counted as one live birth.
(d) The cycle-specific live birth rate is calculated as the number of live births resulting from a specific 'cycle number' divided by the number of women who undertook that same 'cycle number'.
(e) The non-progression rate for a specific 'cycle number' is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that 'cycle number'.
(f) The cumulative live birth rate for a specific 'cycle number' is calculated as the total number of live births following this 'cycle number' and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2018 and 31st December 2018.

Note: Further treatment cycles after the fifth cycle and resulting live births are not presented in this table due to small numbers. Data should be interpreted with caution due to small numbers in certain cells and measures of statistical variance are not supplied.

9 Cumulative success rates for women undertaking autologous treatment 2017-2020

This section presents information on all women who started their first autologous fresh ART treatment cycle between 1st January 2017 and 31st December 2017. The first cycle is identified according to first stimulation data reported by clinics plus the first occurrence of the woman's autologous fresh cycle in 2017. Women were followed from the start of their first autologous fresh cycle through subsequent fresh and thaw cycles, excluding freeze-all cycles, until 31st December 2020 or until they achieved a live birth (a birth of at least one liveborn baby) up to and including 31st October 2021. This longitudinal perspective provides a measure of the outcomes of successive ART treatment cycles undertaken by the same woman up to her first birth following ART treatment. These women might have had additional treatment cycles after 2020 and their treatment information and resulting outcomes will be captured in subsequent annual reports. Therefore, in this dynamic cohort of women undergoing their first autologous fresh ART treatment between 1st January 2017 and 31st December 2017, the cumulative success rates may increase over time as women return for treatment at a later date.

ART treatment cycles presented in Tables 36 to 40 include all initiated autologous fresh and thaw cycles, excluding freeze-all cycles. Cycles which were cancelled at any stage and did not proceed to oocyte collection or embryo transfer are included. Donor sperm insemination cycles, oocyte/embryo recipient cycles, oocyte/embryo donation cycles, surrogacy arrangement cycles, and gamete intrafallopian transfer (GIFT) cycles are not included. A pregnancy that ends before 20 weeks gestation or a stillbirth are not counted as a live birth.

Table 35 presents the number of cycles by women's age group. Tables 36 to 40 present cycle-specific live birth rates, non-progression rates, and cumulative live birth rates for all age groups and women aged under 30 years, between 30-34 years, between 35-39 years and over 40 years.

Definitions and calculations

- The cycle-specific live birth rate for a specific number of cycles is calculated as the number of live births resulting from the specific number of cycles divided by the number of women who undertook that cycle number. For instance, in Table 36, the cycle-specific live birth rate of 24.7% for cycle number three represents the proportion of women who undertook a third cycle and achieved a live birth in that cycle.
- The non-progression rate for a specific cycle is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that cycle. For example, the non-progression rate of 29.0% for a third cycle represents the proportion of women who did not achieve a live birth in their third cycle and did not progress to a fourth cycle (Table 36). The reasons surrounding a woman's or couple's choice to not return to or progress with further treatment, include poor prognosis, natural pregnancy, migration, financial, psychological, and other unrelated reasons; these are not collected by ANZARD.

  The cumulative live birth rate for a specific cycle is calculated as the total number of live births following this cycle and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2017 and 31st December 2017. For example, the cumulative live birth rate of 51.8% for the third cycle represents the proportion of women who started ART treatment in 2017 and

achieved a live birth following their first three cycles (Table 36). Note that only the first birth to a woman is counted in cumulative live birth rates.

Table 35: Number of cycles by women's age group for all women who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2017 and 31st December 2017, New Zealand

	Age group (years)[b]				
Cycle number	**< 30**	**30-34**	**35-39**	**≥ 40**	**All**
			n		
One	134	261	251	117	**763**
Two	57	146	186	75	**464**
Three	25	89	113	35	**262**
Four	10	51	60	17	**138**
Five or more	21	57	66	19	**163**
Total	**247**	**604**	**676**	**263**	**1,790**
			%		
One	54.3	43.2	37.1	44.5	42.6
Two	23.1	24.2	27.5	28.5	25.9
Three	10.1	14.7	16.7	13.3	14.6
Four	4.0	8.4	8.9	6.5	7.7
Five or more	8.5	9.4	9.8	7.2	9.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Age at start of first autologous fresh ART treatment cycle undertaken in 2017.

Note: Women who started their first autologous fresh ART treatment cycle between 1st January 2017 and 31st December 2017 were followed through subsequent fresh and thaw cycles (excluding freeze-all cycles) until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021. Totals and subtotals may not equal 100.0 due to rounding. Data should be interpreted with caution due to small numbers in certain cells.

Table 36: Cycle-specific and cumulative live birth rates for all women who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2017 and 31st December 2017, New Zealand, 2017-2020

Cycle Number[b]	Number of women starting cycle	Number of women who had a live birth[c]	Cycle-specific live birth rate (%)[d]	Number of women who did not progress to next treatment	Non-progression rate (%)[e]	Cumulative live birth rate (%)[f]
One	1790	508	28.4	255	19.9	28.4
Two	1027	281	27.4	183	24.5	44.1
Three	563	139	24.7	123	29.0	51.8
Four	301	71	23.6	67	29.1	55.8
Five	163	33	20.2	38	29.2	57.7
Six or more	196	40	20.4	0	0.0	59.9

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Cycle one represents a woman's first autologous (excluding freeze-all) fresh ART treatment cycle between 1st January 2017 and 31st December 2017. Cycles two to five could be either a fresh or thaw cycle (excluding freeze-all cycles) undertaken by a woman until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021.
(c) A live birth is the birth of one or more liveborn infants, with the birth of twins or higher order multiples counted as one live birth.
(d) The cycle-specific live birth rate is calculated as the number of live births resulting from a specific 'cycle number' divided by the number of women who undertook that same 'cycle number'.
(e) The non-progression rate for a specific 'cycle number' is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that 'cycle number'.
(f) The cumulative live birth rate for a specific 'cycle number' is calculated as the total number of live births following this 'cycle number' and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2017 and 31st December 2017.

Note: Further treatment cycles after the fifth cycle and resulting live births are not presented in this table due to small numbers. Data should be interpreted with caution due to small numbers in certain cells and measures of statistical variance are not supplied.

Table 37: Cycle-specific and cumulative live birth rates for women aged less than 30 years who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2017 and 31st December 2017, New Zealand, 2017-2020

Cycle number[b]	Number of women starting cycle	Number of women who had a live birth[c]	Cycle-specific live birth rate (%)[d]	Number of women who did not progress to next treatment	Non-progression rate (%)[e]	Cumulative live birth rate (%)[f]
One	247	110	44.5	24	17.5	44.5
Two	113	42	37.2	15	21.1	61.5
Three	56	16	28.6	9	22.5	68.0
Four	31	6	19.4	4	16.0	70.4
Five	21	8	38.1	3	23.1	73.7
Six or more	22	7	31.8	0	0.0	76.5

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Cycle one represents a woman's first autologous (excluding freeze-all) fresh ART treatment cycle between 1st January 2017 and 31st December 2017. Cycles two to five could be either a fresh or thaw cycle (excluding freeze-all cycles) undertaken by a woman until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021.
(c) A live birth is the birth of one or more liveborn infants, with the birth of twins or higher order multiples counted as one live birth.
(d) The cycle-specific live birth rate is calculated as the number of live births resulting from a specific 'cycle number' divided by the number of women who undertook that same 'cycle number'.
(e) The non-progression rate for a specific 'cycle number' is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that 'cycle number'.
(f) The cumulative live birth rate for a specific 'cycle number' is calculated as the total number of live births following this 'cycle number' and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2017 and 31st December 2017.

Note: Further treatment cycles after the fifth cycle and resulting live births are not presented in this table due to small numbers. Data should be interpreted with caution due to small numbers in certain cells and measures of statistical variance are not supplied.

Table 38: Cycle-specific and cumulative live birth rates for women aged 30-34 years who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2017 and 31st December 2017, New Zealand, 2017-2020

Cycle number[b]	Number of women starting cycle	Number of women who had a live birth[c]	Cycle-specific live birth rate (%)[d]	Number of women who did not progress to next treatment	Non-progression rate (%)[e]	Cumulative live birth rate (%)[f]
One	604	221	36.6	40	10.4	36.6
Two	343	108	31.5	38	16.2	54.5
Three	197	61	31.0	28	20.6	64.6
Four	108	31	28.7	20	26.0	69.7
Five	57	11	19.3	13	28.3	71.5
Six or more	73	16	21.9	0	0.0	74.2

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Cycle one represents a woman's first autologous (excluding freeze-all) fresh ART treatment cycle between 1st January 2017 and 31st December 2017. Cycles two to five could be either a fresh or thaw cycle (excluding freeze-all cycles) undertaken by a woman until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021.
(c) A live birth is the birth of one or more liveborn infants, with the birth of twins or higher order multiples counted as one live birth.
(d) The cycle-specific live birth rate is calculated as the number of live births resulting from a specific 'cycle number' divided by the number of women who undertook that same 'cycle number'.
(e) The non-progression rate for a specific 'cycle number' is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that 'cycle number'.
(f) The cumulative live birth rate for a specific 'cycle number' is calculated as the total number of live births following this 'cycle number' and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2017 and 31st December 2017.

Note: Further treatment cycles after the fifth cycle and resulting live births are not presented in this table due to small numbers. Data should be interpreted with caution due to small numbers in certain cells and measures of statistical variance are not supplied.

Table 39: Cycle-specific and cumulative live birth rates for women aged 35-39 years who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2017 and 31st December 2017, New Zealand, 2017-2020

Cycle number[b]	Number of women starting cycle	Number of women who had a live birth[c]	Cycle-specific live birth rate (%)[d]	Number of women who did not progress to next treatment	Non-progression rate (%)[e]	Cumulative live birth rate (%)[f]
One	676	154	22.8	97	18.6	22.8
Two	425	112	26.4	74	23.6	39.3
Three	239	56	23.4	57	31.1	47.6
Four	126	30	23.8	30	31.3	52.1
Five	66	11	16.7	16	29.1	53.7
Six or more	72	15	20.8	0	0.0	55.9

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Cycle one represents a woman's first autologous (excluding freeze-all) fresh ART treatment cycle between 1st January 2017 and 31st December 2017. Cycles two to five could be either a fresh or thaw cycle (excluding freeze-all cycles) undertaken by a woman until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021.
(c) A live birth is the birth of one or more liveborn infants, with the birth of twins or higher order multiples counted as one live birth.
(d) The cycle-specific live birth rate is calculated as the number of live births resulting from a specific 'cycle number' divided by the number of women who undertook that same 'cycle number'.
(e) The non-progression rate for a specific 'cycle number' is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that 'cycle number'.
(f) The cumulative live birth rate for a specific 'cycle number' is calculated as the total number of live births following this 'cycle number' and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2017 and 31st December 2017.

Note: Further treatment cycles after the fifth cycle and resulting live births are not presented in this table due to small numbers. Data should be interpreted with caution due to small numbers in certain cells and measures of statistical variance are not supplied.

Table 40: Cycle-specific and cumulative live birth rates for women aged 40 years and over who started their first autologous fresh cycle (excluding freeze-all cycles[a]) between 1st January 2017 and 31st December 2017, New Zealand, 2017-2020

Cycle number[b]	Number of women starting cycle	Number of women who had a live birth[c]	Cycle-specific live birth rate (%)[d]	Number of women who did not progress to next treatment	Non-progression rate (%)[e]	Cumulative live birth rate (%)[f]
One	263	23	8.7	94	39.2	8.7
Two	146	19	13.0	56	44.1	16.0
Three	71	6	8.5	29	44.6	18.3
Four	36	4	11.1	13	40.6	19.8
Five	19	3	15.8	6	37.5	20.9
Six or more	29	2	6.9	0	0.0	21.7

(a) Freeze-all cycles are fresh ART treatment cycles where all oocytes or embryos are cryopreserved, and an embryo transfer does not take place.
(b) Cycle one represents a woman's first autologous (excluding freeze-all) fresh ART treatment cycle between 1st January 2017 and 31st December 2017. Cycles two to five could be either a fresh or thaw cycle (excluding freeze-all cycles) undertaken by a woman until 31st December 2020 or birth of a liveborn baby up to and including 31st October 2021.
(c) A live birth is the birth of one or more liveborn infants, with the birth of twins or higher order multiples counted as one live birth.
(d) The cycle-specific live birth rate is calculated as the number of live births resulting from a specific 'cycle number' divided by the number of women who undertook that same 'cycle number'.
(e) The non-progression rate for a specific 'cycle number' is calculated as the number of women who did not return for further ART treatment cycles before 31st December 2020 divided by the number of women who did not have a live birth in that 'cycle number'.
(f) The cumulative live birth rate for a specific 'cycle number' is calculated as the total number of live births following this 'cycle number' and all previous cycles divided by the total number of women who started their first autologous fresh ART treatment cycle between 1st January 2017 and 31st December 2017.

Note: Further treatment cycles after the fifth cycle and resulting live births are not presented in this table due to small numbers. Data should be interpreted with caution due to small numbers in certain cells and measures of statistical variance are not supplied.

Appendix A: Contributing fertility clinics

Fertility Associates, Auckland (Dr Simon Kelly)

Fertility Associates Christchurch, Christchurch (Dr Sarah Wakeman)

Fertility Associates Hamilton, Hamilton (Dr VP Singh)

Fertility Associates Otago, Dunedin (Associate Professor Wayne Gillett)

Fertility Associates Wellington, Wellington (Dr Andrew Murray)

Fertility Plus, Auckland (Dr Cindy Farquhar)

Repromed Auckland, Auckland (Dr Devashana Gupta)

Appendix B: Data used in this report

The data presented in this report are supplied by eight fertility clinics in New Zealand and are compiled into ANZARD 3.0. ANZARD 3.0 includes autologous treatment cycles, treatment involving donated oocytes or embryos, and treatment involving surrogacy arrangements. ANZARD 3.0 collects data on the use of ART techniques such as ICSI, oocyte/embryo freezing methods, PGT and cleavage/blastocyst transfers. In addition to ART procedures, ANZARD 3.0 also collects data on artificial insemination cycles using donated sperm (DI) from ART Units. The outcomes of pregnancies, births and babies born following ART and DI treatments are also maintained in ANZARD 3.0. This includes the method of birth, birth status, birthweight, gestational age, plurality, perinatal mortality, and selected information on maternal morbidity.

This report presents information on ART and DI treatment cycles that took place in fertility clinics in New Zealand in 2020, and the resulting pregnancies and births. The babies included in this report were conceived through treatment cycles undertaken in 2020 and were born in either 2020 or 2021.

Data validation

Most fertility centres have computerised data information management systems and provide the National Perinatal Epidemiology and Statistics Unit (NPESU) with high-quality data. All data processed by NPESU undergo a validation process, with data queries being followed up with fertility centre staff.

The Reproductive Technology Accreditation Committee (RTAC) of the Fertility Society of Australia and New Zealand (FSANZ) also plays a role in ensuring the quality of ANZARD 3.0 data. ANZARD submissions from ART Units are audited by certifying bodies according to the RTAC Code of Practice. This includes selected records against ART Unit files in their annual inspections. All ART cycles and DI undertaken in Australia and New Zealand must be reported to ANZARD as part of their accreditation by the RTAC of the FSANZ.

Data presentation

Data presented in Chapters 2 to 6 are for treatment cycles and not patients. It is possible for an individual woman to undergo more than one treatment cycle in a year or experience more than one pregnancy. This means that information reported about patient characteristics, such as age, parity, and cause of infertility, is based on calculations in which individuals may be counted more than once.

The rates of clinical pregnancy and live birth in Chapters 2 to 6 were measured per initiated cycle. Where the number of initiated cycles was not available, the rates were measured per embryo transfer cycle.

Where applicable, percentages in tables have been calculated including the ‘Not stated’ category. Throughout the report, for totals, percentages may not add up to 100.0 and, for subtotals, they may not add up to the sum of the percentages for the categories. This is due to rounding error.

Data limitations

Follow-up of pregnancy and birth outcomes is limited because the ongoing care of pregnant patients is often carried out by non-ART practitioners. The method of follow-up varies by

fertility centre and includes follow-up with the patient or clinician, or the use of routine data sourced from a health department. In a small proportion of cases this information is not available. For pregnancies in which there is successful follow-up, data are limited by the self-reported nature of the information. Fertility centre staff invest significant effort in validating such information by obtaining medical records from clinicians or hospitals. Data about previous ART treatment and history of pregnancies are, in some cases, reported by patients.

Note that some contributing ART Units may have closed or changed their name since 2020. The medical director listed is based on information provided by the FSANZ at the time this report was prepared.

Glossary

This report categorises ART treatments according to whether a woman used her own oocytes or embryos, or oocytes or embryos were donated by another woman or couple, and whether the embryos were transferred soon after fertilisation or following cryopreservation.

Artificial insemination: a range of techniques for placing sperm into the female genital tract and can be used with controlled ovarian hyperstimulation or in unstimulated cycles. These techniques are referred to as 'donor insemination' (DI) in this report.

ART (assisted reproductive technology): treatments or procedures that involve the in vitro handling of human oocytes (eggs) and sperm or embryos for the purposes of establishing a pregnancy. ART does not include artificial insemination.

ART Unit: a facility with a laboratory collecting or preparing human gametes and/or embryos for therapeutic service, possibly across a range of sites of clinical activity. Where the collection of gametes/embryos takes place at a different site to the preparation, the two sites are considered to be a single ART Unit.

Assisted hatching: when the outer layer of the embryo, the zona pellucida, is either thinned or perforated in the laboratory to aid 'hatching' of the embryo, the aim being to potentially improve the chance of implantation in the uterus.

Autologous cycle: an ART treatment cycle in which a woman intends to use, or uses, her own oocytes or embryos. GIFT cycles are classified separately from autologous cycles.

Birth: a birth event in which one or more babies of 20 weeks or more gestation or of 400 grams or more birthweight is born, either liveborn or stillborn.

Blastocyst: an embryo comprising around 100 cells usually developed by five or six days after fertilisation.

Caesarean section: an operative birth by surgical incision through the abdominal wall and uterus.

Cleavage-stage embryo: an embryo comprising about eight cells usually developed two to four days after fertilisation.

Clinical pregnancy: a pregnancy in which at least one of the following criteria is met:

- known to be ongoing at 20 weeks
- evidence by ultrasound of an intrauterine sac (with or without a fetal heart)
- examination of products of conception reveals chorionic villi, or
- an ectopic pregnancy has been diagnosed by laparoscope or by ultrasound.

Controlled ovarian hyperstimulation: medical treatment to induce the development of multiple ovarian follicles in order to obtain multiple oocytes at oocyte pick-up (OPU).

Cryopreservation: freezing embryos for potential future ART treatment.

Cycle: when a medical procedure is attempted or takes place, or when certain laboratory procedures are undertaken. This is further broken down to specific terms, 'treatment cycles' and 'lab-only cycles.' Please refer to the glossary for definitions of these specific terms.

DI (donor insemination) cycle: an artificial insemination cycle in which sperm not from the woman's partner (donor sperm) is used.

Discontinued cycle: an ART cycle that does not proceed to oocyte pick-up (OPU) or embryo transfer.

Donation cycle: an ART treatment cycle where a woman intends to donate, or donates, her oocytes to others. A donation cycle may result in the donation of either oocytes or embryos to a recipient woman. The use of donor sperm does not alter the donor status of the cycle.

Ectopic pregnancy: a pregnancy in which implantation takes place outside the uterine cavity.

Embryo: an egg that has been fertilised by a sperm and has undergone one or more divisions.

Embryo transfer: a procedure whereby embryo(s) are placed in the uterus or fallopian tube. The embryo(s) can be fresh or thawed following cryopreservation and may include the transfer of cleavage-stage embryos or blastocysts.

Freeze-all (freeze-only) cycle: a fresh cycle where all oocytes or embryos that are potentially suitable for transfer are cryopreserved for potential future use.

Fresh cycle: an ART treatment cycle that intends to use, or uses, embryo(s) that have not been cryopreserved (frozen).

Gestational age: the completed weeks of gestation of the fetus. This is calculated as follows:

- cycles with embryos transferred: (pregnancy end date – embryo transfer date + 16 days) for transfer of cleavage-stage embryos and (pregnancy end date – embryo transfer date + 19 days) for transfer of blastocysts
- GIFT cycles: (pregnancy end date – OPU date) + 14 days
- DI cycles: (pregnancy end date – date of insemination) + 14 days.

GIFT (gamete intrafallopian transfer): an ART treatment where mature oocytes and sperm are placed directly into a woman's fallopian tubes so that in vivo fertilisation may take place. GIFT cycles are classified separately from autologous cycles.

Heterotopic pregnancy: a double gestation pregnancy in which implantation takes place both inside and outside the uterine cavity.

ICSI (intracytoplasmic sperm injection): a procedure whereby a single sperm is injected directly into the oocyte to aid fertilisation. If an embryo transfer cycle involves the transfer of at least one embryo created using ICSI, it is counted as an ICSI cycle.

IVF (in vitro fertilisation): an ART procedure that involves extracorporeal fertilisation.

Lab-only cycle: involves a laboratory procedure with no planned patient involvement and includes the following scenarios:

- receipt of donor oocytes with the intention of fertilisation and freezing of all resulting embryos
- attempted/actual oocyte thaw with intention of fertilisation and freezing of all resulting embryos
- PGT cycles where embryos are thawed and refrozen with no intention of embryo transfer in the reported cycle.

Live birth: according to the World Health Organization (WHO) definition, a live birth is defined as "the complete expulsion or extraction from the mother of a baby, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of the voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered liveborn" (AIHW 2022). In this report, live births are included if they meet the WHO definition and if they are of 20 weeks or more gestation or 400 grams or more birthweight. Live births are counted as birth

events, e.g. the birth of one or more liveborn infants. For example, where a multiple birth (twins, triplets) results in a liveborn and a stillborn baby, this is still considered one live birth.

Low birthweight: a birthweight of less than 2,500 grams.

Nulliparous: refers to a woman who has never had a pregnancy of 20 weeks or more gestation.

OHSS (ovarian hyperstimulation syndrome): the complication of ovulation stimulation therapy, which involves the administration of follicle stimulating hormone (FSH). OHSS symptoms include abdominal pain and fluid retention.

Oocyte (egg): a female reproductive cell.

OPU (oocyte pick-up): the procedure to collect oocytes from ovaries, usually by ultrasound-guided transvaginal aspiration and rarely by laparoscopic surgery.

Parity: a classification of a woman in terms of the number of previous pregnancies experienced that reached 20 weeks or more gestation.

Parous: refers to a woman who has had at least one previous pregnancy of 20 weeks or more gestation.

PGT (preimplantation genetic testing): a procedure where DNA from oocytes or embryos is tested for chromosomal disorders or genetic diseases before embryo transfer. This term includes PGT for aneuploidies (PGT-A); PGT for monogenic/single gene defects (PGT-M); and PGT for chromosomal structural rearrangements (PGT-SR).

Perinatal death: a stillbirth or neonatal death of at least 20 weeks gestation or at least 400 grams birthweight.

Preterm: a gestation of less than 37 weeks.

Recipient cycle: an ART treatment cycle in which a woman receives oocytes or embryos from another woman.

Secondary sex ratio: the number of male liveborn babies per 100 female liveborn babies.

Singleton: refers to the birth of only one child during a single birth event.

Stillbirth: the birth of an infant after 20 or more weeks gestation or 400 grams or more birthweight that shows no signs of life.

Surrogacy arrangement: an arrangement where a female patient, known as the 'gestational carrier' or 'surrogate' agrees to carry a child for another person or couple, known as the 'intending parent(s)', with the intention that the child will be raised by the intending parent(s). The oocytes and/or sperm used to create the embryo(s) in the surrogacy cycle can be either from the intending parents or from a donor(s).

Thaw cycle: an ART treatment cycle in which cryopreserved embryos are thawed with the intention of performing embryo transfer.

Thawed embryo: an embryo thawed after cryopreservation. It is used in thaw cycles or lab-only cycles.

Treatment cycle: involves an attempted/actual medical procedure being carried out on a female patient and includes the following scenarios:

- ovarian stimulation with the intention of oocyte collection in autologous or donation cycle
- attempted/actual oocyte collection, whether in a stimulated or unstimulated, autologous or donation cycle
- attempted/actual oocyte thaw with the intention of fertilisation and embryo transfer
- attempted/actual embryo thaw with the intention of embryo transfer
- insemination of donated sperm as part of an intrauterine insemination (IUI) cycle.

Vitrification: an ultra-rapid cryopreservation method that prevents ice formation within the suspension which is converted to a glass-like solid.

Note: The International Committee Monitoring Assisted Reproductive Technologies (ICMART) has published an Infertility and Fertility Care glossary for the terms used in ART data collections (Zegers-Hochschild et al. 2017). However, the terminology used in this report may differ from that in the ICMART glossary.

References

European Society of Human Reproduction and Embryology (ESHRE). ART factsheet n.d. Viewed 28 September 2022, https://www.eshre.eu/Press-Room/Resources

Statistics New Zealand 2020. Estimated Resident Population by Age and Sex (1991+) (Annual-Dec). Viewed 14 June 2023, https://infoshare.stats.govt.nz/Default.aspx

World Health Organization 2010. Mother or nothing: the agony of infertility. Bulletin of the World Health Organization. Volume 88, Number 12, December 2010, 877-953

Zegers-Hochschild F, Adamson GD, Dyer S, Racowsky C, de Mouza J, Sokol R, Rienzi L, Sunde A, Schmit L, Cooke ID, Leigh Simpson J,Van der Poel 2017. The International Glossary on Infertility and Fertility Care, Fertility and Sterility. 2017 Sep;108(3)

List of tables

Table 1: Number of initiated ART treatment cycles by treatment type, New Zealand, 2020 4

Table 2: Number of initiated ART treatment cycles (excluding surrogacy) by ethnicity, New Zealand, 2020 5

Table 3: Number of women undertaking ART treatment cycles (excluding surrogacy) by ethnicity, New Zealand, 2020 6

Table 4: Number of autologous and recipient cycles by women's age group and treatment type, New Zealand, 2020 8

Table 5: Number of autologous and recipient cycles by women's male partners' age group and treatment type, New Zealand, 2020 8

Table 6: Number of autologous and recipient cycles by parity and treatment type, New Zealand, 2020 9

Table 7: Number of autologous and recipient cycles with fertilisation attempted by treatment type and procedure, New Zealand, 2020 9

Table 8: Number of embryo transfer cycles by number of embryos transferred per cycle and women's age group, New Zealand, 2020 10

Table 9: Number of embryo transfer cycles by treatment type and stage of embryo development, New Zealand, 2020 10

Table 10: Number of embryo transfer cycles by freezing method and stage of embryo development, New Zealand, 2020 11

Table 11: Outcomes of autologous fresh cycles by women's age group, New Zealand, 2020 12

Table 12: Outcomes of autologous fresh embryo transfer cycles by women's age and number of embryos transferred, New Zealand, 2020 12

Table 13: Outcomes of autologous fresh embryo transfer cycles by women's age and stage of embryo development, New Zealand, 2020 13

Table 14: Outcomes of autologous thaw cycles by women's age group, New Zealand, 2020 14

Table 15: Outcomes of autologous thaw embryo transfer cycles by women's age and number of embryos transferred, New Zealand, 2020 14

Table 16: Outcomes of autologous thaw embryo transfer cycles by women's age and stage of embryo development, New Zealand, 2020 15

Table 17: Number of oocyte/embryo donation cycles by donor's age group, New Zealand, 2020 16

Table 18: Outcomes of oocyte/embryo recipient cycles by treatment type, New Zealand, 2020 16

Table 19: Outcomes of oocyte/embryo recipient cycles by recipient's age group, New Zealand, 2020 17

Table 20: Outcomes of oocyte/embryo recipient cycles by donor's age group, New Zealand, 2020 17

Table 21: Early pregnancy losses by pregnancy outcome and treatment type, New Zealand, 2020 18

Table 22: Births by birth outcome and treatment type, New Zealand, 2020 19

Table 23: Births by plurality and maternal age, New Zealand, 2020 20

Table 24: Babies by gestational age and plurality, New Zealand, 2020 21

Table 25: Liveborn babies by birthweight group and plurality, New Zealand, 2020 22

Table 26: Number of cycles with PGT by type of embryo, New Zealand, 2020 23

Table 27: Outcomes of DI cycles by women's age group, New Zealand, 2020 24

Table 28: Number of fresh and thaw cycles by stage/outcome of treatment, New Zealand, 2016-2020 25

Table 29: Number of cycles by women's age group for all women who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2018 and 31st December 2018, New Zealand 28

Table 30: Cycle-specific and cumulative live birth rates for all women who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2018 and 31st December 2018, New Zealand, 2018-2020 29

Table 31: Cycle-specific and cumulative live birth rates for women aged less than 30 years who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2018 and 31st December 2018, New Zealand, 2018-2020 30

Table 32: Cycle-specific and cumulative live birth rates for women aged 30-34 years who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2018 and 31st December 2018, New Zealand, 2018-2020 31

Table 33: Cycle-specific and cumulative live birth rates for women aged 35-39 years who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2018 and 31st December 2018, New Zealand, 2018-2020 32

Table 34: Cycle-specific and cumulative live birth rates for women aged 40 years and over who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2018 and 31st December 2018, New Zealand, 2018-2020 33

Table 35: Number of cycles by women's age group for all women who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2017 and 31st December 2017, New Zealand 36

Table 36: Cycle-specific and cumulative live birth rates for all women who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2017 and 31st December 2017, New Zealand, 2017-2020 37

Table 37: Cycle-specific and cumulative live birth rates for women aged less than 30 years who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2017 and 31st December 2017, New Zealand, 2017-2020 38

Table 38: Cycle-specific and cumulative live birth rates for women aged 30-34 years who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2017 and 31st December 2017, New Zealand, 2017-2020 39

Table 39: Cycle-specific and cumulative live birth rates for women aged 35-39 years who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2017 and 31st December 2017, New Zealand, 2017-2020 40

Table 40: Cycle-specific and cumulative live birth rates for women aged 40 years and over who started their first autologous fresh cycle (excluding freeze-all cycles[(a)]) between 1st January 2017 and 31st December 2017, New Zealand, 2017-2020 41