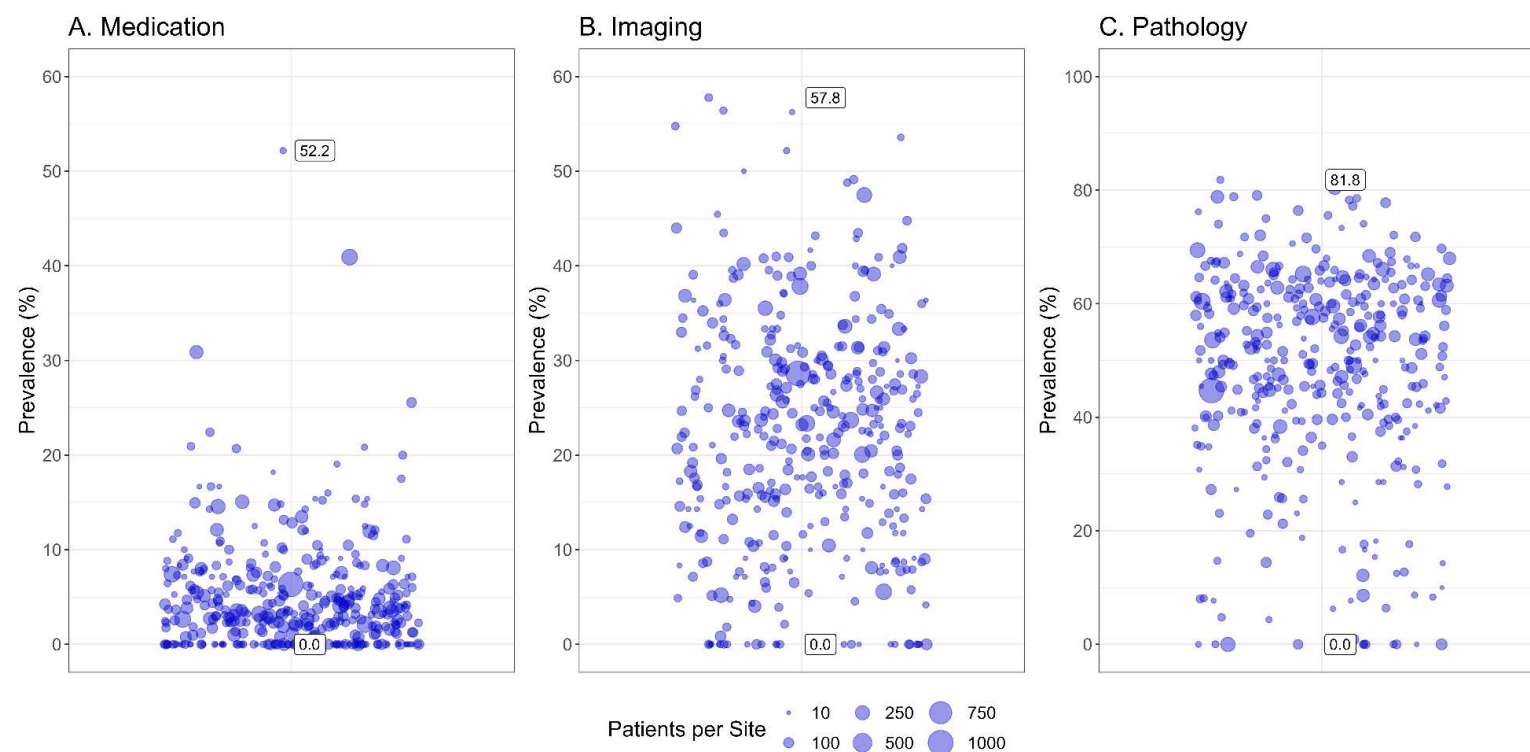


Supplementary Table S1. Definitions used to identify infertility consultations and associated clinical management

Infertility Encounters	Selected Medications	Selected Imaging	Selected Pathology
Infertility	Clomifene	Ultrasound; pelvis	Anti-Mullerian hormone
Subfertility	Letrozole	Hysterosalpingogram	Blood Group
Fertility issues	Metformin	Hystero-salpingo contrast	DHEAS
Fertility concerns		sonography	FSH
Fertility treatment			Glucose
Anovulation			Haemoglobin
Fertility – Impaired			HBA1C
Delayed fertility			Hepatitis B serology
Fertility referral			Hepatitis C serology
Impaired fertility			HIV
Fertility problem			Hormone assay
Ovulation induction			Herpes serology
Difficulty conceiving			Insulin
			LH
			Oestradiol
			Oestrogen

	Progesterone
	Prolactin
	Rhesus Antibodies
	Syphilis
	Testosterone
	Thyroid function
	- Thyroxine
	- TSH
	- T3
	Varicella serology
	Vitamin D

Supplemental Figure 1. Practice-level variation in the proportion of infertility clinical encounters where the general practitioner provided specific management, Australia 2011 to 2021



Supplementary Table S2. Number of women with an infertility encounter prescribed selected medications according to year of first encounter, Australia 2011-2021

	Year of First Infertility Encounter											P Value*	Total
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
N	1,834	1,873	2,159	2,254	2,533	2,584	2,695	2,824	2,969	2,928	3,018		27,671
Any Medication													
First Encounter	64	71	67	80	85	75	77	93	88	94	89	0.011	883
	(3.5)	(3.8)	(3.1)	(3.6)	(3.4)	(2.9)	(2.9)	(3.3)	(3.0)	(3.2)	(3.0)		(3.2)
Any Encounter	104	110	115	135	158	143	145	156	150	152	135	0.109	1,503
	(5.7)	(5.9)	(5.3)	(6.0)	(6.2)	(5.5)	(5.4)	(5.5)	(5.1)	(5.2)	(4.5)		(5.4)
Medication Type													
Clomifene	62	78	60	68	75	57	66	55	34	41	22	<0.001	618
	(3.4)	(4.2)	(2.8)	(3.0)	(3.0)	(2.2)	(2.5)	(2.0)	(1.2)	(1.4)	(0.7)		(2.2)
Metformin	56	41	65	72	85	86	77	94	98	101	93	0.162	868
	(3.1)	(2.2)	(3.0)	(3.2)	(3.4)	(3.3)	(2.9)	(3.3)	(3.3)	(3.5)	(3.1)		(3.1)
Letrozole	NR	NR	3	3	9	11	18	15	26	17	24	<0.001	129
			(0.1)	(0.1)	(0.4)	(0.4)	(0.7)	(0.5)	(0.9)	(0.6)	(0.8)		(0.5)

*linear trend test for change in proportion from 2011 to 2021

Supplemental Table S3. Pathology investigations ordered for female patients attending for infertility related encounter to Australia general practice between January 2011 to December 2021

Category	First clinical encounter		Any clinical encounter	
	Rate per 100 (95% CI)	OR (95% CI)	Rate per 100 (95% CI)	OR (95% CI)
Age group				
18-24	44.9 (42.6, 47.1)	1.04 (0.94, 1.14)	52.5 (50.2, 54.7)	0.96 (0.87, 1.06)
25-29	45.8 (44.5, 47.1)	1.08 (1.01, 1.15)	55.2 (53.9, 56.5)	1.07 (1.00, 1.14)
30-34	44.0 (42.9, 45.0)	Reference	53.6 (52.5, 54.6)	Reference
35-39	39.2 (38.1, 40.4)	0.82 (0.77, 0.88)	48.8 (47.6, 49.9)	0.82 (0.77, 0.88)
40-44	35.1 (33.4, 36.7)	0.69 (0.63, 0.75)	42.9 (41.2, 44.6)	0.65 (0.60, 0.71)
45-49	32.7 (29.3, 36.3)	0.62 (0.53, 0.73)	38.2 (34.6, 41.9)	0.54 (0.46, 0.63)
Concession status				
No concession	44.2 (43.5, 44.8)	Reference	53.7 (53.0, 54.4)	Reference
Concession holder	40.1 (38.5, 41.6)	0.92 (0.86, 0.98)	48.5 (46.9, 50.1)	0.89 (0.84, 0.96)
Not recorded	30.0 (28.0, 31.1)	0.53 (0.49, 0.57)	36.7 (35.0, 38.3)	0.50 (0.46, 0.87)
Smoking Status				
Never Smoker	45.1 (44.3, 45.9)	Reference	55.2 (54.4, 56.0)	Reference
Ex Smoker	36.5 (35.2, 37.8)	0.70 (0.66, 0.75)	45.0 (44.0, 46.4)	0.66 (0.62, 0.71)
Current Smoker	37.1 (35.7, 38.4)	0.72 (0.67, 0.77)	45.0 (43.6, 46.4)	0.66 (0.62, 0.71)
Not recorded	43.8 (41.8, 45.7)	0.94 (0.87, 1.03)	50.4 (0.48, 0.52)	0.82 (0.76, 0.90)
Remoteness				
Major City	41.4 (40.7, 42.1)	Reference	51.0 (50.3, 51.7)	Reference
Inner/Outer Regional	43.0 (41.9, 44.1)	1.07 (1.02, 1.13)	50.9 (49.7, 52.0)	0.99 (0.94, 1.05)
Remote/Very Remote	43.6 (37.96, 49.4)	1.10 (0.87, 1.38)	49.8 (44.1, 55.6)	0.95 (0.76, 1.20)
Not recorded	34.1 (25.8, 43.2)	0.74 (0.51, 1.07)	41.5 (32.7, 50.7)	0.68 (0.47, 0.97)
Socioeconomic Status				
Very Low	39.9 (38.3, 41.5)	0.97 (0.89, 1.05)	46.8 (45.2, 48.4)	0.86 (0.79, 0.93)
Low	43.3 (41.9, 44.7)	1.11 (1.03, 1.19)	51.8 (50.4, 53.3)	1.05 (0.98, 1.13)
Middle	42.9 (41.6, 44.2)	1.09 (1.02, 1.17)	52.1 (50.8, 53.4)	1.06 (0.99, 1.14)
High	42.3 (41.1, 43.5)	1.07 (1.00, 1.14)	52.2 (51.0, 53.4)	1.07 (1.00, 1.14)
Very High	40.7 (39.6, 41.9)	Reference	50.6 (49.4, 51.7)	Reference

Indigenous Status

Aboriginal and/or TSI	41.3 (37.4, 45.4)	0.98 (0.83, 1.15)	48.5 (44.4, 52.6)	0.93 (0.76, 1.05)
Non-Indigenous	41.9 (41.3, 42.6)	Reference	51.4 (50.7, 52.0)	Reference
Not recorded	41.5 (40.1, 42.8)	0.98 (0.92, 1.04)	49.4 (48.1, 50.8)	0.93 (0.87, 1.05)

Asthma

No	42.2 (41.6, 42.8)	Reference	51.3 (50.7, 51.9)	Reference
Yes	36.8 (34.5, 39.1)	0.80 (0.72, 0.88)	45.0 (42.6, 47.4)	0.78 (0.70, 0.86)

Anxiety

No	42.1 (41.5, 42.7)	Reference	51.0 (50.4, 51.6)	Reference
Yes	38.3 (36.0, 40.7)	0.86 (0.77, 0.95)	49.1 (46.7, 51.6)	0.93 (0.84, 1.02)

Depression

No	42.3 (41.6, 42.9)	Reference	51.3 (50.7, 51.9)	Reference
Yes	37.3 (35.3, 39.3)	0.81 (0.75, 0.89)	46.6 (44.5, 48.6)	0.83 (0.76, 0.90)

PCOS

No	42.0 (41.4, 42.6)	Reference	51.1 (50.5, 51.7)	Reference
Yes	38.1 (35.3, 41.0)	0.85 (0.75, 0.96)	46.5 (43.6, 49.4)	0.83 (0.74, 0.94)

Diabetes

No	41.9 (41.3, 42.5)	Reference	51.0 (50.4, 51.6)	Reference
T1DM	37.0 (24.3, 51.3)	0.82 (0.47, 1.42)	42.6 (29.2, 56.8)	0.71 (0.42, 1.22)
T2DM	38.2 (29.6, 47.4)	0.86 (0.60, 1.24)	44.7 (35.8, 53.9)	0.78 (0.55, 1.11)

Abbreviations: OR, odds ratio; CI, confidence interval; TSI, Torres Strait Islander; PCOS, polycystic ovarian syndrome; T1DM, Type 1 Diabetes Mellitus; T2DM, Type 2 Diabetes Mellitus.

Supplementary Table S4. Number of women with an infertility encounter ordered selected imaging according to year of first encounter, Australia 2011-2021

	Year of First Infertility Encounter											P	Total
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Value*	
N	1,834	1,873	2,159	2,254	2,533	2,584	2,695	2,824	2,969	2,928	3,018		27,671
Any Imaging													
First Encounter	185	240	358	367	416	470	523	568	630	623	687	<0.001	5,067
	(10.1)	(12.8)	(16.6)	(16.3)	(16.4)	(18.2)	(19.4)	(20.1)	(21.2)	(21.3)	(22.8)		(18.3)
Any Encounter	239	308	460	461	534	606	678	708	790	795	821	<0.001	6,400
	(13.0)	(16.4)	(21.3)	(20.5)	(21.1)	(23.5)	(25.2)	(25.1)	(26.6)	(27.2)	(27.2)		(23.1)
Imaging Type													
Ultrasound; pelvis	232	302	449	451	523	593	656	692	773	782	814	<0.001	6,267
	(12.7)	(16.1)	(20.8)	(20.0)	(20.7)	(23.0)	(24.3)	(24.5)	(26.0)	(26.7)	(27.0)		(22.7)
Hysterosalpingogram	8	26	23	13	14	15	41	28	30	16	13	0.272	227
	(0.4)	(1.4)	(1.1)	(0.6)	(0.6)	(0.6)	(1.5)	(1.0)	(1.0)	(0.6)	(0.4)		(0.8)
Hystero-salpingo	NR	NR	4	3	3	8	9	5	12	13	10	<0.001	69

contrast sonography	(0.2)	(0.1)	(0.1)	(0.3)	(0.3)	(0.2)	(0.4)	(0.4)	(0.3)	(0.3)
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*linear trend test for change in proportion from 2011 to 2021

Supplementary Table S5. Number of women with an infertility encounter ordered selected pathology tests according to year of first encounter, Australia 2011-2021

	Year of First Infertility Encounter											P	Total
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Value*	
N	1,834	1,873	2,159	2,254	2,533	2,584	2,695	2,824	2,969	2,928	3,018		27,671
Any Pathology													
First Encounter	569	659	806	898	1,037	1,052	1,144	1,236	1,391	1,326	1,458	<0.001	11,576
	(31.0)	(35.2)	(37.3)	(39.8)	(40.9)	(40.7)	(42.5)	(43.8)	(46.9)	(45.3)	(48.3)		(41.8)
Any Encounter	681	793	988	1,057	1,271	1,309	1,403	1,525	1,672	1,651	1,740	<0.001	14,090
	(37.1)	(42.3)	(45.8)	(46.9)	(50.2)	(50.7)	(52.1)	(54.0)	(56.3)	(56.4)	(57.7)		(50.9)
Pathology Type													
AMH	41	101	133	149	176	168	230	310	359	395	463	<0.001	2,525
	(2.2)	(5.4)	(6.2)	(6.6)	(7.0)	(6.5)	(8.5)	(11.0)	(12.1)	(13.5)	(15.3)		(9.1)
Blood Group	72	122	133	173	182	197	217	289	295	305	340	<0.001	2,325
	(3.9)	(6.5)	(6.2)	(7.7)	(7.2)	(7.6)	(8.1)	(10.2)	(9.9)	(10.4)	(11.3)		(8.4)
DHEAS	29	34	52	58	102	105	101	114	146	153	157	<0.001	1,051

	(1.6)	(1.8)	(2.4)	(2.6)	(4.0)	(4.1)	(3.8)	(4.0)	(4.9)	(5.2)	(5.2)		(3.8)
FSH	332	418	552	637	747	750	800	855	914	905	934	<0.001	7,844
	(18.1)	(22.3)	(25.6)	(28.3)	(29.5)	(29.0)	(30.0)	(30.3)	(30.8)	(30.9)	(31.0)		(28.4)
Glucose	164	177	242	287	361	409	413	453	553	501	565	<0.001	4,125
	(8.9)	(9.5)	(11.2)	(12.7)	(14.3)	(15.8)	(15.3)	(16.0)	(18.6)	(17.1)	(18.7)		(14.9)
Haemoglobin	410	513	644	726	867	927	1,008	1,108	1,250	1,243	1,322	<0.001	10,018
	(22.4)	(27.4)	(29.8)	(32.2)	(34.2)	(35.9)	(37.4)	(39.2)	(42.1)	(42.5)	(43.8)		(36.2)
HBA1C	12	11	28	41	76	108	150	234	257	297	306	<0.001	1,520
	(0.7)	(0.6)	(1.3)	(1.8)	(3.0)	(4.2)	(5.6)	(8.3)	(8.7)	(10.1)	(10.1)		(5.5)
Hep B Serology	104	155	193	253	279	296	361	428	451	495	523	<0.001	3,538
	(5.7)	(8.3)	(8.9)	(11.2)	(11.0)	(11.5)	(13.4)	(15.2)	(15.2)	(16.9)	(17.3)		(12.8)
Hep C Serology	49	108	133	173	194	208	278	332	342	386	401	<0.001	2,604
	(2.7)	(5.8)	(6.2)	(7.7)	(7.7)	(8.1)	(10.3)	(11.8)	(11.5)	(13.2)	(13.3)		(9.4)
HIV	81	143	177	231	260	272	338	405	411	473	504	<0.001	3,295
	(4.4)	(7.6)	(8.2)	(10.3)	(10.3)	(10.5)	(12.5)	(14.3)	(13.8)	(16.2)	(16.7)		(11.9)
Hormone Assay	3	3	NR	3	3	NR	6	9	7	4	6	0.180	47
	(0.2)	(0.2)		(0.1)	(0.1)		(0.2)	(0.3)	(0.2)	(0.1)	(0.2)		(0.2)
Herpes Serology	NR	4	NR	NR	3	5	7	6	10	10	3	0.095	54

		(0.2)			(0.1)	(0.2)	(0.3)	(0.2)	(0.3)	(0.3)	(0.1)		(0.2)
Insulin	42	40	62	59	79	96	78	110	133	145	159	<0.001	1,003
	(2.3)	(2.1)	(2.9)	(2.6)	(3.1)	(3.7)	(2.9)	(3.9)	(4.5)	(5.0)	(5.3)		(3.6)
LH	324	413	551	629	731	735	793	836	902	884	917	<0.001	7,715
	(17.7)	(22.1)	(25.5)	(27.9)	(28.9)	(28.4)	(29.4)	(29.6)	(30.4)	(30.2)	(30.4)		(27.9)
Oestradiol	184	223	293	360	402	460	469	531	564	538	651	<0.001	4,675
	(10.0)	(11.9)	(13.6)	(16.0)	(15.9)	(17.8)	(17.4)	(18.8)	(19.0)	(18.4)	(21.6)		(16.9)
Oestrogen	55	112	146	116	175	153	181	177	210	189	173	0.002	1,687
	(3.0)	(6.0)	(6.8)	(5.2)	(6.9)	(5.9)	(6.7)	(6.3)	(7.1)	(6.5)	(5.7)		(6.1)
Progesterone	413	493	623	687	782	830	889	934	984	929	1,020	<0.001	8,584
	(22.5)	(26.3)	(28.9)	(30.5)	(30.9)	(32.1)	(33.0)	(33.1)	(33.1)	(31.7)	(33.8)		(31.0)
Prolactin	197	277	380	380	461	485	455	589	568	618	654	<0.001	5,064
	(10.7)	(14.8)	(17.6)	(16.9)	(18.2)	(18.8)	(16.9)	(20.9)	(19.1)	(21.1)	(21.7)		(18.3)
Rhesus Antibodies	58	106	117	154	150	153	209	259	254	262	321	<0.001	2,043
	(3.2)	(5.7)	(5.4)	(6.8)	(5.9)	(5.9)	(7.8)	(9.2)	(8.6)	(9.0)	(10.6)		(7.4)
Syphilis	47	97	119	154	187	179	234	285	276	346	386	<0.001	2,310
	(2.6)	(5.2)	(5.5)	(6.8)	(7.4)	(6.9)	(8.7)	(10.1)	(9.3)	(11.8)	(12.8)		(8.4)
Testosterone	82	108	171	207	260	318	327	408	453	459	500	<0.001	3,293

	(4.5)	(5.8)	(7.9)	(9.2)	(10.3)	(12.3)	(12.1)	(14.5)	(15.3)	(15.7)	(16.6)		(11.9)
Thyroid Function	474	559	705	797	948	977	1,062	1,142	1,268	1,310	1,344	<0.001	10,586
	(25.9)	(29.9)	(32.7)	(35.4)	(37.4)	(37.8)	(39.4)	(40.4)	(42.7)	(44.7)	(44.5)		(38.3)
Varicella Serology	72	113	141	215	258	260	300	368	390	440	455	<0.001	3,012
	(3.9)	(6.0)	(6.5)	(9.5)	(10.2)	(10.1)	(11.1)	(13.0)	(13.1)	(15.0)	(15.1)		(10.9)
Vitamin D	138	170	222	275	300	297	356	452	514	567	577	<0.001	3,868
	(7.5)	(9.1)	(10.3)	(12.2)	(11.8)	(11.5)	(13.2)	(16.0)	(17.3)	(19.4)	(19.1)		(14.0)

*linear trend test for change in proportion from 2011 to 2021