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Assisted reproductive technology in Australia and New Zealand 2002

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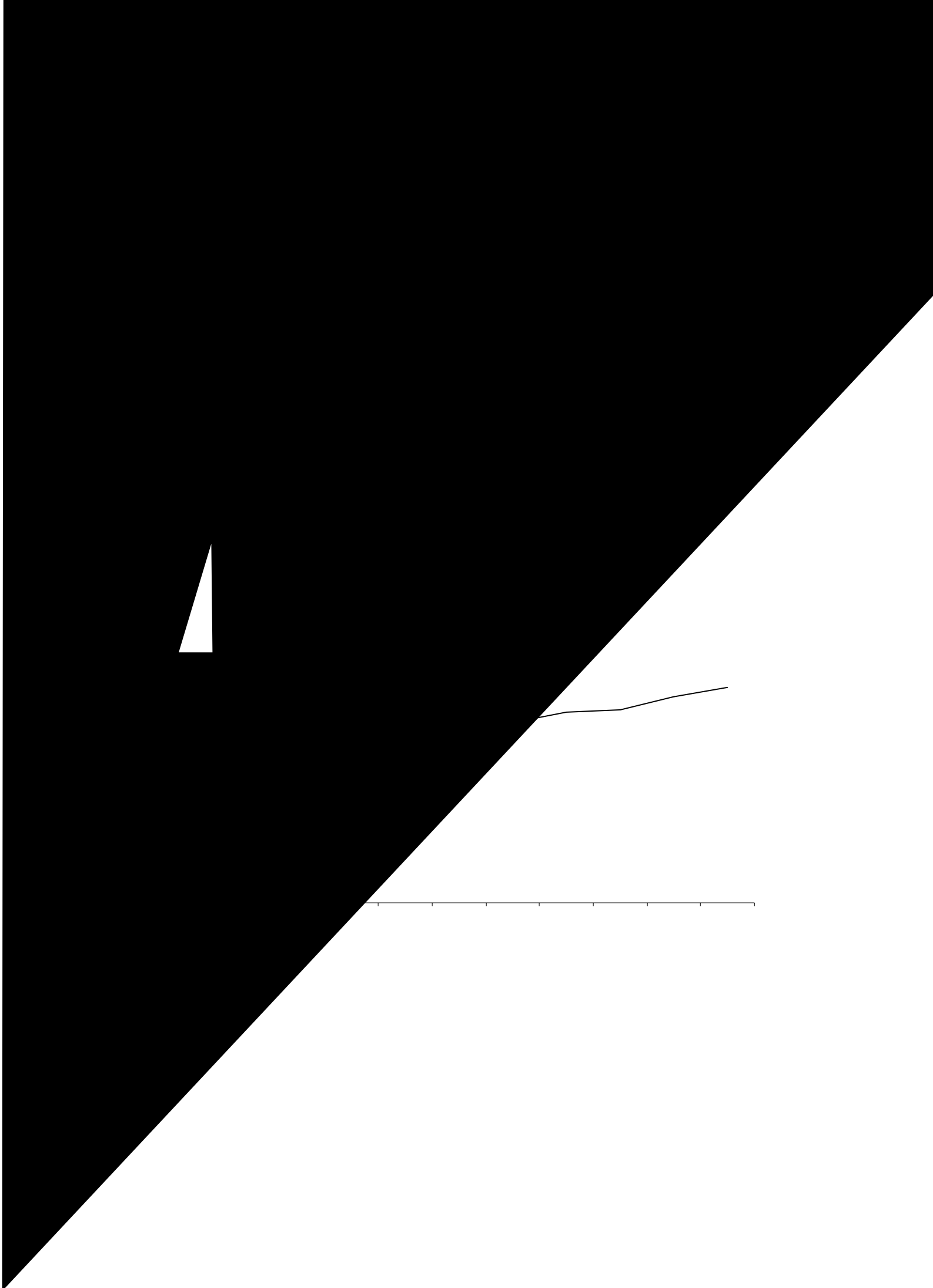
Data presentation

Data limitations

Structure of 2002 data presentation

Low birthweight

Very low birthweight



Has the use of different ART methods changed since 1993?

Has the number of embryos transferred per treatment cycle changed since 1993?

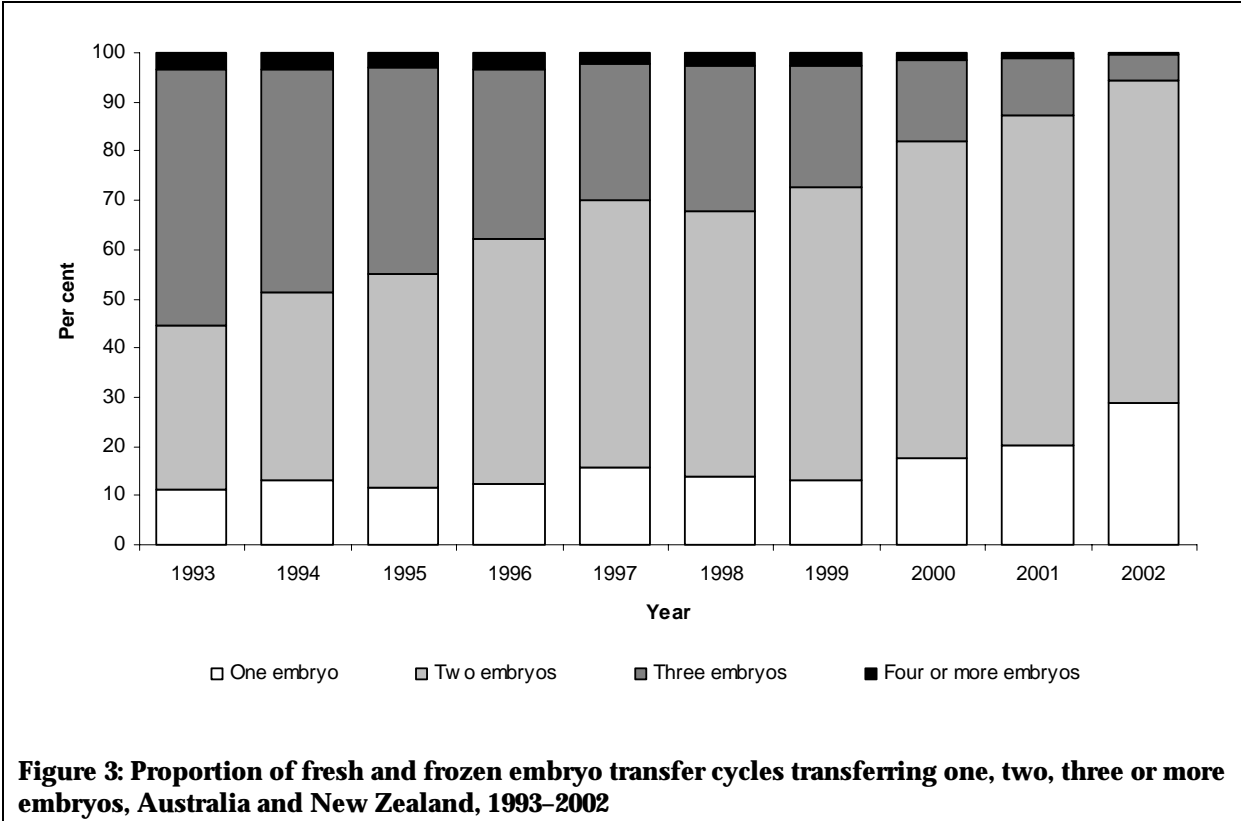


Figure 3: Proportion of fresh and frozen embryo transfer cycles transferring one, two, three or more embryos, Australia and New Zealand, 1993–2002

Has the success of ART treatment improved since 1993?

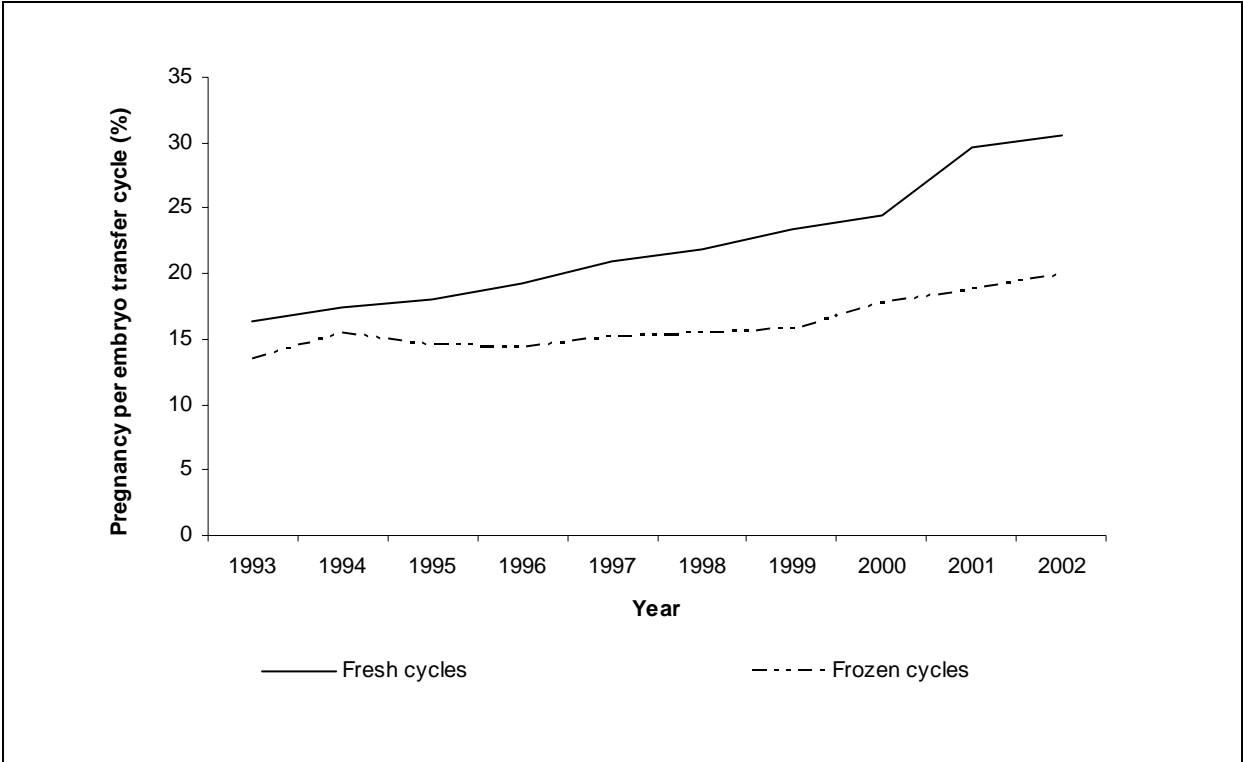
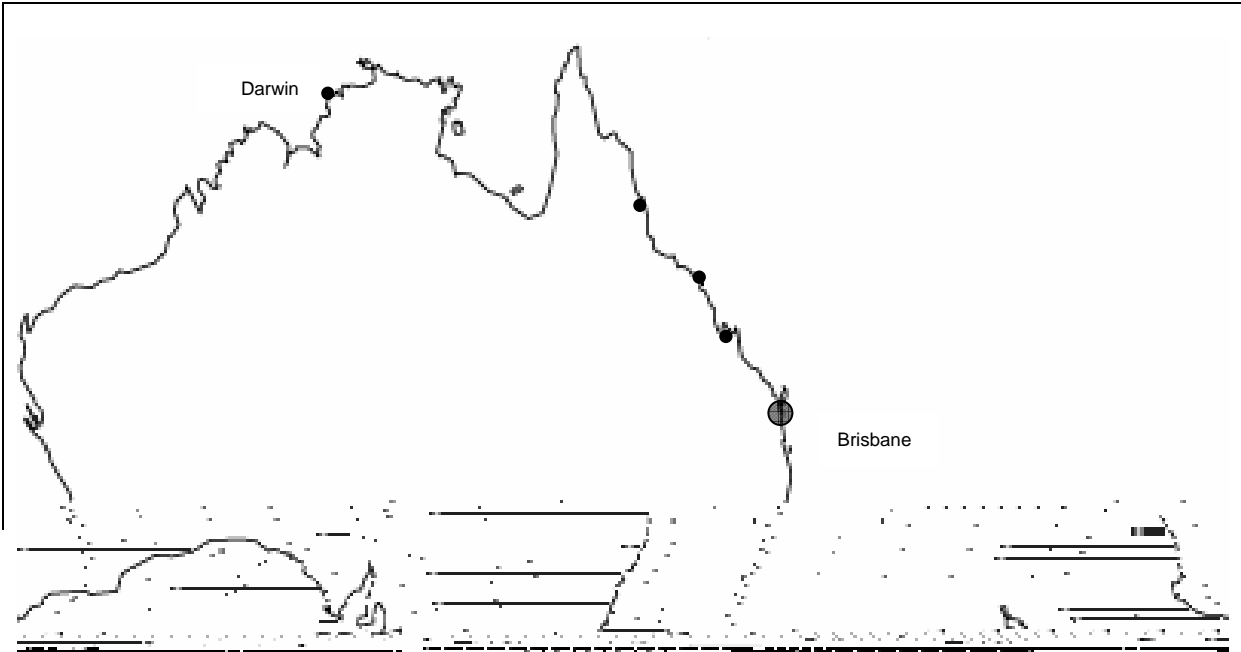


Figure 4: Rate of pregnancy per embryo transfer cycle, Australia and New Zealand, 1993–2002

2.2 ART treatment in 2002



What types of ART treatments took place in Australia and New Zealand in 2002?

How many embryos were transferred in embryo transfer cycles in 2002?

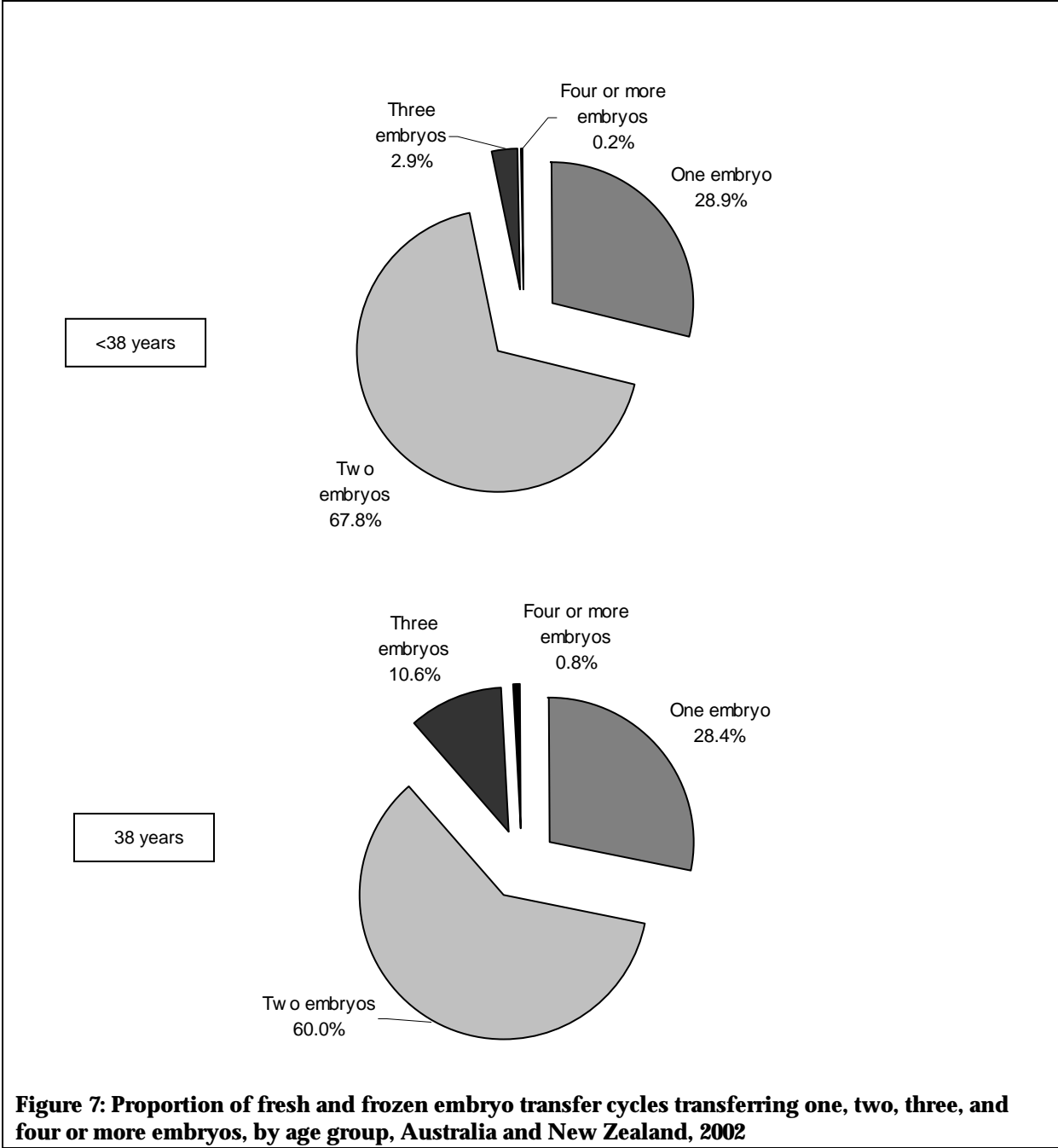


Figure 7: Proportion of fresh and frozen embryo transfer cycles transferring one, two, three, and four or more embryos, by age group, Australia and New Zealand, 2002

How many embryos were stored in 2002?

What was the average age of couples undergoing ART treatment in 2002?

2.3 Success of ART in 2002

Table A: Live delivery per embryo transfer cycle, by treatment type, Australia and New Zealand, 2002

Description	Live delivery per embryo transfer (%)
Non donor oocytes/embryos	23.5
Fresh	
Frozen	

2.3.1 Success of fresh, non donor ART treatment in 2002

How is fresh, non donor ART success measured?

What is the BESST endpoint for measuring fresh, non donor ART success?

Table C: Birth emphasising successful singleton at term (BESST) for fresh, non donor stimulated cycles, Australia and New Zealand, 2002

Stage of treatment	Number	Per cent of cycles started
Cycles started	19,472	
Pregnancies	4,697	24.1
Viable pregnancies	3,690	19.0
Live deliveries (all)	3,599	18.5
Live multiple deliveries	795	4.0
Preterm	496	2.4
Term	299	1.5
Live singleton deliveries	2,804	14.4
Preterm	296	1.5
Term	2,508	12.9

Did ART success vary by type of treatment in 2002?

Table D: Live delivery per cycle started by type of fresh, non donor ART treatment, Australia and New Zealand, 2002

Type of fresh, non donor ART treatment	Live delivery per cycle started (%)
IVF	21.2
ICSI	20.6
GIFT	n.p.

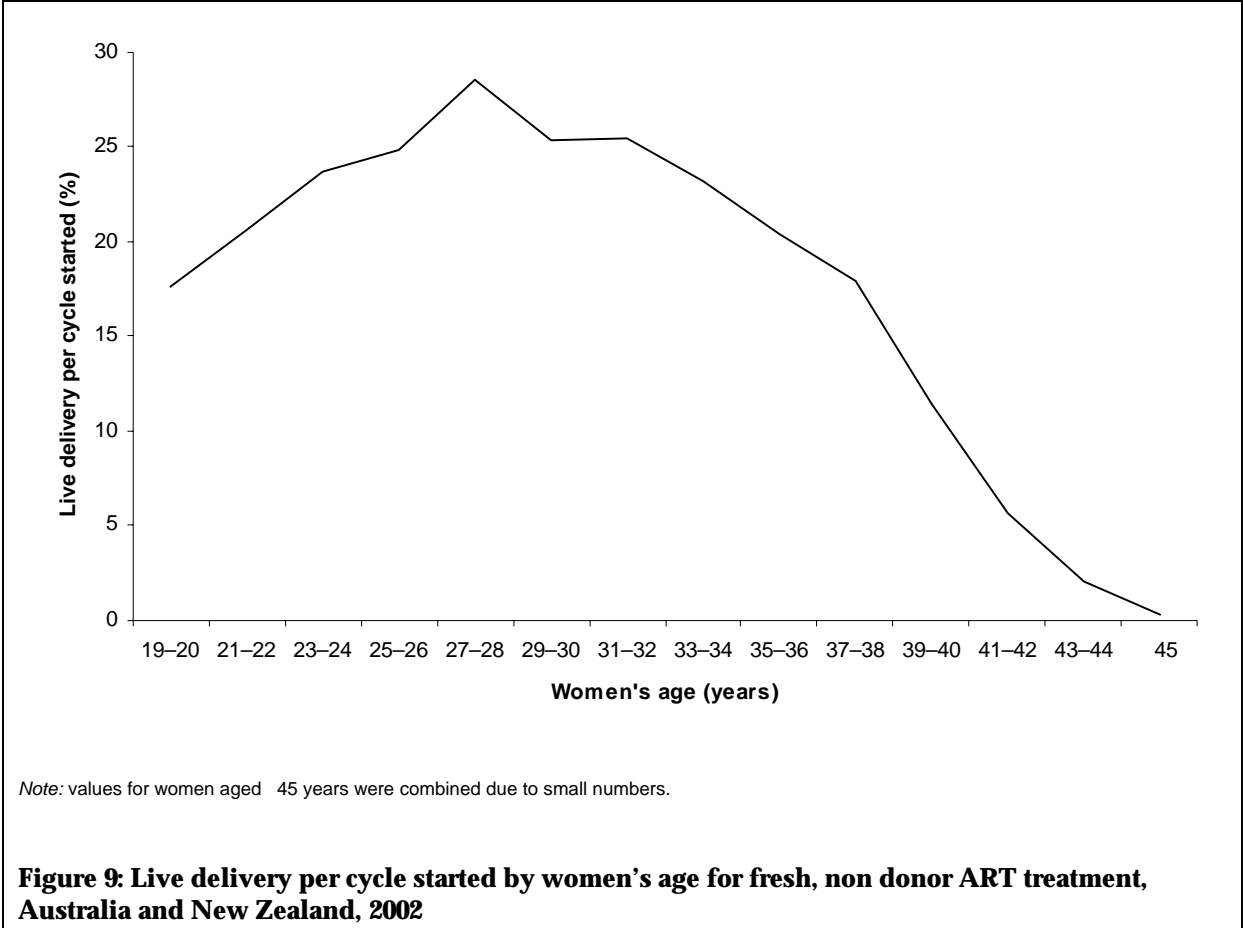
n.p. not published due to small cell size.

Did ART success vary by cause of infertility?

Table E: Live delivery per cycle started by cause of infertility for fresh, non donor ART treatment, Australia and New Zealand, 2002

Cause of infertility	Number of cycles started	Number of live deliveries	Live delivery per cycle started (%)
Male factor only	5,250	1,107	21.1
Female factor only			
Tubal disease	1,986	332	16.7
Endometriosis	1,189	221	18.6
Multiple causes	6,224	1,044	16.8
Unexplained	3,313	646	19.5
Other (including fibroids, ovulation disorders, premature ovarian failure)	1,921	290	15.1

Did ART success vary by women's age in 2002?



2.4 Variation in success rates among fertility centres

How did fresh, non donor ART success vary among fertility centres in Australia and New Zealand in 2002?

Table F: Quartiles for fertility centres for fresh, non donor ART treatment, by women's age group, Australia and New Zealand, 2002

Women's age group (years)	Live delivery per cycle started (%)				
	Average for all fertility centres	First quartile	Second quartile	Third quartile	Fourth quartile
<35 years	24.9	30.1–40.7	23.0–30.0	18.5–22.9	<18.4
35–39 years	17.9	20.6–33.3	15.5–20.5	13.6–15.4	<13.5
40 years	5.7	7.8–18.8	4.7–7.7	3.4–4.6	<3.3

Note: one fertility centre missing from this calculation.

How did frozen, non donor ART success vary among fertility centres in Australia and New Zealand in 2002?

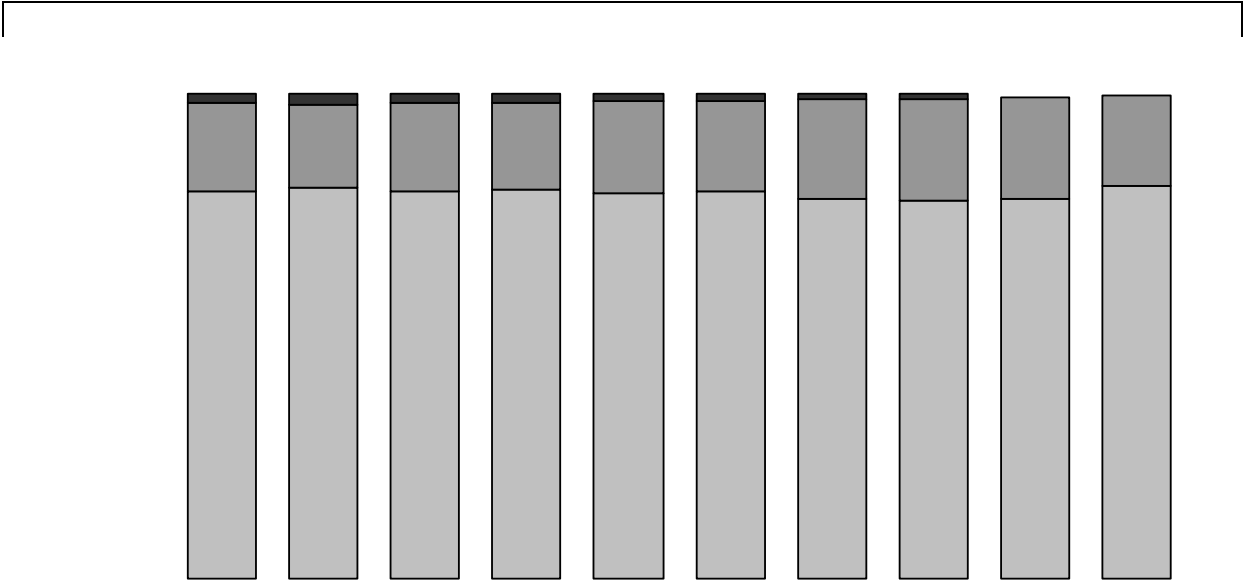
Table G: Quartiles for fertility centres for frozen, non donor ART treatment, by women's age group, Australia and New Zealand, 2002

Women's age group (years)	Live delivery per attempted thaw cycle (%)				
	Average for all fertility centres	First quartile	Second quartile	Third quartile	Fourth quartile
<35 years	16.0	20.1–36.0	16.2–20.0	13.8–16.1	<13.7
35–39 years	13.0	16.0–25.0	13.2–15.9	9.1–13.1	<9.0
40 years	7.1	11.1–33.3	9.1–11.0	3.7–9.0	<3.6

Note: one fertility centre missing from this calculation.

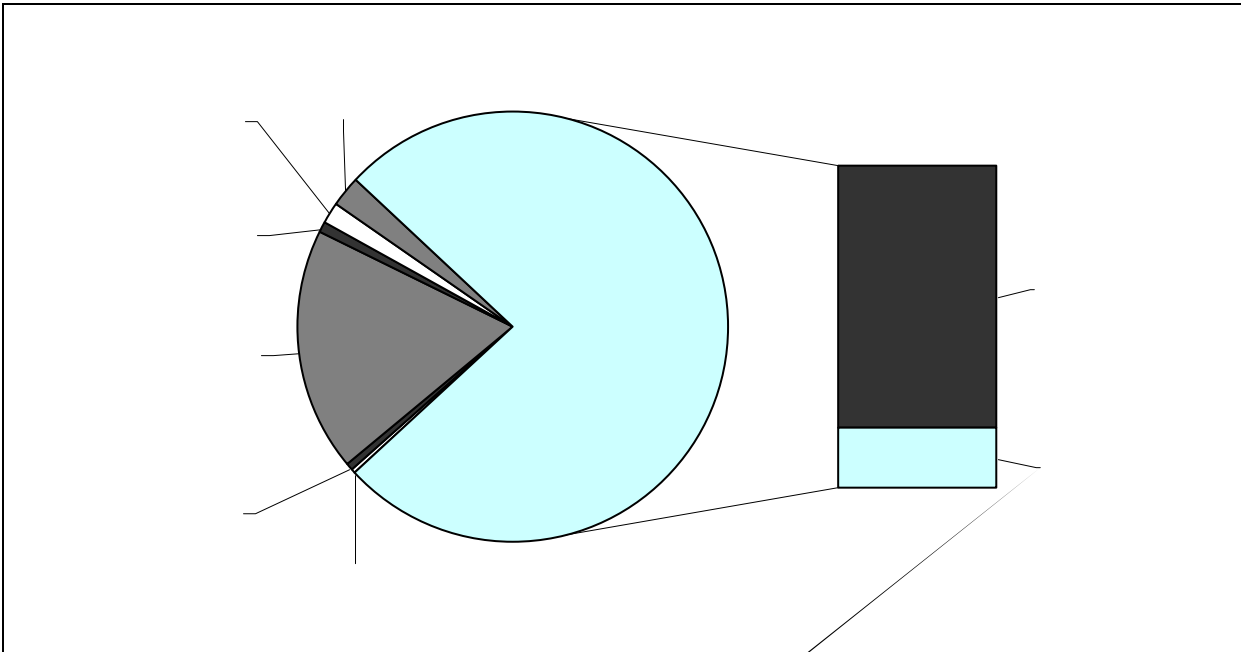
2.5 Complications of ART treatment in 2002

Has the proportion of multiple births changed since 1993?



3.2 Pregnancies achieved from ART treatment in 2002

What was the outcome of ART pregnancies in Australia and New Zealand?



What was the risk of multiple pregnancy in relation to the number of embryos transferred?

Table H: Plurality of pregnancies of 20 weeks gestation, by number of embryos transferred, Australia and New Zealand, 2002

Plurality of pregnancies 20 weeks	Number of embryos transferred					Total deliveries
	1	2	3	4 or more	Not applicable	
Singleton	1,098 (23.1%)	3,122 (65.8%)	176 (3.7%)	13 (0.3%)	339 (7.1%)	4,748
Twin	27 (2.5%)	958 (89.5%)	49 (4.6%)	5 (0.5%)	31 (2.9%)	1,070
Triplet	n.p.	21 (63.6%)	9 (27.3%)	n.p.	n.p.	33

n.p. not published due to small cell size.

Note: Not applicable includes treatments in which no embryos were transferred, such as donor insemination and GIFT.

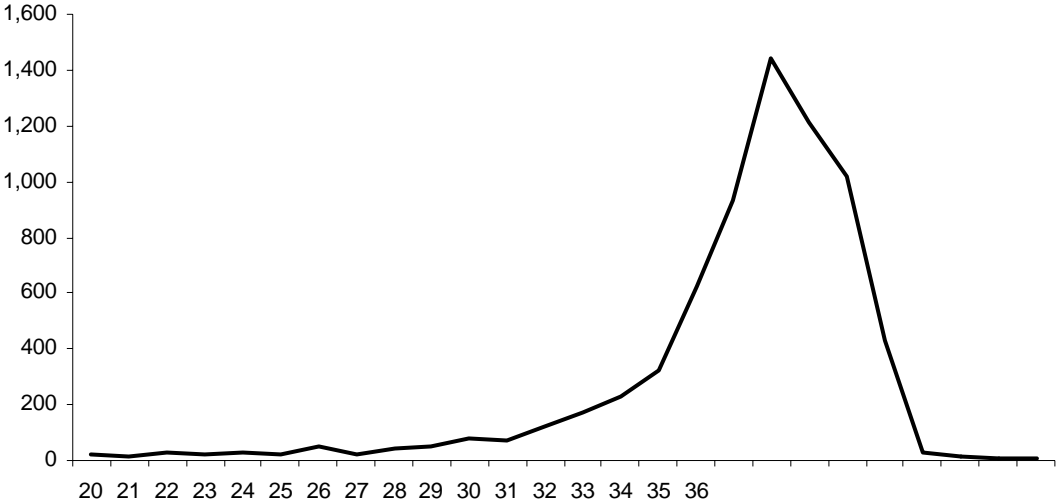
Did pregnancy outcome vary with maternal age?

What pregnancy complications were experienced in ART pregnancies in 2002?

How many deliveries w

3.3 Babies conceived in 2002

What was the risk of preterm birth for ART babies in 2002?



What was the risk for low birthweight for ART babies in 2002?

What was the sex distribution for ART babies in 2002?

What was the risk for perinatal mortality among ART babies conceived in 2002?

Glossary

Aspiration cycle:

Assisted hatching: *in vitro*

Assisted reproductive technology (ART): *in vitro* *in vitro*

Birth defect:

Blastocyst:

Cancelled cycle:

Clinical abortion:

Clinical pregnancy:

Clinical pregnancy rate:

Controlled ovarian hyperstimulation (COH):

Cryopreservation:

Delivery rate:

Early neonatal death:

Ectopic pregnancy:

Embryo:

Embryo donation:

Embryo transfer (ET):

Embryo transfer cycle:

Fertilization:

Foetus:

Full-term birth:

Gamete intrafallopian transfer (GIFT):

Gestational age:

Gestational carrier:

Gestational sac:

Hatching:

Host uterus:

Implantation:

In vitro fertilization (IVF):

Infertility:

Initiated cycles:

Intracytoplasmic (intracytoplasmic) sperm injection (ICSI):

Live birth:

Live-birth delivery rate:

Malformation rate:

Medically assisted conception:

Micromanipulation (intracytoplasmic sperm injection) assisted fertilization):

Microscopic epididymal sperm aspiration (MESA):

Missed abortion:

Neonatal death:

Newborns or infants born:

Oocyte donation:

Preclinical abortion:

Preclinical pregnancy (biochemical pregnancy):

Preimplantation genetic diagnosis (PGD):

Preterm birth:

Recipient:

Spontaneous abortion:

Stillbirth:

Subject		Table
Success of ART treatment	Type of treatment	R12
	Women's age	R13
	Fertility centre	R14, R15
Women's age	Type of treatment	R10
	Success of ART treatment	R13
	Pregnancy outcome	R19, W8
	Method of delivery	R21
	No. of embryos transferred	R8
	Gestational age/Duration of pregnancy	W9
	Multiple pregnancy	W10
	Perinatal mortality	W17
Ten-ye		

Subject		Table
Birthweight	Multiple pregnancy	R23
	Type of treatment	W13
	Pregnancy outcome	W15
Perinatal mortality	Multiple pregnancy	R25
	Type of treatment	W16
	Women's age	W17
Other	OHSS	R16
	Storage of embryos	R9
	Birth anomalies	W18
	Preimplantation genetic diagnosis (PGD)	W19
	Assisted hatching	W20
	Blastocyst culture	W21
	Special techniques of sperm retrieval	W22

Table data

Table R1: Number of treatment cycles started, pregnancies and live deliveries, 1993–2002

Stage of
treatment

Year

Types of ART procedures, number of cycles started, 2002

ART procedure	Number	Per cent
Donor	19,883	54.5
Donor	11,370	31.1
r	1,084	3.0
or	649	1.8
mination	3,419	9.4
	78	0.2
s	36,483	100.0

Types of fresh ART procedures, number of cycles started, 2002

Fresh ART procedure	Nondonor oocytes/embryos		Donor oocytes/embryos	
	Number	Per cent	Number	Per cent
	7,348	37.0	219	20.2
	9,627	48.4	274	25.3
	189	1.0	—	0

Table R8: Proportion of fresh and frozen embryo transfer cycles transferring one, two, three, and four or more embryos, by age group, 2002

	Women's age (years)		
Number of embryos	24	25-29	3

Table R10: Women's age at time of treatment, by treatment type, 2002

Maternal age group	Non donor oocytes/embryos				Donor oocytes/embryos	DI	Not stated	All
	Fresh all	Fresh ICSI	Fresh IVF	Frozen				
	Number							
24	266	154	75	135	n.p.	60	n.p.	468
25–29	2,213	1,182	751	1,382	74	475	9	4,153
30–34	6,131	3,048	2,373	4,223	199	922	25	11,500
35–39	6,935	3,316	2,585	4,014	316	1,228	31	12,524
40–44	3,971	1,780	1,457	1,512	382	652	9	6,526
45	344	139	101	95	262	68	0	765
Not stated	23	8	6	9	n.p.	14	n.p.	547
Total cycles	19,883	9,627	7,348	11,370	1,733	3,419	78	36,483
Mean age	35.3	35.0	35.3	34.5	39.4	35.1	—	35.2
	Per cent							
24	1.3	1.6	1.0	1.2	—	1.8	—	1.3
25–29	11.1	12.3	10.2	12.2	4.3	13.9	—	11.4
30–34	30.8	31.7	32.3	37.1	11.5	27.0	—	31.5
35–39	34.9	34.4	35.2	35.3	18.2	35.9	—	34.3
40–44	20.0	18.5	19.8	13.3	22.0	19.1	—	17.9
45	1.7	1.4	1.4	0.8	15.1	2.0	—	2.1
Not stated	0.1	0.1	0.1	0.1	—	0.4	—	1.5
Total cycles	100.0	100.0	100.0	100.0	100.0	100.0	—	100.0

Note: data are collected on a per treatment cycle basis and not on a per patient basis. Therefore, some individuals may be counted several times.

n.p. not published due to small cell size.

Table R11: Men's age at time of treatment, by treatment type, 2002

Paternal age group	Non donor oocytes/embryos				Donor	DI	Not stated	All
	Fresh all	Fresh ICSI	Fresh	Donor				
24	72	36	26	38	n.p.	28	n.p.	139
25-29	1,229	595	459	680	50	184	8	2,151
30-34	4,677	2,141	1,899	2,868	157	426	11	8,139
	5,517	2,553	6					

Table R15: Success for frozen non donor ART treatment, by grouped fertility centres, 2002

Fertility centre ranking	First quartile	Second quartile	Third quartile	Fourth quartile	All
Includes centres that achieved a live delivery per cycle started (%) of:	17.2–23.3	14.5–17.1	11.4–14.4	<11.3	

Table R17: Incidence of singleton, twin and higher order pregnancies, 1993–2002

Year	Singleton delivery		Twin delivery		Triplet delivery		Total deliveries
	Number	Per cent	Number	Per cent	Number	Per cent	
1993	1,666	80.0	375	18.0	41	2.0	2,082
1994	1,903	80.6	403	17.1	56	2.4	2,362
1995	2,043	79.9	465	18.2	49	1.9	2,557
1996	2,250	80.1	508	18.1	52	1.9	2,810
1997	2,480	79.4	591	18.9	51	1.6	3,122
1998	2,748	79.9	645	18.8	47	1.4	3,440
1999	3,014	78.2	789	20.5	50	1.3	3,853
2000	3,335	78.0	901	21.1	42	1.0	4,278
2001	4,087	78.3	1,097	21.0	35	0.7	5,219
2002	4,748	81.1	1,070	18.3	33	0.6	5,851

Table R18: Outcome of ART pregnancies, by treatment type, 2002

Table R19: Total number of pregnancies and live deliveries, by maternal age, 2002

	Women's age (years)								Total
	<20	20–24	25–29	30–34	35–39	40–44	45	Not stated	
Pregnancies	4	104	1,070	2,958	2,614	738	81	8	7,577
Per cent of total	0.1	1.4	14.1	39.0	34.5	9.7	1.1	0.1	100.0
Live deliveries	4	79	870	2,348	1,937	435	58	6	5,737
Per cent of total	0.1	1.4	15.2	40.9	33.8	7.6	1.0	0.1	100.0
<i>Live delivery per pregnancy (%)</i>	<i>100.0</i>	<i>76.0</i>	<i>81.3</i>	<i>79.4</i>	<i>74.1</i>	<i>58.9</i>	<i>71.6</i>	—	<i>75.7</i>

Table R20: Method of delivery for all pregnancies 20 weeks gestation, by plurality, 2002

Plurality	Method of delivery						Total deliveries
	Caesarean section		Other		Not stated		
	Number	Per cent	Number	Per cent	Number	Per cent	
Singleton	2,015	42.4	2,701	56.9	32	0.7	4,748
Twin	761	71.1	n.p.	—	n.p.	—	1,070
Triplet	31	93.9	n.p.	—	n.p.		

Table R22: Gestational age for all babies of 20 weeks, by plurality, 2002

Gestational age (weeks)	Singletons		Twins		Triplets		Total babies	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
20–27	62	1.3	108	5.0	15	15.2	185	2.6
28–31	60	1.3	150	7.0	33	33.3	243	3.5
32–36	403	8.5	1,022	47.8	51	51.5	1,476	21.1
20–36	525	11.1	1,280	59.8	99			

Table R24: Sex of all babies of 20 weeks gestation, by treatment type, 2002

	Non donor oocytes/embryos				Donor oocytes/embryos	DI	Not stated	All
	Fresh all	Fresh IVF	Fresh ICSI	Frozen				
	Number							
Male	2,331	1,044	1,229	861	144	194	13	3,543
Female	2,190	899	1,226	914	109	164	9	3,386
Not stated	32	18	14	21	2	3	0	58

ANZARD data items

Item name	Description	Codes
unit	Unit identifier	
site	Site of main treatment	For centres with multiple sites, this identifies location of most significant part of the treatment.
pat_id	Unit ID/Medical Record Number	Unique ID for patient.
mdob	Woman's date of birth	Day/month/year.
pdob	Husband/male partner DOB	Day/month/year.
don_age	Egg/embryo donor's age	Completed years at time of donation.
n_13200	Previous Medicare item 13200s	The number of billed Australian Medicare item 13200. New Zealand units leave this field blank.
ci_tube	Cause of Infertility: tub e.T2j02 663.0803 Tm(unit)Tj0 0 7tg13fub eae 20ibfas(citube)TjETEMC/P <<</MCID 8 >>BDCBT/TT3 1 1T	

Item name	Description	Codes
n_eggs	Number of eggs retrieved	Number of eggs retrieved at OPU. Include any immature oocytes that are identified.
n_donate	Number of eggs donated	Number of eggs donated to someone else.
n_recvd	Number of eggs received	Number of eggs received from someone else.
n_gift	Number of eggs GIFT	Number of eggs replaced in a GIFT procedure.
n_insem	Number of eggs IVF	Number of eggs treated with IVF.
n_icsi	Number of eggs ICSI	Number of eggs treated with ICSI.
sp_site	Site of sperm used	Site of sperm extraction: ejaculated, epididymal (whether by open biopsy or by PESA), testicular or other.
sp_persn	Person from which sperm derives	Husband/partner, known donor, or anonymous donor.
n_fert	Number of eggs fertilised normally	The number of eggs fertilised normally in the opinion of the treating embryologist.
pgd	Preimplantation genetic diagnosis	Yes —preimplantation genetic diagnosis in any form (including aneuploidy screening or sex selection) has been performed on any of the embryos (transferred or not). No—pgd not performed.
ass_hatc	Assisted hatching	Yes—where assisted hatching in any form has been performed on any of the embryos (transferred or not). No—assisted hatching not performed.
emrecimp	Number of embryos received from someone else or imported into the unit	To minimise the number of required fields in the data collection, this field serves two purposes: 1. Records the number of embryos that are to be received from donation (recipient cycle); or 2. Records the number of embryos to be imported into the current unit from another unit.
n_clthaw	Number of cleavage embryos thawed	Number of zygotes or cleavage stage embryos (up to 4 days) thawed with intention of performing an embryo transfer if they survive.
n_blthaw	Number of blastocysts thawed	Number of blastocysts (i.e. greater than 4 days culture from fertilisation) thawed with intention of performing an embryo transfer if they survive.
et_date	ET date	Embryo transfer date.
n_emb_et	Number of early embryos transferred	Number of zygote or cleavage stage embryos (i.e. up to 4 days since fertilisation) transferred.
n_bl_et	Number of blastocysts transferred	Number of blastocyst embryos (i.e. >4 days since fertilisation) transferred.
emb_icsi	Any embryos ICSI?	Yes— any embryos transferred were fertilised by ICSI. No— no transferred embryos were fertilised by ICSI.
n_clfroz	Number of zygotes/cleavage stage embryos frozen	Number of zygote or cleavage stage embryos (i.e. up to 4 days since fertilisation) frozen.
n_blfroz	Number of blastocysts frozen	Number of blastocyst embryos (i.e. >4 days since fertilisation) frozen.

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Item name	Description	Codes
pr_ectop	Ectopic pregnancy	Yes— pregnancy is an ectopic pregnancy, or a combined ectopic and uterine (heterotopic) pregnancy. No— pregnancy not ectopic or heterotopic.
pr_top	Elective termination of pregnancy	Yes— pregnancy is terminated. No— pregnancy not terminated.
pr_reduc	Selective reduction performed	Yes— selective reduction was performed due to foetal abnormality. No— selective reduction not performed.
abn_less	Foetal abnormality in a pregnancy ending <20 weeks or in a foetus removed by selective reduction	Details of elective terminations of pregnancy and foetal reductions due to foetal abnormality.
mat_comp	Maternal complications of pregnancy	Describes morbidity related to pregnancy.
n_deliv	Number of babies delivered after 20 weeks	Include all live born and stillborn babies.
CS	Caesarean delivery	Yes— delivery by planned or emergency Caesarean section. No— other.
bab1_out	Baby 1 outcome	Live born, stillborn or neonatal death.
bab1_sex	Baby 1 sex	Male or female.
bab1_wt	Baby 1 birthweight	Weight in grams.
bab1_abn		

References