National Institute for Health and Care Excellence

Draft for consultation

Fertility problems: assessment and treatment

[A] Ovarian reserve testing

NICE guideline number NGXXX

Evidence reviews underpinning recommendations 1.3.7, 1.3.8, 1.3.9 and 1.9.2 in the NICE guideline

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This evidence review was developed by NICE

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Ovarian reserve testing

Review question

What is the association between markers of ovarian reserve and:

- the likelihood of spontaneous conception
- the response to fertility treatment
- the outcome of fertility treatment?

Introduction

Ovarian reserve refers to a measure of the number of oocytes in the ovaries that may potentially be capable of resulting in a baby. Several million oocytes are present in non-growing follicles in the ovaries in fetal life. Throughout life, there is a decline in the number of follicles, culminating in the menopause when there are approximately 1000 follicles remaining in the ovaries.

A number of tests are used to estimate ovarian reserve, including anti-mullerian hormone (AMH) in the blood, follicle-stimulating hormone (FSH) in the blood and antral follicle count (AFC) measured using a vaginal ultrasound scan. None of these is an actual count of oocytes, rather they reflect the size of the remaining pool of oocytes.

The aim of this review is to determine the association between these markers of ovarian reserve and the likelihood of spontaneous conception, response to fertility treatment and the outcome of fertility treatment.

Summary of the protocol

See Table 1 for a summary of the Population, Presence or absence of the prognostic factor, and Outcome (PPO) characteristics of this review.

Table 1: Summary of the protocol (PPO table)

Population	People undergoing ovarian reserve testing to investigate subfertility (defined as not achieving a pregnancy after at least 12 months of regular unprotected sexual intercourse, or after at least 6 cycles of artificial insemination)

Presence or absence of the prognostic factor	Prognostic factors:
	Markers of ovarian reserve*:
	• Anti-mullerian hormone (AMH), also known as mullerian inhibiting hormone:
	  ○ below normal threshold (as defined by study) marker of diminished ovarian reserve
	  ○ above threshold may be a marker of increased risk of ovarian hyperstimulation syndrome (OHSS)
	• Antral follicle count (AFC):
	  ○ below normal threshold (as defined by study) marker of diminished ovarian reserve
	  ○ above threshold may be a marker of increased risk of OHSS
	• Follicle-stimulating hormone (FSH):
	  ○ above normal threshold (as defined by study) marker of diminished ovarian reserve

	*Where available adjusted estimates (and details on the set of adjustment factors) will be extracted Comparison: • For unadjusted estimates: Values in the normal range on markers of ovarian reserve • For adjusted estimates: Prognostic value of the ovarian reserve marker independent of other (established) prognostic factors

Outcome	**Critical**
	• Spontaneous conception (includes home insemination):
	  ○ Live birth (as defined by study, risk of bias assessments will reflect where this is not defined as a live birth to include a gestational age of ≥ 20 weeks)
	  ○ Clinical pregnancy (as defined by study, risk of bias assessments will reflect where this is not defined as an ultrasound scan that has shown at least one fetal heart rate)
	• Response to fertility treatment:
	  ○ Reduced number of retrieved oocytes (threshold defined by study)
	  ○ Ovarian Hyperstimulation Syndrome (OHSS)
	  ○ Cycle cancellation due to low response (insufficient eggs)
	  ○ Cycle cancellation due to risk of ovarian hyperstimulation syndrome (OHSS)
	• Outcomes of fertility treatment:
	  ○ Live birth (as defined by study, risk of bias assessments will reflect where this is not defined as a live birth to include a gestational age of ≥ 20 weeks)
	  ○ Clinical pregnancy (as defined by study, risk of bias assessments will reflect where this is not defined as an ultrasound scan that has shown at least one fetal heart rate)
	Important
	None

For further details see the review protocol in appendix A.

Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. Methods specific to this review question are described in the review protocol in appendix A and the methods document (supplementary document 1).

Given the size and perceived variation in quality of the potential evidence base, post-hoc amendments to the protocol were made after the search had been conducted (but prior to data extraction) in order to prioritise high quality studies that were reflective of current clinical practice. Eligibility criteria limited to prospective studies that had at least 100 participants, conducted from the year 2000.

Declarations of interest were recorded according to NICE's conflicts of interest policy.

Prognostic evidence

Included studies

Twenty-three prospective cohort studies were included in the review (Azmoudeh 2018, Barriere 2022, Ben-Haroush 2011, Brodin 2013, Fadini 2011, Ficicioglu 2014, Friden 2011,

Grynnerup 2019, Holte 2011, Hsieh 2001, Irez 2011, Jayaprakasan 2012, Karimzadeh 2009, Korsholm 2018, Lee 2009, Liao 2019, Maged 2020, Sahmay 2012, Sahmay 2013, Silva 2016, Xi 2012, Zebitay 2017, Zhang 2019).

The included studies are summarised in Table 2.

Seventeen studies compared different levels of serum anti-mullerian hormone (AMH) (Azmoudeh 2018, Barriere 2022, Brodin 2013, Fadini 2011, Ficicioglu 2014, Friden 2011, Grynnerup 2019, Irez 2011, Korsholm 2018, Lee 2009, Maged 2020, Sahmay 2012, Sahmay 2013, Silva 2016, Xi 2012, Zebitay 2017, Zhang 2019), 4 studies compared different levels of serum follicle-stimulating hormone (FSH) (Karimzadeh 2009, Sahmay 2012, Sahmay 2013, Zebitay 2017), and 9 studies compared different total antral follicle counts (AFC) (Ben-Haroush 2011; Holte 2011, Hsieh 2001, Jayaprakasan 2012, Liao 2019, Sahmay 2012, Sahmay 2013, Zebitay 2017, Zhang 2019). Studies all reported varying cut-off levels for low, normal and high AMH levels, FSH levels, and AFC.

Of the studies comparing different levels of AMH, 8 studies used the DSL assay kit (Brodin 2013, Fadini 2011, Friden 2011, Irez 2011, Maged 2020, Lee 2009, Sahmay 2012, Sahmay 2013), 3 studies used the Beckman assay (Ficicioglu 2014, Xi 2012, Zebitay 2017), 2 studies used the automated Elecsys assay from Roche Diagnostics (Grynnerup 2019, Korsholm 2018), and 1 study used different assays to measure AMH levels depending on the year of collection (Beckman from 2012-2013, Quest Diagnostics in 2014, and Roche Diagnostics from 2015: Silva 2016). Three studies did not report which assay was used to measure AMH (Azmoudeh 2018, Barriere 2022, Zhang 2019), and no studies reported use of the PICO assay.

The mean age of included participants were <35 years in 16 studies (Azmoudeh 2018, Barriere 2022, Ben-Haroush 2011, Fadini 2011, Ficicioglu 2014, Hsieh 2001, Irez 2011, Jayaprakasan 2012, Korsholm 2018, Lee 2009, Liao 2019, Sahmay 2012, Sahmay 2013, Xi 2012, Zebitay 2017, Zhang 2019), and 35 to 39 years in 4 studies (Brodin 2013, Holte 2011, Maged 2020, Silva 2016). Two studies did not report the mean age of the participants but did report the median age and age range of the participants (Friden 2011: 42 (range: 39-46) years; Grynnerup 2019: 36 (range: 34-38) years). One study did not report participant characteristics at baseline but grouped included participants according to 2 age ranges (<37 years and ≥37 years old: Karimzadeh 2009). There were no studies that reported a mean age of 40 to 42 years or >42 years.

See the literature search strategy in appendix B and study selection flow chart in appendix C.

Excluded studies

Studies not included in this review are listed, and reasons for their exclusion are provided in appendix J.

Summary of included studies

Summaries of the studies that were included in this review are presented in Table 2.

Table 2: Summary of included studies

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
Azmoudeh 2018	N=160 infertile women: • Mean age (SD): 33 (6.1) years	Serum AMH: • ≤0.6 • >0.6	• Clinical pregnancy per cycle	Information on which assay was used to measure AMH was not reported.

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
Prospective cohort study Iran	• Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): Not reported • Mean AFC at baseline (SD): Not reported	Unit of measurement was not reported		All participants underwent IVF or ICSI
Barriere 2022 Prospective cohort study France	N=235 infertile women: • Mean age (SD): 32.5 (4.6) years • Mean duration of infertility (SD): 3.1 (1.9) years • Mean AMH at baseline (SD): 2.3 (1.7) ng/ml • Mean FSH at baseline (SD): 7.7 (2.8) IU/l • Mean AFC at baseline (SD): Not reported ○ AFC <8: n=23 (12.3%)* *Denominator not reported	<u>Serum AMH:</u> • <1.1 ng/mL • 1.1 to <5 ng/mL • ≥5 ng/mL	• Reduced number of retrieved oocytes per cycle	A fully automated assay was used to measure AMH, but no other information on the assay was reported. All participants underwent IVF or ICSI
Ben-Haroush 2011 Prospective cohort study Israel	N=115 women undergoing fresh IVF cycles Women who did not achieve pregnancy (n=77): • Mean age (SD): 33.6 (6.0) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): Not reported • Mean total AFC at baseline (SD): 11.3 (5.3) Women who achieved pregnancy (n=38): • Mean age (SD): 32.3 (5.0) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported	<u>Total AFC (all follicles 2-10mm):</u> • <15 • ≥15	• Clinical pregnancy per cycle	All participants underwent IVF or ICSI Study also reported results according to small AFC (follicles 2-5mm) but these data were not extracted

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean FSH at baseline (SD): Not reported • Mean total AFC at baseline (SD): 13.7 (5.8)			

Brodin 2013
 	
Prospective cohort study
 	
Sweden
	N=892 women undergoing n=1230 IVF with ICSI cycles (observations):
	• Mean age at OPU (SD): 36 (4.2) years
	• Mean duration of infertility (SD): Not reported
	• Mean AMH at baseline (SD): Not reported
	  ○ AMH range at baseline: 0.06 to 26.3 ng/ml
	  ○ Mean log-transformed AMH values at baseline (SD): 2.3 (2.5) ng/ml
	• Mean FSH at baseline (SD): Not reported
	• Mean AFC at baseline (SD): Not reported
		<u>Serum log AMH:</u>
		• <0.84 ng/ml
		• 0.84 - 2.94 ng/ml
		• >2.94 ng/ml
		
		Cut-offs were based on the 25th and 75th serum AMH percentiles
			• Live birth per cycle
			• Clinical pregnancy per cycle
			• OHSS
				Serum levels of AMH were analysed by ELISA using the DSL kit.
				
				Because of a skewed distribution, AMH values were log-transformed.
				
				All participants underwent ICSI

Fadini 2011 Prospective cohort study Italy	N=177 women selected for an IVM procedure: • Mean age (SD): 33.3 (2.89) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): 3.32 (2.34) g/ml • Mean FSH at baseline (SD): 5.9 (1.76) mIU/ml • Mean total AFC at baseline (SD): 9.14 (3.39)	<u>Serum AMH:</u> • >1.28 ng/ml • ≤ 1.28 ng/ml	• Clinical pregnancy per cycle • Clinical pregnancy per transfer	AMH was measured using an enzymatic two-site immunoassay (ELISA) using the DSL kit. All participants underwent IVF with IVM
Ficicioglu 2014 Prospective cohort study Turkey	N=311 women undergoing their first IVF treatment cycle Women who did not achieve pregnancy (n=187): • Mean age (SD): 34.51 (5.75) years • Mean duration of infertility (SD): 4.75 (4.46) years	<u>Serum AMH:</u> • ≤1 ng/ml • >1 ng/ml • ≤0.5 ng/ml • >0.5 ng/ml	• Clinical pregnancy per cycle	AMH was measured using an ultrasensitive ELISA (Beckman Coulter). All participants underwent ICSI

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean AMH at baseline (SD): 2.174 (1.52) ng/ml • Mean FSH at baseline (SD): 7.63 (3.15) IU/l • Mean AFC at baseline (SD): Not reported Women who achieved pregnancy (n=124): • Mean age (SD): 31.43 (4.56) years • Mean duration of infertility (SD): 4.40 (3.09) years • Mean AMH at baseline (SD): 1.47 (1.24) ng/ml • Mean FSH at baseline (SD): 8.37 (4.03) IU/l • Mean AFC at baseline (SD): Not reported			
Friden 2011 Prospective cohort study Sweden	N=127 women undergoing a first cycle of IVF/ICSI treatment Women with AMH ≤8.6 pmol/L (n=90): • Mean age (SD): Not reported. Median (range): 42 (39-45) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): Not reported • Mean AFC at baseline (SD): Not reported Women with AMH >8.6 pmol/L (n=37): • Mean age (SD): Not reported. Median (range): 42 (39-46) years • Sex (female/male): 37/0 • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported	<u>Serum AMH:</u> • ≤8.6 pmol/L • >8.6 pmol/L • ≤5 pmol/L* • >5 pmol/L* * For the outcome 'reduced number of oocytes retrieved' only	• Live birth per cycle • Clinical pregnancy per cycle • Reduced number of retrieved oocytes per cycle • Cycle cancellation due to low response	AMH was measured using commercial DSL ELISA assay kits. All participants underwent IVF or ICSI

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean FSH at baseline (SD): Not reported • Mean AFC at baseline (SD): Not reported			
Grynnerup 2019 Prospective cohort study Denmark	N=107 women who started ovarian stimulation with hMG: • Mean age (SD): Not reported. Median (IQR): 36 (34-38) years • Mean duration of infertility (SD): Not reported. Median (IQR): 24 (18–36) months • Mean AMH at baseline (SD): Not reported. Median (IQR): 5.0 (3.3-8.3) pmol/L • Mean FSH at baseline (SD): Not reported. Median (IQR): 10.0 (8.0-13.2) IU/l • Mean AFC at baseline (SD): Not reported. Median (IQR): 8 (5-11)	Serum AMH: • <4 pmol/L • ≥4 pmol/L	• Live birth per cycle	AMH was measured with the automated Elecsys AMH assay (Roche Diagnostics). All participants underwent IVF or ICSI
Holte 2011 Prospective cohort study Sweden	N=2092 women undergoing n=4308 IVF with ICSI cycles (observations): • Mean age (SD): 35.3 (4.2) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): Not reported • Mean AFC at baseline (SD): 19.2 (11.7)	Total AFC (all follicles 2-10mm): • ≤ 5 • 6-23 • >23	• Live birth per cycle • Clinical pregnancy per cycle	All participants underwent ICSI
Hsieh 2001 Prospective cohort study China	N=372 cycles (n=343 couples) in infertile women receiving controlled ovarian hyperstimulation (COH) and IVF-ET Women with ≤3 AFC (n=32): • Mean age (SD): 35.3 (4.0) years	Total AFC (all follicles 2–10 mm; follicles >10 mm were excluded): • ≤3 • 4–10 • ≥11	• Clinical pregnancy per cycle • Clinical pregnancy per transfer	All participants underwent IVF-ET

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean basal day 3 FSH (SD): 14.3 (10.4) mIU/ml • Mean AFC (SD): 2.1 (0.7) Women with 4–10 AFC (n=223): • Mean age (SD): 31.9 (4.2) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean basal day 3 FSH (SD): 5.9 (5.4) mIU/ml • Mean AFC (SD): 7.2 (2.1) Women with ≥11 AFC (n=117): • Mean age (SD): 28.5 (3.6) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean basal day 3 FSH (SD): 4.1 (3.1) mIU/ml • Mean AFC (SD): 16.1 (5.3)			
Irez 2011 Prospective cohort study Turkey	N=209 women undergoing IVF with ICSI Women in AMH percentile ≤10 (n=21): • Mean age (SD): 32.0 (3.0) years • Mean duration of infertility (SD): 7.5 (4.1) years • Mean AMH at baseline (SD): 0.54 (0.30) ng/ml • Mean FSH at baseline (SD): 10.0 (5.9) mIU/ml	<u>Serum AMH:</u> • ≤0.89 ng/ml • 0.89 - 8.06 ng/ml • >8.06 ng/ml	• Clinical pregnancy per cycle	AMH was measured using the enzyme-linked immunosorbent assay (ELISA) kit (DSL) All participants underwent ICSI

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean AFC at baseline (SD): 4.1 (2.5) Women in AMH percentile 10-25 (n=31): • Mean age (SD): 32.3 (3.7) years • Mean duration of infertility (SD): 7.4 (4.2) years • Mean AMH at baseline (SD): 1.15 (0.14) ng/ml • Mean FSH at baseline (SD): 6.7 (3.5) mIU/ml • Mean AFC at baseline (SD): 6.2 (3.0) Women in AMH percentile 25-50 (n=53): • Mean age (SD): 30.9 (3.8) years • Mean duration of infertility (SD): 7.0 (4.0) years • Mean AMH at baseline (SD): 2.11 (0.39) ng/ml • Mean FSH at baseline (SD): 6.7 (2.8) mIU/ml • Mean AFC at baseline (SD): 7.1 (3.2) Women in AMH percentile 50-75 (n=28): • Mean age (SD): 30.0 (3.7) years • Mean duration of infertility (SD): 7.6 (3.3) years • Mean AMH at baseline (SD): 3.31 (0.27) ng/ml • Mean FSH at baseline (SD): 6.8 (4.6) mIU/ml • Mean AFC at baseline (SD): 6.2 (4.6) Women in AMH percentile 75-90 (n=55): • Mean age (SD): 29.3 (3.7) years			

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean duration of infertility (SD): 6.5 (3.3) years • Mean AMH at baseline (SD): 5.46 (1.27) ng/ml • Mean FSH at baseline (SD): 5.4 (1.5) mIU/ml • Mean AFC at baseline (SD): 13.3 (6.3) Women in AMH percentile ≥90 (n=21): • Mean age (SD): 28.4 (3.1) years • Mean duration of infertility (SD): 5.6 (3.5) years • Mean AMH at baseline (SD): 10.4 (2.08) ng/ml • Mean FSH at baseline (SD): 5.5 (1.6) mIU/ml • Mean AFC at baseline (SD): 13.0 (6.6)			
Jayaprakasan 2012 Prospective cohort study UK	N=1012 women undergoing their first cycle of IVF or ICSI treatment: • Mean age (SD): 34.3 (4.3) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 6.6 (2.1) IU/L • Mean AFC at baseline (SD), n: 18.5 (11.6)	Total AFC (all follicles 2-10mm): • 3-10 • 11-22 • ≥23	• Live birth per cycle • OHSS	All participants underwent IVF or ICSI
Karimzadeh 2009 Prospective cohort study Iran	N=207 women with first IVF/ICSI cycles No other baseline characteristics reported	Serum FSH: • <10 mIU/ml • ≥10 mIU/ml	• Clinical pregnancy per cycle • Cycle cancellation due to low response	All participants underwent IVF or ICSI
Korsholm 2018 Prospective cohort study Denmark	N=260 women, including healthcare workers and women consulting a fertility clinic: • Mean age (SD): 32.9 (4.06) years	Serum AMH: • <9.5 pmol/l • 9.5-33.0 pmol/l • >33.0 pmol/l	• Clinical pregnancy (spontaneous conception) • Clinical pregnancy (spontaneous	AMH was measured with the automated Elecsys AMH assay (Roche Diagnostics). Participants in the study did not all receive ART;

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean duration of infertility (SD): Not reported • Median AMH at baseline (90% population limits): 17.9 (3.7–66.3) pmol/l • Mean FSH at baseline (SD): Not reported • Mean AFC at baseline (SD): Not reported		unplanned conception)	initiating fertility treatment was analysed as an outcome in the study separate to achievement of pregnancy
Lee 2009 Prospective cohort study Taiwan	N=336 women undergoing their first IVF/ICSI procedures Women aged <35 years (n=213): • Mean age (SD): 30.8 (0.2) years • Mean duration of infertility (SD): 3.2 (0.2) years • Mean AMH at baseline (SD): 2.73 (0.13) ng/ml • Mean FSH at baseline (SD): 7.60 (0.26) IU/L • Mean AFC at baseline (SD): Not reported Women aged ≥35 years (n=123): • Mean age (SD): 38.6 (0.2) years • Mean duration of infertility (SD): 4.7 (0.3) years • Mean AMH at baseline (SD): 1.85 (0.15) ng/ml • Mean FSH at baseline (SD): 9.63 (0.47) IU/L • Mean AFC at baseline (SD): Not reported	<u>Serum log AMH</u> • No cut-off values given (ORs reported) Because of a skewed distribution, AMH values were log-transformed.	• Live birth (aORs)	Serum AMH measurements were assessed using the ELISA kit (DSL). All participants underwent IVF or ICSI
Liao 2019 Prospective cohort study China	N=8269 infertile women undergoing their IVF/ICSI treatment Women who did not achieve pregnancy (n=5343): • Mean age (SD): 31.5 (4.8) years	<u>AFC:</u> • 1-8* • 9-12 • 13-17 • ≥18 *reference group in the regression analysis	• Clinical pregnancy (aORs)	All participants underwent IVF or ICSI

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean duration of infertility (SD): 4.0 (3.3) years • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 7.3 (1.9) mIU/mL • Mean AFC at baseline (SD): 12.8 (5.7) Women who achieved pregnancy (n=2926): • Mean age (SD): 30.4 (4.1) years • Mean duration of infertility (SD): 3.6 (2.6) years • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 7.3 (1.9) mIU/mL • Mean AFC at baseline (SD): 14.0 (5.5)	Participants were categorized into 4 groups according to AFC quartiles. Study does not reported the size of the antral follicles or whether the grouping was based on total antral follicle count or otherwise.		
Maged 2020 Prospective cohort study Egypt	N=185 poor responder women Women with AMH <0.3 ng/ml (n=41): • Mean age (SD): 36.51 (5.134) years • Mean duration of infertility (SD): 6.10 (3.68) years • Mean AMH at baseline (SD): 0.201 (0.062) ng/ml • Mean FSH at baseline (SD): 11.64 (4.140) mIU/ml • Mean AFC at baseline (SD): 3.73 (1.361) Women with AMH 0.3–0.7 ng/ml (n=78): • Mean age (SD): 36.17 (5.233) years • Mean duration of infertility (SD): 6.23 (3.104) years	<u>Serum AMH:</u> • <0.3 ng/ml • 0.3-0.7 ng/ml • >0.7-1 ng/ml	• Clinical pregnancy per cycle • Cycle cancellation due to low response	AMH was measured using an enzyme-linked immunosorbent assay (ELISA) kit (DSL). All participants underwent ICSI

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean AMH at baseline (SD): 0.515 (0.121) ng/ml • Mean FSH at baseline (SD): 9.41 (3.363) mIU/ml • Mean AFC at baseline (SD): 4.64 (1.238) Women with AMH >0.7–1 ng/ml (n=66): • Mean age (SD): 33.68 (5.744) years • Mean duration of infertility (SD): 5.73 (2.814) years • Mean AMH at baseline (SD): 0.898 (0.092) ng/ml • Mean FSH at baseline (SD): 8.52 (2.683) mIU/ml • Mean AFC at baseline (SD): 5.32 (1.112)			
Sahmay 2012 Prospective cohort study Turkey	N=189 consecutive women with infertility Women who did not achieve pregnancy (n=142): • Mean age (SD): 31.7 (4.7) years • Mean duration of infertility (SD): 7.0 (4.2) years • Mean AMH at baseline (SD): 3.8 (3.0) ng/mL • Mean FSH at baseline (SD): 6.2 (2.0) mIU/mL • Mean total AFC at baseline (SD): 8.7 (5.3) Women who achieved pregnancy (n=47) • Mean age (SD): 30.7 (4.0) years • Mean duration of infertility (SD): 6.6 (4.2) years • Mean AMH at baseline (SD): 3.9 (2.5) ng/mL	<u>Serum AMH:</u> • <1.81 ng/mL • 1.81-4.92 ng/mL • >4.92 ng/mL <u>Total AFC (all follicles 2–9 mm):</u> • <5 follicles • 5-10.5 follicles • >10.5 follicles <u>Serum FSH:</u> • <4.92 ng/mL • 4.92-6.97 ng/mL • >6.97 ng/mL Participants were categorized into groups according to quartiles.	• Clinical pregnancy per cycle	AMH was measured in duplicate using the enzyme-linked immunosorbent assay (ELISA) kit (DSL). All participants underwent IVF or ICSI

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean FSH at baseline (SD): 5.7 (2.1) mIU/mL • Mean total AFC at baseline (SD): 9.6 (5.1)			
Sahmay 2013 Prospective cohort study Turkey	N=150 consecutive women with PCOS Women who did not achieve pregnancy (n=99): • Mean age (SD): 29.6 (4.33) years • Mean duration of infertility (SD): 5.94 (3.34) years • Mean AMH at baseline (SD): 7.16 (4.29) ng/mL • Mean FSH at baseline (SD): 4.78 (2.81) mIU/mL • Mean total AFC at baseline (SD): 12.25 (5.33) Women who achieved pregnancy (n=51): • Mean age (SD): 28.6 (3.86) years • Mean duration of infertility (SD): 5.75 (3.23) years • Mean AMH at baseline (SD): 6.79 (2.9) ng/mL • Mean FSH at baseline (SD): 5.44 (3.83) mIU/mL • Mean total AFC at baseline (SD): 13.61 (4.5)	<u>Serum AMH:</u> • <4.23 ng/mL • 4.23-8.66 ng/mL • >8.66 ng/mL <u>Serum FSH:</u> • <4.03 mIU/mL • 4.03-5.98 mIU/mL • >5.98 mIU/mL <u>Total AFC (all follicles 2-9mm):</u> • <9 follicles • 9-17 follicles • >17 follicles Participants were categorized into groups according to quartiles.	• Clinical pregnancy per cycle	AMH was measured in duplicate using the enzyme-linked immunosorbent assay (ELISA) kit (DSL). All participants underwent IVF
Silva 2016 Prospective cohort study Brazil	N=287 women undergoing antagonist ICSI cycles Women with AMH ≤0.30 (n=64): • Mean age (SD): 37.83 (4.11) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported	<u>Serum AMH:</u> • ≤0.7 ng/mL • >0.7 to <3.0 ng/mL • ≥3.0 ng/mL	• Cycle cancellation due to low response	The assay used to measure AMH depended on the year of collection: • 2012-2013: an enzymatically amplified two-site immunoassay AMH Gen II ELISA (Beckman Coulter) • 2014: dual monoclonal antibodies in a chemiluminescent

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean FSH at baseline (SD): 12.45 (8.24)* • Mean AFC at baseline (SD): 6.75 (3.47) Women with AMH >0.30 to ≤0.70 (n=76): • Mean age (SD): 38.61 (3.67) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 8.95 (5.54)* • Mean AFC at baseline (SD): 9.11 (4.93) Women with AMH >0.70 to ≤1.0 (n=32): • Mean age (SD): 38.15 (3.0) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 7.99 (3.86)* • Mean AFC at baseline (SD): 9.53 (3.74) Women with AMH >1.0 to <3.0 (n=86): • Mean age (SD): 37.23 (3.64) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 7.40 (3.11)* • Mean AFC at baseline (SD): 12.60 (5.24) Women with AMH ≥3.0 (n=29): • Mean age (SD): 35.48 (3.97) years			immunoassay (Quest Diagnostics) • From 2015: automated Elecsys AMH assay (Roche Diagnostics). All participants underwent ICSI

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 6.81 (2.11)* • Mean AFC at baseline (SD): 17.58 (7.64) *Unit of measurement not reported			
Xi 2012 Prospective cohort study China	N=164 women with PCOS undergoing ovarian stimulation IVF cycles Women with low AMH (≤4.85 ng/ml; n=41): • Mean age (SD): 28.63 (3.35) years • Mean duration of infertility (SD): not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 6.25 (1.28) IU/L • Mean AFC at baseline (SD): Not reported Women with average AMH (4.85-8.82 ng/ml; n=82): • Mean age (SD): 28.80 (3.71) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 6.42 (1.34) IU/L • Mean AFC at baseline (SD): Not reported Women with high AMH (≥8.82 ng/ml; n=41): • Mean age (SD): 28.07 (3.42) years • Mean duration of infertility (SD): Not reported	<u>Serum AMH:</u> • ≤4.85 ng/ml • 4.85-8.82 ng/ml • ≥8.82 ng/ml Participants were categorized into groups according to quartiles.	• Clinical pregnancy • Cycle cancellation due to risk of OHSS	AMH was assessed by a second-generation ELISA (Beckman Coulter). All participants underwent IVF

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean AMH at baseline (SD): not reported • Mean FSH at baseline (SD): 6.27 (1.05) IU/L • Mean AFC at baseline (SD): Not reported			
Zebitay 2017 Prospective cohort study Turkey	N=304 women with POR Women who did not achieve pregnancy after ET (n=181): • Mean age (SD): 32.4 (4.1) years • Mean duration of infertility (SD): 7.4 (4.1) years • Mean AMH at baseline (SD): 0.75 (0.45) ng/mL • Mean FSH at baseline (SD): 7.4 (4.3) mIU/mL • Mean AFC at baseline (SD): 5.5 (2.9) Women who achieved pregnancy after ET (n=22): • Mean age (SD): 32.1 (3.9) years • Mean duration of infertility (SD): 5.8 (2.9) years • Mean AMH at baseline (SD): 0.88 (0.35) ng/ml • Mean FSH at baseline (SD): 7.3 (2.4) mIU/mL • Mean AFC at baseline (SD): 5.5 (2.6) Women who did not have ET performed because of failed oocyte retrieval/ fertilisation (n=101): • Mean age (SD): 33.3 (3.8) years • Mean duration of infertility (SD): 7.4 (4.4) years • Mean AMH at baseline (SD): 0.38 (0.36) ng/ml • Mean FSH at baseline (SD): 8.2 (2.9) mIU/mL	<u>Serum AMH:</u> • <0.21 ng/mL • 0.21-0.97 ng/mL • >0.97 ng/mL <u>Serum FSH:</u> • <5.3 mIU/mL • 5.3-9.8 mIU/mL • >9.8 mIU/mL <u>AFC:</u> • ≤3 follicles • 4-6 follicles • >6 follicles Participants were categorized into groups according to quartiles.	• Clinical pregnancy	AMH was measured with an enzymatically amplified two-sided immunoassay (Gen 2 Elisa, Beckman Coulter). All participants underwent ICSI

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean AFC at baseline (SD): 5.2 (1.8)			
Zhang 2019 Prospective cohort study China	N=1121 infertile women undergoing IVF/ICSI Women with AFC and AMH levels in the normal range (AFC ≥7 and AMH ≥1.1 ng/ml; n=611): • Mean age (SD): 32.69 (4.59) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): 3.46 (1.88) ng/ml • Mean FSH at baseline (SD): 7.48 (2.20) mIU/mL • Mean AFC at baseline (SD): 12.29 (4.08) Women with normal AFC and low AMH levels (AFC ≥7 and AMH <1.1 ng/ml; n=85): • Mean age (SD): 33.98 (4.89) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): 0.76 (0.24) ng/ml • Mean FSH at baseline (SD): 8.81 (2.87) mIU/mL • Mean AFC at baseline (SD): 8.47 (1.72) Women with low AFC and normal AMH levels (AFC <7 and AMH ≥1.1 ng/ml; n=118): • Mean age (SD): 36.81 (4.79) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): 1.94 (1.03) ng/ml	<u>Total AFC (all follicles 2-10mm) and serum AMH:</u> • AFC ≥7 and AMH ≥1.1 ng/ml • AFC ≥7 and AMH <1.1 ng/ml • AFC <7 and AMH ≥1.1 ng/ml • AFC <7 and AMH <1.1 ng/ml Participants were divided into 4 groups according to the boundaries for the AFC and AMH level in the ovarian reserve test provided by the “Bologna criteria”.	• Clinical pregnancy	Serum AMH levels were analysed by enzyme-linked immunosorbent assay (ELISA). All participants underwent IVF or ICSI

Study	Population	Prognostic factor(s) of interest	Outcomes	Comments
	• Mean FSH at baseline (SD): 10.14 (4.57) mIU/mL • Mean AFC at baseline (SD): 4.53 (1.41) Women with low AFC and low AMH levels (AFC <7 and AMH <1.1 ng/ml; n=307): • Mean age (SD): 37.74 (5.16) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): 0.51 (0.30) ng/ml • Mean FSH at baseline (SD): 11.24 (4.83) mIU/mL • Mean AFC at baseline (SD): 3.69 (1.59)			

AFC: antral follicle count; AMH: anti-mullerian hormone; aOR: adjusted odds ratio; ART: assisted reproductive treatment; COH: controlled ovarian hyperstimulation; DSL: Diagnostic Systems Lab; ELISA: enzyme linked immunosorbent assay; ET: embryo transfer; FF: follicular fluid; FSH: follicle-stimulating hormone; hMG: human menopausal gonadotropin; ICSI: intracytoplasmic sperm injection; IQR: interquartile range; IVF: in-vitro fertilisation; IVM: in-vitro maturation; N: number; OHSS: ovarian hyperstimulation syndrome; OPU: ovum pick-up; PCOS: polycystic ovarian syndrome; POR: poor ovarian response; SD: standard deviation; SE: standard error

See the full evidence tables in appendix D and the forest plots in appendix E.

Summary of the evidence

Very low quality evidence from a single study showed no association between AMH levels and spontaneous clinical pregnancy in the short or long term for participants who did not receive ART during the study.

For participants receiving IVF with or without ICSI, low AMH levels and low AFC at baseline were associated with a reduced likelihood of live birth and clinical pregnancy per cycle when compared with normal levels (low and normal levels as defined by the studies; low to very low quality evidence). However, when participants who did not undergo embryo transfer were excluded, very low quality evidence showed no association between low AMH levels or low AFC at baseline and clinical pregnancy rate per transfer. Low quality evidence showed low AMH levels at baseline were associated with an increased risk of cycle cancellation due to poor response. Very low quality evidence from 2 studies showed very serious heterogeneity and considerable imprecision (very wide confidence intervals which crossed the line of no effect) for the outcome reduced number of retrieved oocytes per cycle. However, when these studies were assessed separately, they both showed a strong association between low AMH levels and a reduced number of retrieved oocytes per cycle. The studies which reported adjusted odds ratios (adjusted for at least both age and duration of infertility) were consistent with these findings and provided a higher quality of evidence (moderate to high quality).

High AMH levels and high AFC at baseline were associated with an increased risk of OHSS and cycle cancellation due to risk of OHSS when compared with normal levels (low to very low quality).

FSH levels showed no association with likelihood of clinical pregnancy or risk of cycle cancellation due to poor response; there was no important difference between normal and high FSH levels for these outcomes. This evidence was all very low quality. There was no evidence for the outcome live birth.

Overall, normal AMH levels and normal AFC tended to be associated with the best fertility treatment outcomes, whereas high AMH levels and high AFC were associated with a higher risk of OHSS. FSH did not demonstrate predictive ability as an ovarian reserve marker. There was limited available evidence on spontaneous conception outcomes.

Although the studies all used different cut-offs for grouping participants according to low, normal, and high AMH and FSH levels and AFCs, the different thresholds did not seem to introduce heterogeneity or to account for inconsistency where this was present.

See appendix F for full GRADE tables.

Economic evidence

A total of 1,209 studies were identified in the health economic literature search for this review question. After duplicates were removed, a total of 736 studies were screened on title and abstract. All 736 studies were excluded at this stage and no studies were ordered for full text screening.

Included studies

A systematic review of the economic literature was conducted but no economic studies were identified which were applicable to this review question.

Also see the literature search strategy in appendix B and the economic study selection flow chart in appendix G.Excluded studies

Economic studies not included in this review are listed, and reasons for their exclusion are provided in appendix J.

Economic model

No economic modelling was undertaken for this review because the committee agreed that other topics were higher priorities for economic evaluation.

Unit costs

Resource	Unit costs	Source
Anti-mullerian hormone (AMH) test	£70	https://www.nth.nhs.uk/services/assisted-reproduction-unit/private-treatment-fees/#investigations Note this is a private fee and not an NHS cost
Antral follicle count test	£64 to £236	National Schedule of NHS Costs 2021/22 transvaginal ultrasound, Directly Accessed Diagnostic Services, Currency Code MA36Z

Resource	Unit costs	Source
		National Schedule of NHS Costs 2021/22 transvaginal ultrasound, Outpatient Procedures, Currency Code MA36Z, Service Code 502, Gynaecology Service
Follicle-stimulating hormone test	£7.00	National Schedule of NHS Costs 2023/24. Currency code PATH04, clinical biochemistry, DAPS, 502: Gynaecology service

The committee's discussion and interpretation of the evidence

The outcomes that matter most

The committee agreed that live birth was a critical outcome because it is the most important outcome for people with fertility problems. The committee highlighted that it was also important to make clinical pregnancy a critical outcome as this tends to be reported in preference to live birth rates. The committee acknowledged that clinical pregnancy rates do not allow for differentiation between full-term pregnancy and pregnancy loss but agreed that this outcome is still of value as an indicator of fertility in the absence of live birth outcome reporting. Reduced number of retrieved oocytes and cycle cancellation due to poor response were also considered to be critical outcomes because they indicate a lower chance of success with ART. The committee also emphasised that OHSS and cycle cancellation due to risk of OHSS were critical outcomes because it is important to understand if tests of ovarian reserve can be used to predict people in need of modified IVF protocols to prevent OHSS, which can be a serious condition.

The quality of the evidence

The quality of the evidence was assessed using GRADE methodology and was rated as high to very low quality.

When evidence was downgraded, this was mainly because of risk of bias assessed using the Quality in Prognostic Studies (QUIPS) checklist and imprecision in the effect estimate. There was also publication bias in the case of 1 study (Barriere 2022), and an indirect population due to lack of information on whether some of the participants were having subfertility investigated in the case of 1 study (Korsholm 2018). When outcomes were downgraded for risk of bias, this tended to be due to lack of information reported on the included participants or on the measurement of the prognostic factor, inappropriate methods of measuring the outcome, lack of adjustment for confounders/lack of information reported on the analysis affecting the ability to extract adjusted odds ratios, and/or selective reporting of results.

Benefits and harms

The committee reviewed the evidence and discussed the lack of good quality evidence showing any association between AMH levels and spontaneous clinical pregnancy. The committee agreed that testing of AMH levels should not be used to predict spontaneous conception in people with subfertility (defined as not achieving a pregnancy after at least 12 months of regular unprotected sexual intercourse, or after at least 6 cycles of artificial insemination), based on the lack of evidence of its predictive ability.

Based on the moderate quality evidence of an independent association between AMH levels and live birth as an outcome of IVF, supplemented by the lower quality evidence of association between AMH levels and clinical pregnancy, the committee agreed that AMH should be used as a prognostic indicator for ART outcomes. However, they noted that when clinical pregnancy was reported per transfer (whereby participants who did not undergo

embryo transfer were excluded from the outcome), there was no important difference between those with normal and low AMH. They also considered the evidence that showed participants with low AMH levels were more likely to experience cycle cancellation due to a poor ovarian response. The committee agreed that the evidence indicated live birth and pregnancy rates were likely lower in the groups with low AMH because of a lack of response to treatment rather than problems occurring after transfer, and that AMH levels were therefore most useful as an indicator specifically for ovarian response to ART. This was supported by evidence that high AMH levels were predictive of ovarian hyperstimulation syndrome in response to fertility treatment. Although fewer studies reported on AFC, the evidence base included moderate to high quality evidence showing an independent association between AFC and clinical pregnancy, and the committee agreed AFC showed similar ability to AMH in terms of predicting ovarian response. The committee were also aware of existing systematic reviews which compared the diagnostic abilities of AMH and AFC and showed similar predictive ability for these markers of ovarian reserve (Broer 2011, Liu 2023). Based on the evidence reviewed and the clinical knowledge and experience of the committee, either AMH or AFC were recommended as predictors of ovarian response and likelihood of live birth following assisted conception. The committee noted that using AFC to predict ovarian response to fertility treatment would be particularly useful if the patient was already receiving a vaginal ultrasound, as it would prevent the need for an additional AMH test. However, the committee noted that appropriate training to perform AFC is not universally available, and AFC is subject to higher inter-observer variability then inter-assay variability for AMH. Based on these considerations the committee agreed that both AMH and AFC should be options.

The committee noted that most outcomes had no serious inconsistency, and where there was heterogeneity between studies it was not accounted for by the specific threshold or AMH assay used. Based on the absence of consistent thresholds in the evidence, and that AMH thresholds are assay-specific, the committee were not able to include in the recommendations specific thresholds for when a patient should be considered to have a low or high ovarian reserve.

The committee also discussed whether IVF should not be offered to those with particularly low AMH or AFC. Some committee members expressed concern that if a patient's ovarian reserve is extremely low then offering IVF treatment would incur high costs and could engender false hope in the patient. However, the majority of the committee agreed that AMH levels or AFC should not be used as access criteria, in order to prevent the risk of arbitrary cut-off points being used to deny access to treatment for people who could still have a chance of success with IVF, particularly given the lack of consistent thresholds for low, normal, and high ovarian reserve levels. AMH and AFC tests can also have discordant results, which the committee agreed supports the decision not to restrict access to IVF based on one measure alone and the importance of considering ovarian reserve alongside other clinical factors in order to decide access. Evidence Report J reviews clinical prediction models for predicting the likelihood of live birth and measures of ovarian reserve are included in several of these models. The committee agreed that in terms of access it was most appropriate to consider ovarian reserve test results alongside a number of other clinical variables that predict the chance of successful fertility treatment, and so the committee agreed that ovarian reserve should be taken into account when discussing the option of IVF.

The committee considered the evidence which showed FSH had no predictive ability in terms of clinical pregnancy or cycle cancellation due to poor response, and recommended that FSH levels should not be used as a predictor of ovarian response or outcome of assisted conception. The evidence base for FSH was less robust than for AMH and AFC and was all very low quality; the committee agreed this reflected current practice whereby FSH is now rarely used as an ovarian reserve marker. However, they were aware that FSH is still occasionally offered as a cheaper alternative to an AMH test despite its lack of predictive

ability, and therefore agreed that a negative recommendation should be made for FSH to prevent it being offered in the future.

Cost effectiveness and resource use

In the absence of any included evidence or original economic analysis, the committee made a qualitative assessment of the cost-effectiveness of their recommendations.

Whilst the committee recognised that follicle-stimulating hormone (FSH) was a cheaper test, they considered it was unlikely to be cost effective as there was no evidence that it could be used to predict clinical pregnancy or cycle cancellation. Whilst the committee noted that FSH is infrequently used in current practice as a marker of ovarian reserve, they believed that it was sometimes provided as a cheaper alternative to anti-Müllerian hormone (AMH). Therefore, the committee concluded their recommendation not to use FSH may promote a more efficient use of NHS resources by promoting disinvestment in ineffective testing.

The committee also acknowledged that it is good clinical practice to offer AMH and antral follicle count (AFC) as tests for ovarian reserve to predict the outcome of ART – and that AMH alone does not have proven predictive ability of pregnancy through spontaneous conception for people with subfertility if used in isolation. The committee therefore made recommendations in line to reflect this.

The committee also agreed that their recommendation to not use AMH measurement alone as a predictor of clinical pregnancy, was potentially cost-saving as it would prevent the unnecessary use of tests.

As the committee made recommendations reflective of best clinical practice and noted that when best clinical practice was not being implemented it was likely resulting in an inefficient use of NHS resources. The committee concluded that their recommendations would either be cost-saving or cost neutral and are not expected to lead to a significant resource impact or large change in current practice.

Recommendations supported by this evidence review

This evidence review supports recommendations 1.3.7, 1.3.8, 1.3.9 and 1.9.2.

References – included studies

Prognostic

Azmoudeh 2018

Azmoudeh, A., Shahraki, Z., Hoseini, F.-S. et al. (2018) In vitro fertilization success and associated factors: A prospective cohort study. International Journal of Women's Health and Reproduction Sciences 6(3): 350-355

Barriere 2022

Barriere, P., Procu-Buisson, G., Avril, C. et al. (2022) Added value of anti-Mullerian hormone serum concentration in assisted reproduction clinical practice using highly purified human menopausal gonadotropin (HP-hMG). Journal of gynecology obstetrics and human reproduction 51(2): 102289

Ben-Haroush 2011

Ben-Haroush, A., Farhi, J., Zahalka, Y. et al. (2011) Small antral follicle count (2-5 mm) and ovarian volume for prediction of pregnancy in in vitro fertilization cycles. Gynecological

endocrinology : the official journal of the International Society of Gynecological Endocrinology 27(10): 748-52

Brodin 2013

Brodin, T., Hadziosmanovic, N., Berglund, L. et al. (2013) Antimullerian hormone levels are strongly associated with live-birth rates after assisted reproduction. The Journal of clinical endocrinology and metabolism 98(3): 1107-14

Fadini 2011

Fadini, R., Comi, R., Mignini Renzini, M. et al. (2011) Anti-mullerian hormone as a predictive marker for the selection of women for oocyte in vitro maturation treatment. Journal of assisted reproduction and genetics 28(6): 501-8

Ficicioglu 2014

Ficicioglu, C., Cenksoy, P.O., Yildirim, G. et al. (2014) Which cut-off value of serum anti-Mullerian hormone level can predict poor ovarian reserve, poor ovarian response to stimulation and in vitro fertilization success? A prospective data analysis. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 30(5): 372-6

Friden 2011

Friden, B.; Sjoblom, P.; Menezes, J. (2011) Using anti-Mullerian hormone to identify a good prognosis group in women of advanced reproductive age. The Australian & New Zealand journal of obstetrics & gynaecology 51(5): 411-5

Grynnerup 2019

Grynnerup, A.G., Lossl, K., Pilsgaard, F. et al. (2019) Prediction of the lower serum anti-Mullerian hormone threshold for ovarian stimulation prior to in-vitro fertilization using the Elecsys R AMH assay: a prospective observational study. Reproductive biology and endocrinology : RB&E 17(1): 11

Holte 2011

Holte, J., Brodin, T., Berglund, L. et al. (2011) Antral follicle counts are strongly associated with live-birth rates after assisted reproduction, with superior treatment outcome in women with polycystic ovaries. Fertility and sterility 96(3): 594-9

Hsieh 2001

Hsieh, Y.Y., Chang, C.C., Tsai, H.D. (2001) Antral follicle counting in predicting the retrieved oocyte number after ovarian hyperstimulation. Journal of assisted reproduction and genetics 18(6): 320-4

Irez 2011

Irez, T., Ocal, P., Guralp, O. et al. (2011) Different serum anti-Mullerian hormone concentrations are associated with oocyte quality, embryo development parameters and IVF-ICSI outcomes. Archives of gynecology and obstetrics 284(5): 1295-301

Jayaprakasan 2012

Jayaprakasan, K., Chan, Y., Islam, R. et al. (2012) Prediction of in vitro fertilization outcome at different antral follicle count thresholds in a prospective cohort of 1,012 women. Fertility and sterility 98(3): 657-63

Karimzadeh 2009

Karimzadeh, M.A. and Ghandi, S. (2009) Age and basal FSH as a predictor of ART outcome. Iranian Journal of Reproductive Medicine 7(1): 19-22

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Korsholm, A-S., Petersen, K.B., Bentzen, J.G. et al. (2018) Investigation of anti-Mullerian hormone concentrations in relation to natural conception rate and time to pregnancy. Reproductive biomedicine online 36(5): 568-575

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Lee, T-H., Liu, C-H., Huang, C-C. et al. (2009) Impact of female age and male infertility on ovarian reserve markers to predict outcome of assisted reproduction technology cycles. Reproductive biology and endocrinology : RB&E 7: 100

Liao 2019

Liao, SJ., Xiong, J., Tu, H. et al. (2019) Prediction of in vitro fertilization outcome at different antral follicle count thresholds combined with female age, female cause of infertility, and ovarian response in a prospective cohort of 8269 women. Medicine 98(41): e17470

Maged 2020

Maged, A.M., Nabil, H., Dieb, A.S. et al. (2020) Prediction of metaphase II oocytes according to different levels of serum AMH in poor responders using the antagonist protocol during ICSI: a cohort study. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 36(8): 728-733

Sahmay 2012

Sahmay, S., Demirayak, G., Guralp, O. et al. (2012) Serum anti-mullerian hormone, follicle stimulating hormone and antral follicle count measurement cannot predict pregnancy rates in IVF/ICSI cycles. Journal of assisted reproduction and genetics 29(7): 589-95

Sahmay 2013

Sahmay, S., Guralp, O., Aydogan, B. et al. (2013) Anti-Mullerian hormone and polycystic ovary syndrome: assessment of the clinical pregnancy rates in in vitro fertilization patients. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 29(5): 440-3

Silva 2016

Silva, J.B., Panaino, T.R., Tamm, M.A. et al. (2016) Prediction of metaphase II oocytes according to different serum Anti-Mullerian hormone (AMH) levels in antagonist ICSI cycles. JBRA assisted reproduction 20(4): 222-226

Xi 2012

Xi, W.; Gong, F.; Lu, G. (2012) Correlation of serum Anti-Mullerian hormone concentrations on day 3 of the in vitro fertilization stimulation cycle with assisted reproduction outcome in polycystic ovary syndrome patients. Journal of assisted reproduction and genetics 29(5): 397-402

Zebitay 2017

Zebitay, A.G., Cetin, O., Verit, F.F. et al. (2017) The role of ovarian reserve markers in prediction of clinical pregnancy. Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology 37(4): 492-497

Zhang 2019

Zhang, Y., Xu, Y., Xue, Q. et al. (2019) Discordance between antral follicle counts and anti-Mullerian hormone levels in women undergoing in vitro fertilization. Reproductive biology and endocrinology : RB&E 17(1): 51

Economic

None.

Other

Broer 2011

Broer S.L., Dólleman M., Opmeer B.C. et. al. (2011) AMH and AFC as predictors of excessive response in controlled ovarian hyperstimulation: a meta-analysis. Hum Reprod Update. Jan-Feb;17(1):46-54.

Liu 2023

Liu Y., Pan Z., Wu Y. et. al. (2023) Comparison of anti-Müllerian hormone and antral follicle count in the prediction of ovarian response: a systematic review and meta-analysis. J Ovarian Res. Jun 27;16(1):117.

Appendices

Appendix A Review protocols

Review protocol for review question: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

Table 3: Review protocol

ID	Field	Content
0.	PROSPERO registration number	CRD42023422019
1.	Review title	Associations between markers of ovarian reserve and the likelihood of spontaneous conception, the response to fertility treatment, and the outcome of fertility treatment
2.	Review question	What is the association between markers of ovarian reserve and: • the likelihood of spontaneous conception • the response to fertility treatment • the outcome of fertility treatment?
3.	Objective	To determine whether markers of ovarian reserve are associated with the likelihood of spontaneous conception, or response to and outcome of fertility treatment
4.	Searches	The following databases will be searched (with no date restrictions): Clinical searches • Cochrane Central Register of Controlled Trials (CENTRAL) • Cochrane Database of Systematic Reviews (CDSR) • Embase • MEDLINE ALL • Epistemonikos

ID	Field	Content
		Searches will be restricted by: • English language • Human studies The guideline committee will decide whether and when to re-run the searches before final submission of the review to retrieve further studies for inclusion. The full search strategies for MEDLINE database will be published in the final review.
5.	Condition or domain being studied	Investigations for female factor fertility problems
6.	Population	Inclusion: People undergoing ovarian reserve testing to investigate subfertility (defined as not achieving a pregnancy after at least 12 months of regular unprotected sexual intercourse, or after at least 6 cycles of artificial insemination)

7.	Prognostic factors	Markers of ovarian reserve*:
		• Anti-mullerian hormone (AMH), also known as mullerian inhibiting hormone:
		  ○ below normal threshold (as defined by study) marker of diminished ovarian reserve
		  ○ above threshold may be a marker of increased risk of ovarian hyperstimulation syndrome (OHSS)
		• Antral follicle count (AFC):
		  ○ below normal threshold (as defined by study) marker of diminished ovarian reserve
		  ○ above threshold may be a marker of increased risk of OHSS
		• Follicle-stimulating hormone (FSH):
		  ○ above normal threshold (as defined by study) marker of diminished ovarian reserve
		
		*Where available adjusted estimates (and details on the set of adjustment factors) will be extracted

8.	Comparator	• For unadjusted estimates: Values in the normal range on markers of ovarian reserve • For adjusted estimates: Prognostic value of the ovarian reserve marker independent of other (established) prognostic factors
9.	Types of study to be included	• Systematic reviews of cohort studies • Prospective cohort studies

ID	Field	Content
		• If insufficient prospective cohort studies: retrospective cohort studies
10.	Other exclusion criteria	Other exclusion criteria: • Language limitations: studies published not in English-language • Conference abstracts will not be considered
11.	Context	This guidance will fully update the following NICE guideline: Fertility problems: assessment and treatment (last updated 2017; CG156)

12.	Primary outcomes (critical outcomes)	• Spontaneous conception (includes home insemination):
		  ○ Live birth (as defined by study, risk of bias assessments will reflect where this is not defined as a live birth to include a gestational age of ≥ 20 weeks)
		  ○ Clinical pregnancy (as defined by study, risk of bias assessments will reflect where this is not defined as an ultrasound scan that has shown at least one fetal heart rate)
		• Response to fertility treatment:
		  ○ Reduced number of retrieved oocytes (threshold defined by study)
		  ○ Ovarian hyperstimulation syndrome (OHSS)
		  ○ Cycle cancellation due to low response (insufficient eggs)
		  ○ Cycle cancellation due to risk of ovarian hyperstimulation syndrome (OHSS)
		• Outcomes of fertility treatment:
		  ○ Live birth (as defined by study, risk of bias assessments will reflect where this is not defined as a live birth to include a gestational age of ≥ 20 weeks)
		  ○ Clinical pregnancy (as defined by study, risk of bias assessments will reflect where this is not defined as an ultrasound scan that has shown at least one fetal heart rate)

13.	Secondary outcomes (important outcomes)	N/A
14.	Data extraction (selection and coding)	All references identified by the searches and from other sources will be uploaded into EPPI and de-duplicated. Titles and abstracts of the retrieved citations will be screened to identify studies that potentially meet the inclusion criteria outlined in the review protocol. Dual sifting will be performed on at least 10% of records; 90% agreement is required. Disagreements will be resolved via discussion between the two reviewers, and consultation with senior staff if necessary. Full versions of the selected studies will be obtained for assessment. Studies that fail to meet the inclusion criteria once the full version has been checked will be excluded at this stage. Each study excluded after checking the full

ID	Field	Content
		version will be listed, along with the reason for its exclusion. A standardised form will be used to extract data from studies. The following data will be extracted: study details (reference, country where study was carried out, type and dates), participant characteristics (including age and duration of infertility), inclusion and exclusion criteria, details of the ovarian reserve markers (including thresholds), details of any prognostic factors adjusted for, setting, time period or number of cycles over which the outcome was predicted (the unit of analysis), relevant outcome data and source of funding. One reviewer will extract relevant data into a standardised form, and this will be quality assessed by a senior reviewer.
15.	Risk of bias (quality) assessment	Quality assessment of individual studies will be performed using the following checklists: • ROBIS tool for systematic reviews • Quality in Prognostic Studies (QUIPS) tool for prognostic studies The quality assessment will be performed by one reviewer and this will be quality assessed by a senior reviewer.
16.	Strategy for data synthesis	Where multiple studies report on the same marker of ovarian reserve and the definitions used and approach to analysis in the primary papers is sufficiently consistent, the evidence will be meta-analysed using Cochrane Review Manager software. Adjusted and unadjusted estimates will be considered in separate analyses, and adjusted estimates will be prioritised. For meta-analyses of adjusted estimates, only estimates that adjust for a core/minimal set of prognostic factors (female age and duration of infertility) will be included (although studies may also adjust for other prognostic factors in addition to this core set). Random effects meta-analyses will be conducted (to allow for unexplained heterogeneity across prognosis studies) and data will be presented as risk ratios if possible or odds ratios when required (for example, if only an adjusted odds ratio is reported). In addition to separate analyses for adjusted and unadjusted estimates, separate meta-analyses will be conducted for risk ratios and odds ratios, and for different thresholds or cut-offs (where relevant). Heterogeneity in the effect estimates of the individual studies will be assessed by visual inspection of the forest plots and consideration of the I2 statistic. Heterogeneity will be explored as appropriate using sensitivity analyses and pre-specified subgroup analyses. If heterogeneity cannot be explained through subgroup analysis then the data will not be pooled. The confidence in the findings across all available evidence will be evaluated for each outcome using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group: http://www.gradeworkinggroup.org/". An association between markers of ovarian reserve and outcome was considered clinically important where RR/OR <0.80 and >1.25.
17.	Analysis of sub-groups	Evidence will be sub-grouped by the following only in the event that there is significant heterogeneity in outcomes: • For unadjusted estimates: Age (based on mean age of participants in each study): ○ <35 years

ID	Field	Content			
		○ 35 to 39 years ○ 40 to 42 years ○ >42 years • Assay used (for AMH only): ○ DSL ○ Beckman ○ PICO Where evidence is subgrouped the committee will consider on a case by case basis if separate recommendations should be made for distinct groups. Separate recommendations may be made where there is evidence of a differential effect of interventions in distinct groups. If there is a lack of evidence in one group, the committee will consider, based on their experience, whether it is reasonable to extrapolate and assume the interventions will have similar effects in that group compared with others.			
18.	Type and method of review	☐	Intervention		
		☐	Diagnostic		
		☒	Prognostic		
		☐	Qualitative		
		☐	Epidemiologic		
		☐	Service Delivery		
		☐	Other (please specify)		
19.	Language	English			
20.	Country	England			
21.	Anticipated or actual start date	14/11/2022			
22.	Anticipated completion date	06/11/2024			
23.		Review stage		Started	Completed

ID	Field	Content		
	Stage of review at time of this submission	Preliminary searches	☑	☑
		Piloting of the study selection process	☑	☑
		Formal screening of search results against eligibility criteria	☑	☑
		Data extraction	☑	☑
		Risk of bias (quality) assessment	☑	☑
		Data analysis	☑	☑
24.	Named contact	5a. Named contact Guideline Development Team A 5b. Named contact e-mail FertilityProblems@nice.org.uk 5c. Organisational affiliation of the review Guideline Development Team A, Centre for Guidelines, National Institute for Health and Care Excellence (NICE)		
25.	Review team members	Senior Technical Analyst Technical Analyst		
26.	Funding sources/sponsor	This systematic review is being completed by NICE.		
27.	Conflicts of interest	All guideline committee members and anyone who has direct input into NICE guidelines (including the evidence review team and expert witnesses) must declare any potential conflicts of interest in line with NICE's code of practice for declaring and dealing with conflicts of interest. Any relevant interests, or changes to interests, will also be declared publicly at the start of each guideline committee meeting. Before each meeting, any potential conflicts of interest will be considered by the guideline committee Chair and a senior member of the development team. Any decisions to exclude a person from all or part of a meeting will be documented. Any changes to a member's declaration of interests will be recorded in the minutes of the meeting. Declarations of interests will be published with the final guideline.		

ID	Field	Content	
28.	Collaborators	Development of this systematic review will be overseen by an advisory committee who will use the review to inform the development of evidence-based recommendations in line with section 3 of Developing NICE guidelines: the manual. Members of the guideline committee are available on the NICE website: https://www.nice.org.uk/guidance/indevelopment/gid-ng10263	
29.	Other registration details	None	
30.	URL for published protocol	https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=422019	
31.	Dissemination plans	NICE may use a range of different methods to raise awareness of the guideline. These include standard approaches such as: • notifying registered stakeholders of publication • publicising the guideline through NICE's newsletter and alerts • issuing a press release or briefing as appropriate, posting news articles on the NICE website, using social media channels, and publicising the guideline within NICE.	
32.	Keywords	Female factor fertility problems, infertility, ovarian reserve testing	
33.	Details of existing review of same topic by same authors	None	
34.	Current review status	☒	Ongoing
		☒	Completed but not published
		☐	Completed and published
		☐	Completed, published and being updated
		☐	Discontinued
35..	Additional information	None	
36.	Details of final publication	www.nice.org.uk	

AFC: antral follicle count; AMH: anti-mullerian hormone; DSL: Diagnostic Systems Lab; FSH: follicle-stimulating hormone; GRADE: Grading of Recommendations Assessment, Development and Evaluation; NGA: National Guideline Alliance; NHS: National health service; NICE: National Institute for Health and Care Excellence; OHSS: ovarian hyperstimulation syndrome; OR: odds ratio; RCT: randomised controlled trial; RoB: risk of bias; RR: risk ratio; SD: standard deviation

Appendix B Literature search strategies

Literature search strategies for review question: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

Database: Ovid MEDLINE(R) ALL <1946 to May 18, 2023>

Date of last search: 22/05/2023

#	Searches
1	infertility, female/ or Infertility/ or fertility/
2	(infertil* or subfertil* or fertil* or hypofertil* or subfecund* or fecund* or infecund* or steril*).tw.
3	((delay* or difficult* or inabilit* or unable or problem* or try or trying or attempt*) adj2 conceive).tw.
4	exp Reproductive Techniques, Assisted/
5	(assist* adj2 (reproduct* or conception*)).tw.
6	(reproduct* adj2 (therap* or technique* or treatment*)).tw.
7	(IVF or (in vitro fertili* or invitro fertili*)).tw.
8	((ovar* or ovulat*) adj3 (induc* or stimulat* or hyperstimulat*)).tw.
9	Ovarian function tests/ or Ovarian Reserve/
10	((ovary or ovaries or ovarian) adj2 (reserve* or response* or function*) adj2 (test or tests or testing or assess* or measur* or evaluat* or marker* or biomarker* or predict*)).tw.
11	or/1-10
12	*ANTI-MULLERIAN HORMONE/bl
13	(AMH or ((mullerian or muellerian) adj1 inhibit*)).tw.
14	((antimullerian or anti-mullerian or antimuellerian or anti-muellerian) adj2 (hormone* or substance* or factor*)).tw.
15	*Follicle Stimulating Hormone/bl
16	(FSH or bFSH or ((follicle stimulat* or folliculr*) adj2 hormone*)).tw.
17	(AFC or ((antral or follic*) adj2 count*)).tw.
18	ovarian follicle/ and cell count/
19	or/12-18
20	11 and 19
21	Pregnancy/ or Time-to-Pregnancy/ or pregnancy rate/ or pregnancy outcome/
22	(pregnan* or livebirth* or birth*).tw.
23	Oocyte Retrieval/
24	((oocyte* or egg or eggs) adj2 (retriev* or recover* or number* or collect* or obtain* or quality or matur* or yield*)).tw.
25	Ovarian Hyperstimulation Syndrome/
26	(((Ovarian or ovary) adj Hyperstimulation Syndrome) or OHSS).tw.
27	(cycle* adj2 cancel*).tw.
28	or/21-27
29	20 and 28
30	limit 29 to english language
31	letter/
32	editorial/
33	news/
34	exp historical article/
35	Anecdotes as Topic/
36	comment/
37	case reports/
38	(letter or comment*).ti.
39	or/31-38

#	Searches
40	randomized controlled trial/ or random*.ti,ab.
41	39 not 40
42	animals/ not humans/
43	exp Animals, Laboratory/
44	exp Animal Experimentation/
45	exp Models, Animal/
46	exp Rodentia/
47	(rat or rats or mouse or mice or rodent*).ti.
48	or/41-47
49	30 not 48
50	Observational Studies as Topic/
51	Observational Study/
52	Epidemiologic Studies/
53	exp Case-Control Studies/
54	exp Cohort Studies/
55	Cross-Sectional Studies/
56	Controlled Before-After Studies/
57	Historically Controlled Study/
58	Interrupted Time Series Analysis/
59	Comparative Study.pt.
60	case control$.tw.
61	case series.tw.
62	(cohort adj (study or studies)).tw.
63	cohort analy$.tw.
64	(follow up adj (study or studies)).tw.
65	(observational adj (study or studies)).tw.
66	longitudinal.tw.
67	prospective*.tw.
68	retrospective*.tw.
69	cross sectional.tw.
70	or/50-69
71	predictive value of tests/
72	prognosis/
73	predict*.ti.
74	(validat* or rule*).ti,ab.
75	(predict* and (outcome* or risk* or model*)).ab.
76	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)).ti,ab.
77	decision*.ti,ab. and Logistic models/
78	(decision* and (model* or clinical*)).ti,ab.
79	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)).ti,ab.
80	(stratification or discrimination or discriminate or c statistic or "area under the curve" or AUC or calibration or indices or algorithm or multivariable).ti,ab.
81	ROC curve/
82	or/71-81
83	49 and (70 or 82)

1 **Database: Embase <1974 to 2023 May 19>**

2 **Date of last search: 22/05/2023**

#	Searches
1	female infertility/
2	infertility/ or fertility/ or fertility clinic/
3	(infertil* or subfertil* or fertil* or hypofertil* or subfecund* or fecund* or infecund* or steril*).tw.
4	((delay* or difficult* or inabilit* or unable or problem* or try or trying or attempt*) adj2 conceive).tw.
5	exp infertility therapy/
6	(assist* adj2 (reproduct* or conception*)).tw.
7	(reproduct* adj2 (therap* or technique* or treatment*)).tw.
8	(IVF or (in vitro fertili* or invitro fertili*)).tw.
9	((ovar* or ovulat*) adj3 (induc* or stimulat* or hyperstimulat*)).tw.
10	ovarian function test/ or ovarian reserve/
11	((ovary or ovaries or ovarian or oocyte*) adj2 (reserve* or response* or function*) adj2 (test or tests or testing or assess* or measur* or evaluat* or marker* or biomarker* or predict*)).tw.
12	or/1-11
13	*Muellerian inhibiting factor/
14	(AMH or ((mullerian or muellerian) adj1 inhibit*)).tw.
15	((antimullerian or anti-mullerian or antimuellerian or anti-muellerian) adj2 (hormone* or substance* or factor*)).tw.
16	(FSH or bFSH or ((follicle stimulat* or follicul*) adj2 hormone*)).tw.
17	(AFC or ((antral or follic*) adj2 count*)).tw.
18	ovary follicle/ and cell count/
19	or/13-18
20	12 and 19
21	pregnancy/ or time to pregnancy/ or pregnancy rate/ or pregnancy outcome/
22	(pregnan* or livebirth* or birth*).tw.
23	oocyte retrieval/
24	((oocyte* or egg or eggs) adj2 (retriev* or recover* or number* or collect* or obtain* or quality or matur* or yield*)).tw.
25	ovary hyperstimulation/
26	(((Ovarian or ovary) adj Hyperstimulation Syndrome) or OHSS).tw.
27	(cycle* adj2 cancel*).tw.
28	or/21-27
29	20 and 28
30	letter.pt. or letter/
31	note.pt.
32	editorial.pt.
33	case report/ or case study/
34	(letter or comment*).ti.
35	or/30-34
36	randomized controlled trial/ or random*.ti,ab.
37	35 not 36
38	animal/ not human/
39	nonhuman/
40	exp Animal Experiment/
41	exp Experimental Animal/
42	animal model/
43	exp Rodent/
44	(rat or rats or rodent* or mouse or mice).ti.
45	or/37-44
46	29 not 45
47	limit 46 to english language

#	Searches
48	(conference abstract* or conference review or conference paper or conference proceeding).db,pt,su.
49	47 not 48
50	Clinical study/
51	Case control study/
52	Family study/
53	Longitudinal study/
54	Retrospective study/
55	comparative study/
56	Prospective study/
57	Randomized controlled trials/
58	56 not 57
59	Cohort analysis/
60	cohort analy$.tw.
61	(Cohort adj (study or studies)).tw.
62	(Case control$ adj (study or studies)).tw.
63	(follow up adj (study or studies)).tw.
64	(observational adj (study or studies)).tw.
65	(epidemiologic$ adj (study or studies)).tw.
66	(cross sectional adj (study or studies)).tw.
67	case series.tw.
68	prospective*.tw.
69	retrospective*.tw.
70	or/50-55,58-69
71	predictive value/
72	predict*.ti.
73	(validat* or rule*).ti,ab.
74	(predict* and (outcome* or risk* or model*)).ti,ab.
75	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)).ti,ab.
76	decision*.ti,ab. and Statistical model/
77	(decision* and (model* or clinical*)).ti,ab.
78	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)).ti,ab.
79	(stratification or discrimination or discriminate or c statistic or "area under the curve" or AUC or calibration or indices or algorithm or multivariable).ti,ab.
80	Receiver operating characteristic/
81	or/71-80
82	49 and (70 or 81)

1 **Database: Cochrane Database of Systematic Reviews, Issue 5 of 12, May 2023**

2 **Date of last search: 22/05/2023**

#	Searches
1	MeSH descriptor: [Infertility, Female] this term only
2	MeSH descriptor: [Infertility] this term only
3	MeSH descriptor: [Fertility] this term only
4	(infertil* or subfertil* or fertil* or hypofertil* or subfecund* or fecund* or infecund* or steril*):ti,ab
5	((delay* or difficult* or inabilit* or unable or problem* or try or trying or attempt*) near/2 conceive):ti,ab
6	MeSH descriptor: [Reproductive Techniques, Assisted] explode all trees
7	(assist* near/2 (reproduct* or conception*)):ti,ab
8	(reproduct* near/2 (therap* or technique* or treatment*)):ti,ab
9	(IVF or "in vitro" next fertili* or invitro next fertili*):ti,ab

#	Searches
10	((ovar* or ovulat*) near/3 (induc* or stimulat* or hyperstimulat*)):ti,ab
11	MeSH descriptor: [Ovarian Function Tests] this term only
12	MeSH descriptor: [Ovarian Reserve] this term only
13	((ovary or ovaries or ovarian) near/2 (reserve* or response* or function*) near/2 (test or tests or testing or assess* or measur* or evaluat* or marker* or biomarker* or predict*)):ti,ab
14	{or #1-#13}
15	MeSH descriptor: [Anti-Mullerian Hormone] this term only and with qualifier(s): [blood - BL]
16	(AMH or ((mullerian or muellerian) near/1 inhibit*)):ti,ab
17	((antimullerian or anti next mullerian or antimuellerian or anti next muellerian) near/2 (hormone* or substance* or factor*)):ti,ab
18	MeSH descriptor: [Follicle Stimulating Hormone] this term only and with qualifier(s): [blood - BL]
19	(FSH or bFSH or ((follicle next stimulat* or follicul*) near/2 hormone*)):ti,ab
20	(AFC or ((antral or follic*) near/2 count*)):ti,ab
21	MeSH descriptor: [Ovarian Follicle] this term only
22	MeSH descriptor: [Cell Count] this term only
23	#21 and #22
24	{or #15-#20, #23}
25	#14 and #24 in Cochrane Reviews

1 **Database: Epistemonikos**

2 **Date of last search: 22/05/2023**

#	Searches
1	(title:((infertil* OR subfertil* OR fertil* OR hypofertil* OR subfecund* OR fecund* OR infecund* OR steril*)) OR abstract:((infertil* OR subfertil* OR fertil* OR hypofertil* OR subfecund* OR fecund* OR infecund* OR steril*))) OR (title:(((delay* OR difficult* OR inabilit* OR unable OR problem* OR try OR trying OR attempt*) AND conceive)) OR abstract:(((delay* OR difficult* OR inabilit* OR unable OR problem* OR try OR trying OR attempt*) AND conceive))) OR (title:((assist* AND (reproduct* OR conception*))) OR abstract:((assist* AND (reproduct* OR conception*)))) OR (title:((reproduct* AND (therap* OR technique* OR treatment*))) OR abstract:((reproduct* AND (therap* OR technique* OR treatment*)))) OR (title:((IVF OR (in vitro fertili* OR invitro fertili*))) OR abstract:((IVF OR (in vitro fertili* OR invitro fertili*)))) OR (title:(((ovar* OR ovulat*) AND (induc* OR stimulat* OR hyperstimulat*))) OR abstract:(((ovar* OR ovulat*) AND (induc* OR stimulat* OR hyperstimulat*)))) OR (title:(((ovary OR ovaries OR ovarian) AND (reserve* OR response* OR function*) AND (test OR tests OR testing OR assess* OR measur* OR evaluat* OR marker* OR biomarker* OR predict*))) OR abstract:(((ovary OR ovaries OR ovarian) AND (reserve* OR response* OR function*) AND (test OR tests OR testing OR assess* OR measur* OR evaluat* OR marker* OR biomarker* OR predict*))))
2	(title:((AMH OR ((mullerian OR muellerian) AND inhibit*))) OR abstract:((AMH OR ((mullerian OR muellerian) AND inhibit*)))) OR (title:(((antimullerian OR anti-mullerian OR antimuellerian OR anti-muellerian) AND (hormone* OR substance* OR factor*))) OR abstract:(((antimullerian OR anti-mullerian OR antimuellerian OR anti-muellerian) AND (hormone* OR substance* OR factor*)))) OR (title:((FSH OR bFSH OR ((follicle stimulat* OR follicul*) AND hormone*))) OR abstract:((FSH OR bFSH OR ((follicle stimulat* OR follicul*) AND hormone*)))) OR (title:((AFC OR ((antral OR follic*) AND count*))) OR abstract:((AFC OR ((antral OR follic*) AND count*))))
3	(title:((pregnan* OR livebirth* OR birth*)) OR abstract:((pregnan* OR livebirth* OR birth*))) OR (title:(((oocyte* OR egg OR eggs) AND (retriev* OR recover* OR number* OR collect* OR obtain* OR quality OR matur* OR yield*))) OR abstract:(((oocyte* OR egg OR eggs) AND (retriev* OR recover* OR number* OR collect* OR obtain* OR quality OR matur* OR yield*)))) OR (title:((((Ovarian OR ovary) AND Hyperstimulation Syndrome) OR OHSS)) OR abstract:((((Ovarian OR ovary) AND Hyperstimulation Syndrome) OR OHSS))) OR (title:((cycle* AND cancel*)) OR abstract:((cycle* AND cancel*)))
4	#1 AND #2 AND #3

3 **Health Economic Literature Search Strategies**

4 **Database: Ovid MEDLINE(R) ALL <1946 to May 22, 2023>**

5 **Date of last search: 23/05/2023**

#	Searches
1	infertility, female/ or Infertility/ or fertility/

#	Searches
2	(infertil* or subfertil* or fertil* or hypofertil* or subfecund* or fecund* or infecund* or steril*).tw.
3	((delay* or difficult* or inabilit* or unable or problem* or try or trying or attempt*) adj2 conceive).tw.
4	exp Reproductive Techniques, Assisted/
5	(assist* adj2 (reproduct* or conception*)).tw.
6	(reproduct* adj2 (therap* or technique* or treatment*)).tw.
7	(IVF or (in vitro fertili* or invitro fertili*)).tw.
8	((ovar* or ovulat*) adj3 (induc* or stimulat* or hyperstimulat*)).tw.
9	Ovarian function tests/ or Ovarian Reserve/
10	((ovary or ovaries or ovarian) adj2 (reserve* or response* or function*) adj2 (test or tests or testing or assess* or measur* or evaluat* or marker* or biomarker* or predict*)).tw.
11	or/1-10
12	*ANTI-MULLERIAN HORMONE/bl
13	(AMH or ((mullerian or muellerian) adj1 inhibit*)).tw.
14	((antimullerian or anti-mullerian or antimuellerian or anti-muellerian) adj2 (hormone* or substance* or factor*)).tw.
15	*Follicle Stimulating Hormone/bl
16	(FSH or bFSH or ((follicle stimulat* or folliculr*) adj2 hormone*)).tw.
17	(AFC or ((antral or follic*) adj2 count*)).tw.
18	ovarian follicle/ and cell count/
19	or/12-18
20	11 and 19
21	Pregnancy/ or Time-to-Pregnancy/ or pregnancy rate/ or pregnancy outcome/
22	(pregnan* or livebirth* or birth*).tw.
23	Oocyte Retrieval/
24	((oocyte* or egg or eggs) adj2 (retriev* or recover* or number* or collect* or obtain* or quality or matur* or yield*)).tw.
25	Ovarian Hyperstimulation Syndrome/
26	(((Ovarian or ovary) adj Hyperstimulation Syndrome) or OHSS).tw.
27	(cycle* adj2 cancel*).tw.
28	or/21-27
29	20 and 28
30	limit 29 to english language
31	letter/
32	editorial/
33	news/
34	exp historical article/
35	Anecdotes as Topic/
36	comment/
37	case reports/
38	(letter or comment*).ti.
39	or/31-38
40	randomized controlled trial/ or random*.ti,ab.
41	39 not 40
42	animals/ not humans/
43	exp Animals, Laboratory/
44	exp Animal Experimentation/
45	exp Models, Animal/
46	exp Rodentia/
47	(rat or rats or mouse or mice or rodent*).ti.
48	or/41-47
49	30 not 48
50	Economics/
51	Value of life/

#	Searches
52	exp "Costs and Cost Analysis"/
53	exp Economics, Hospital/
54	exp Economics, Medical/
55	exp Resource Allocation/
56	Economics, Nursing/
57	Economics, Pharmaceutical/
58	exp "Fees and Charges"/
59	exp Budgets/
60	budget*.ti,ab.
61	cost*.ti,ab.
62	(economic* or pharmaco?economic*).ti,ab.
63	(price* or pricing*).ti,ab.
64	(financ* or fee or fees or expenditure* or saving*).ti,ab.
65	(value adj2 (money or monetary)).ti,ab.
66	resourc* allocat*.ti,ab.
67	(fund or funds or funding* or funded).ti,ab.
68	(ration or rations or rationing* or rationed).ti,ab.
69	ec.fs.
70	or/50-69
71	quality-adjusted life years/
72	sickness impact profile/
73	(quality adj2 (wellbeing or well being)).ti,ab.
74	sickness impact profile.ti,ab.
75	disability adjusted life.ti,ab.
76	(qal* or qtime* or qwb* or daly*).ti,ab.
77	(euroqol* or eq5d* or eq 5*).ti,ab.
78	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
79	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
80	(hui or hui1 or hui2 or hui3).ti,ab.
81	(health* year* equivalent* or hye or hyes).ti,ab.
82	discrete choice*.ti,ab.
83	rosser.ti,ab.
84	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
85	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
86	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
87	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
88	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
89	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
90	or/71-89
91	49 and (70 or 90)

1 **Database: Embase <1974 to 2023 May 22>**

2 **Date of last search: 23/05/2023**

#	Searches
1	female infertility/
2	infertility/ or fertility/ or fertility clinic/
3	(infertil* or subfertil* or fertil* or hypofertil* or subfecund* or fecund* or infecund* or steril*).tw.
4	((delay* or difficult* or inabilit* or unable or problem* or try or trying or attempt*) adj2 conceive).tw.
5	exp infertility therapy/
6	(assist* adj2 (reproduct* or conception*)).tw.

#	Searches
7	(reproduct* adj2 (therap* or technique* or treatment*)).tw.
8	(IVF or (in vitro fertili* or invitro fertili*)).tw.
9	((ovar* or ovulat*) adj3 (induc* or stimulat* or hyperstimulat*)).tw.
10	ovarian function test/ or ovarian reserve/
11	((ovary or ovaries or ovarian or oocyte*) adj2 (reserve* or response* or function*) adj2 (test or tests or testing or assess* or measur* or evaluat* or marker* or biomarker* or predict*)).tw.
12	or/1-11
13	*Muellerian inhibiting factor/
14	(AMH or ((mullerian or muellerian) adj1 inhibit*)).tw.
15	((antimullerian or anti-mullerian or antimuellerian or anti-muellerian) adj2 (hormone* or substance* or factor*)).tw.
16	(FSH or bFSH or ((follicle stimulat* or follicul*) adj2 hormone*)).tw.
17	(AFC or ((antral or follic*) adj2 count*)).tw.
18	ovary follicle/ and cell count/
19	or/13-18
20	12 and 19
21	pregnancy/ or time to pregnancy/ or pregnancy rate/ or pregnancy outcome/
22	(pregnan* or livebirth* or birth*).tw.
23	oocyte retrieval/
24	((oocyte* or egg or eggs) adj2 (retriev* or recover* or number* or collect* or obtain* or quality or matur* or yield*)).tw.
25	ovary hyperstimulation/
26	(((Ovarian or ovary) adj Hyperstimulation Syndrome) or OHSS).tw.
27	(cycle* adj2 cancel*).tw.
28	or/21-27
29	20 and 28
30	letter.pt. or letter/
31	note.pt.
32	editorial.pt.
33	case report/ or case study/
34	(letter or comment*).ti.
35	or/30-34
36	randomized controlled trial/ or random*.ti,ab.
37	35 not 36
38	animal/ not human/
39	nonhuman/
40	exp Animal Experiment/
41	exp Experimental Animal/
42	animal model/
43	exp Rodent/
44	(rat or rats or rodent* or mouse or mice).ti.
45	or/37-44
46	29 not 45
47	limit 46 to english language
48	(conference abstract* or conference review or conference paper or conference proceeding).db,pt,su.
49	47 not 48
50	health economics/
51	exp economic evaluation/
52	exp health care cost/
53	exp fee/
54	budget/
55	funding/
56	resource allocation/

#	Searches
57	budget*.ti,ab.
58	cost*.ti,ab.
59	(economic* or pharmaco?economic*).ti,ab.
60	(price* or pricing*).ti,ab.
61	(financ* or fee or fees or expenditure* or saving*).ti,ab.
62	(value adj2 (money or monetary)).ti,ab.
63	resourc* allocat*.ti,ab.
64	(fund or funds or funding* or funded).ti,ab.
65	(ration or rations or rationing* or rationed).ti,ab.
66	or/50-65
67	quality adjusted life year/
68	"quality of life index"/
69	short form 12/ or short form 20/ or short form 36/ or short form 8/
70	sickness impact profile/
71	(quality adj2 (wellbeing or well being)).ti,ab.
72	sickness impact profile.ti,ab.
73	disability adjusted life.ti,ab.
74	(qal* or qtime* or qwb* or daly*).ti,ab.
75	(euroqol* or eq5d* or eq 5*).ti,ab.
76	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
77	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
78	(hui or hui1 or hui2 or hui3).ti,ab.
79	(health* year* equivalent* or hye or hyes).ti,ab.
80	discrete choice*.ti,ab.
81	rosser.ti,ab.
82	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
83	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
84	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
85	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
86	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
87	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
88	or/67-87
89	49 and (66 or 88)

1 Database: INAHTA

2 Date of last search: 23/05/2023

#	Searches
1	"Infertility, Female"[mh]
2	"Infertility"[mh]
3	"Fertility"[mh]
4	(infertil* or subfertil* or fertil* or hypofertil* or subfecund* or fecund* or infecund* or steril*)
5	((delay* or difficult* or inabilit* or unable or problem* or try or trying or attempt*) AND conceive)
6	"Reproductive Techniques, Assisted"[mhe]
7	(assist* AND (reproduct* or conception*))
8	(reproduct* AND (therap* or technique* or treatment*))
9	(IVF or (in vitro fertili* or invitro fertili*))
10	((ovar* or ovulat*) AND (induc* or stimulat* or hyperstimulat*))
11	"Ovarian Function Tests"[mh]
12	"Ovarian Reserve"[mh]

#	Searches
13	((ovary or ovaries or ovarian) AND (reserve* or response* or function*) AND (test or tests or testing or assess* or measur* or evaluat* or marker* or biomarker* or predict*))
14	#13 OR #12 OR #11 OR #10 OR #9 OR #8 OR #7 OR #6 OR #5 OR #4 OR #3 OR #2 OR #1
15	"Anti-Mullerian Hormone"[mh]
16	(AMH or ((mullerian or muellerian) AND inhibit*))
17	((antimullerian or anti-mullerian or antimuellerian or anti-muellerian) AND (hormone* or substance* or factor*))
18	"Follicle Stimulating Hormone"[mh]
19	(FSH or bFSH or ((follicle stimulat* or follicul*) AND hormone*))
20	(AFC or ((antral or follic*) AND count*))
21	"Ovarian Follicle"[mh]
22	#21 OR #20 OR #19 OR #18 OR #17 OR #16 OR #15
23	#22 AND #13 Limited to English language

1 **Database: CRD via HTA**

2 **Date of last search: 23/05/2023**

#	Searches
1	((infertil* or subfertil* or fertil* or hypofertil* or subfecund* or fecund* or infecund* or steril*))
2	(((delay* or difficult* or inabilit* or unable or problem* or try or trying or attempt*) near2 conceive))
3	MeSH DESCRIPTOR Reproductive Techniques, Assisted EXPLODE ALL TREES IN HTA
4	MeSH DESCRIPTOR infertility, female IN HTA
5	MeSH DESCRIPTOR Infertility IN HTA
6	MeSH DESCRIPTOR fertility IN HTA
7	((assist* near2 (reproduct* or conception*)))
8	((reproduct* near2 (therap* or technique* or treatment*)))
9	((IVF or (in vitro fertili* or invitro fertili*)))
10	(((ovar* or ovulat*) near3 (induc* or stimulat* or hyperstimulat*)))
11	MeSH DESCRIPTOR Ovarian function tests IN HTA
12	MeSH DESCRIPTOR Ovarian Reserve IN HTA
13	(((ovary or ovaries or ovarian) near2 (reserve* or response* or function*) near2 (test or tests or testing or assess* or measur* or evaluat* or marker* or biomarker* or predict*)))
14	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13
15	MeSH DESCRIPTOR ANTI-MULLERIAN HORMONE IN HTA
16	((AMH or ((mullerian or muellerian) near1 inhibit*)))
17	(((antimullerian or anti-mullerian or antimuellerian or anti-muellerian) near2 (hormone* or substance* or factor*)))
18	MeSH DESCRIPTOR Follicle Stimulating Hormone IN HTA
19	((FSH or bFSH or ((follicle stimulat* or follicul*) near2 hormone*)))
20	((AFC or ((antral or follic*) near2 count*)))
21	MeSH DESCRIPTOR ovarian follicle IN HTA
22	#15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21
23	#14 AND #22

3

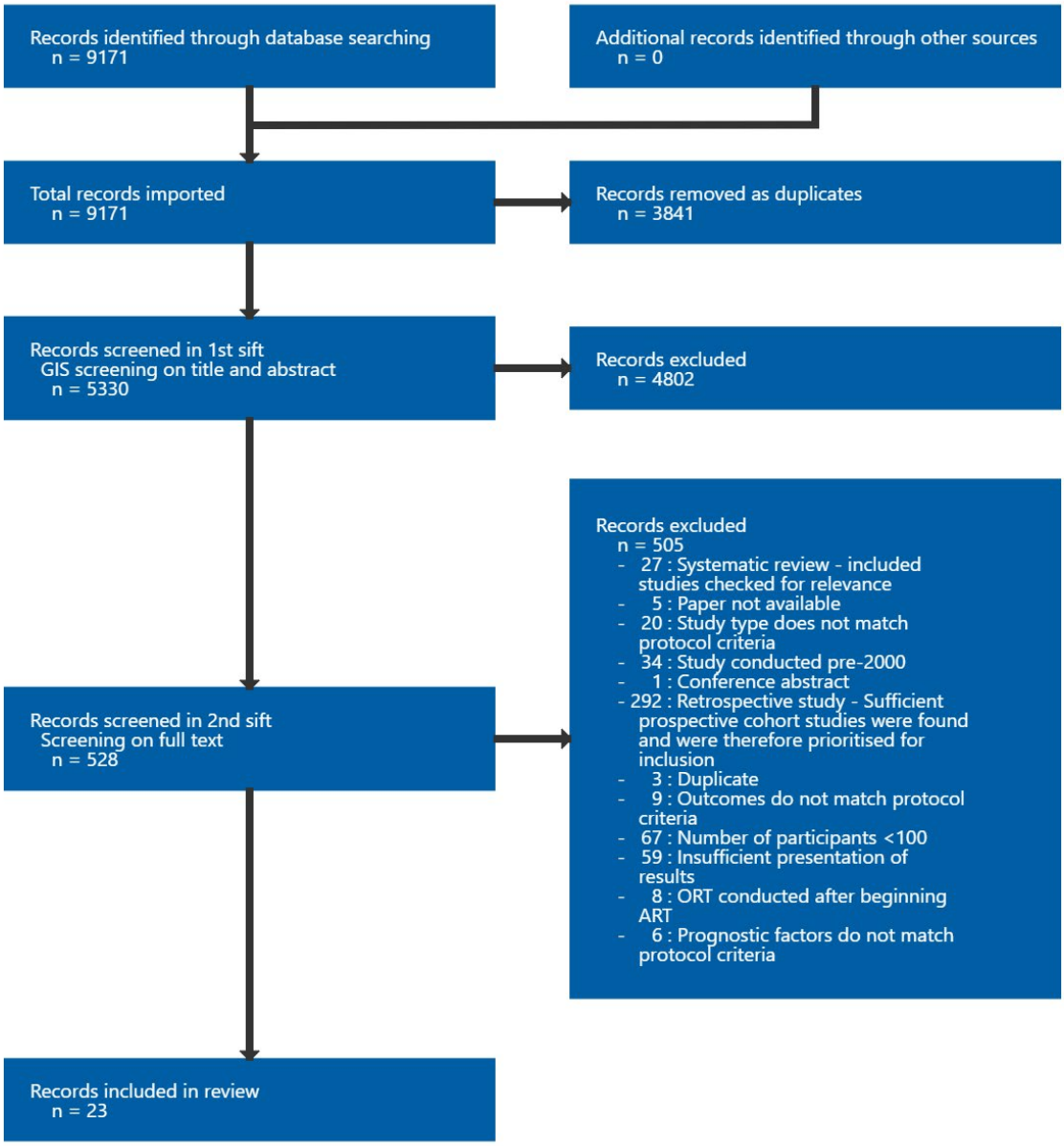
4

5

Appendix C Prognostic evidence study selection

Study selection for review question: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

Figure 1: Study selection flow chart



Appendix D Evidence tables

Evidence tables for review question: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

Azmoudeh, 2018

Bibliographic Reference	Azmoudeh, A.; Shahraki, Z.; Hoseini, F.-S.; Akbari-Asbagh, F.; Davari-Tanha, F.; Mortazavi, F.; In vitro fertilization success and associated factors: A prospective cohort study; International Journal of Women's Health and Reproduction Sciences; 2018; vol. 6 (no. 3); 350-355

Study details

Country/ies where study was carried out	Iran
Study type	Prospective cohort study
Study dates	March 2015 to March 2016
Inclusion criteria	Infertile women who: • Were healthy candidates for IVF/ICSI • Had FSH and LH <10, measured on menstrual cycle day 3
Exclusion criteria	• A history of endometriosis, ovarian surgery or pelvic radiotherapy • AMH <0.05 measured on menstrual cycle day 3 • Endocrinological disorders • Presence of congenital uterine anomalies
Patient characteristics	N=160 infertile women: • Mean age (SD): 33 (6.1) years • Mean duration of infertility (SD): Not reported

	• Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): Not reported • Mean AFC at baseline (SD): Not reported
Risk factor(s) of interest	Serum AMH: • ≤0.6 • >0.6 Serum AMH was measured on cycle day 3
Confounding factor(s) of interest	Data for women aged ≤35 and for women aged >35 years are presented separately. aORs were reported but not extracted because the analysis adjusted for endometrial thickness, number of FSH ampules, embryo grade, and the number of embryo produced, and not age or duration of infertility.
Duration of follow-up	Not reported
Setting	Infertility center of a hospital
Sources of funding	The study received no financial support
Other information	Information on which assay was used to measure AMH is not reported. All participants underwent IVF cycles, with: • Long GnRH agonist ovarian stimulation protocol (0.5 mg buserelin acetate administered from cycle day 21) • GnRH dose reduced by half and FSH ampule added on first day of menstruation • Ovarian stimulation with HCG (10 000 IU) when 17-18 mm follicles were observed

	• Oocyte retrieval using a soft catheter under spinal anesthesia • ICSI for women with a poor history of IVF • Embryo transfer of 1-5 embryos (depending on age and the quality of embryos) 3 days after oocyte pick-up • 100 mg of progesterone per day injected for 3 days, then luteal phase support for 12 weeks (400 mg Cyclogest) Odds ratios were reported for clinical pregnancy, however the analysis did not adjust for age or duration of infertility, so these have not been extracted

Study arms

AMH ≤0.6 (N = 81)
Unit of measurement not reported

AMH >0.6 (N = 79)
Unit of measurement not reported

Outcomes

Clinical pregnancy

Outcome	AMH ≤0.6, , N = 81	AMH >0.6, , N = 79
Clinical pregnancy No of events	n = 6 ; % = 16.7	n = 27 ; % = 34.2
Age ≤35 years (n=103) Total n with AMH ≤0.6 = 59; total n with AMH >0.6 = 44 No of events	n = 3 ; % = 5.1	n = 19 ; % = 43.2
Age >35 years (n=57) Total n with AMH ≤0.6 = 22; total n with AMH >0.6 = 35 No of events	n = 3 ; % = 13.6	n = 8 ; % = 22.9

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Participants' duration of fertility at baseline not reported. Baseline differences between groups with/without poor ovarian reserve are not reported.)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants)*
Prognostic factor measurement	Prognostic factor Measurement Summary	High risk of bias *(AMH was measured in the endocrinology lab of the hospital but no other information reported on how AMH was measured or the assay used)*
Outcome Measurement	Outcome Measurement Summary	Moderate risk of bias *(The definition of clinical pregnancy deviates from the protocol, as pregnancy was confirmed by ultrasound which visualized at least one gestational sac)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant ORs could not be extracted as the analysis did not adjust for age or duration of infertility. Relevant extracted data were therefore unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting)*
Overall risk of bias and directness	Risk of Bias	High *(High risk of bias due to lack of information reported on study participants or prognostic factor measurement, deviation from the protocol definition of clinical pregnancy, and lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Directly applicable

Barriere, 2022

Bibliographic Reference	Barriere, Paul; Procu-Buisson, Geraldine; Avril, Catherine; Hamamah, Samir; Added value of anti-Mullerian hormone serum concentration in assisted reproduction clinical practice using highly purified human menopausal gonadotropin (HP-hMG).; Journal of gynecology obstetrics and human reproduction; 2022; vol. 51 (no. 2); 102289

1

2 Study details

Country/ies where study was carried out	France
Study type	Prospective cohort study
Study dates	October 2016 to December 2017
Inclusion criteria	Infertile women aged 18-42 years who: • Received HP-hMG (Menopur; 600 IU/mL) for COS during their first IVF/ICSI cycle • Had ≥1 recent AMH measurement using a fully automated assay in the last 12 months before inclusion
Exclusion criteria	• Stage III/IV endometriosis and/or polycystic ovarian syndrome • Untreated major endocrine or metabolic abnormalities • Major morphological uterine or ovarian abnormalities • Past ovarian surgery • Inclusion in an interventional study to assess infertility treatments
Patient characteristics	N=235 infertile women: • Mean age (SD): 32.5 (4.6) years • Mean duration of infertility (SD): 3.1 (1.9) years • Mean AMH at baseline (SD): 2.3 (1.7) ng/ml • Mean FSH at baseline (SD): 7.7 (2.8) IU/l • Mean AFC at baseline (SD): Not reported ○ AFC <8: n=23 (12.3%)*

	*Denominator not reported

Risk factor(s) of interest	Serum AMH:
	• Low <1.1 ng/mL
	• 1.1 to <5 ng/mL (including the following groups reported in the study):
	  o Intermediate ≥1.1 to <2 ng/mL
	  o Normal ≥2 to <5 ng/mL
	• High ≥5 ng/mL
	
	The study does not report on which cycle day serum AMH was collected

Confounding factor(s) of interest	Not reported
Duration of follow-up	11 weeks (after first embryo transfer)
Setting	Private and public fertility/ ART centres
Sources of funding	Industry funded by Ferring SAS
Other information	A fully automated assay was used to measure AMH, but no other information on the assay is reported. All participants underwent IVF/ ICSI cycles: • Most women (84.3%) were treated with a gonadotropin releasing hormone antagonist protocol • HP-hMG 600 IU/mL was used for controlled ovarian stimulation in all participants (mean (SD) initial dose: 233.8 (73.0) IU/day) with a treatment duration of 8-10 days

1

Study arms

Low AMH (<1.1 ng/mL) (N = 54)

AMH 1.1 to <5 ng/mL (N = 165)

Includes participants from the intermediate (≥1.1 to <2 ng/mL, n=62) and normal (≥2 to <5 ng/mL, n=103) AMH groups

High AMH (≥5 ng/mL) (N = 16)

Outcomes

Reduced number of retrieved oocytes

Outcome	Low AMH (<1.1 ng/mL), , N = 54	Normal AMH 1.1 to <5 ng/mL, , N = 165	High AMH (≥5 ng/mL), , N = 16
Reduced number of retrieved oocytes (<8) Defined as <8 oocytes retrieved. Data for the normal AMH group is combined from the intermediate group (31/62, 50%) and the normal group (33/103, 32%). Results were presented as percentages and transformed to numerical figures No of events	n = 41 ; % = 75.5	n = 64 ; % = 38.7	n = 4 ; % = 25

Lower values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described, baseline differences between groups with/without poor ovarian reserve are not reported)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants)*

Section	Question	Answer
Prognostic factor measurement	Prognostic factor Measurement Summary	High risk of bias *(AMH was measured using a fully automated assay but no other information reported on how AMH was measured or the assay used)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Clear definition and cut-off point was given for the outcome reduced number of retrieved oocytes)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	High risk of bias *(Clinical pregnancy data were collected but not reported per group so data could not be extracted for this outcome. Data for reduced number of retrieved oocytes with a cut-off of <4 oocytes were collected and reported for participants in the low AMH group, but not for any other group, and therefore data could not be extracted for this outcome. It is reported that 6 participants had their cycles cancelled due to no oocyte retrieved at the puncture or no mature oocyte retrieved, but it is not reported which group/s these participants belonged to and so data could not be extracted for this outcome.)*
Overall risk of bias and directness	Risk of Bias	High *(High risk of bias due to lack of information about baseline differences between relevant groups or prognostic factor measurement, lack of accounting for confounders, and selective reporting of results)*
Overall risk of bias and directness	Directness	Directly applicable

Ben-Haroush, 2011

Bibliographic Reference Ben-Haroush, Avi; Farhi, Jacob; Zahalka, Yasmin; Sapir, Onit; Meizner, Israel; Fisch, Benjamin; Small antral follicle count (2-5 mm) and ovarian volume for prediction of pregnancy in in vitro fertilization cycles.; Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology; 2011; vol. 27 (no. 10); 748-52

Study details

Country/ies where study was carried out	Israel
Study type	Prospective cohort study
Study dates	January to June 2009
Inclusion criteria	Women undergoing fresh IVF cycles
Exclusion criteria	Not reported

Patient characteristics	N=115 women undergoing fresh IVF cycles
	
	Women who did not achieve pregnancy (n=77):
	
	• Mean age (SD): 33.6 (6.0) years
	• Mean duration of infertility (SD): Not reported
	• Mean AMH at baseline (SD): Not reported
	• Mean FSH at baseline (SD): Not reported
	• Mean total AFC at baseline (SD): 11.3 (5.3)
	  ○ Mean small (2–5 mm) AFC (SD): 6.4 (4.7)
	  ○ Mean large (5-10 mm) AFC (SD): 4.9 (3.9)
	
	Women who achieved pregnancy (n=38):
	
	• Mean age (SD): 32.3 (5.0) years
	• Mean duration of infertility (SD): Not reported
	• Mean AMH at baseline (SD): Not reported
	• Mean FSH at baseline (SD): Not reported
	• Mean total AFC at baseline (SD): 13.7 (5.8)
	  ○ Mean small (2–5 mm) AFC (SD): 8.1 (4.7)

	○ Mean large (5-10 mm) AFC (SD): 5.5 (3.8)
Risk factor(s) of interest	• Total AFC (all follicles 2-10mm): ○ Total AFC <15 ○ Total AFC ≥15 Cycle day of AFC measurement is not reported. Study also reported results for small AFC (follicles 2-5mm) but these data were not extracted
Confounding factor(s) of interest	Not reported
Duration of follow-up	Not reported
Setting	Tertiary care
Sources of funding	Not reported
Other information	All participants underwent IVF/ICSI cycles, with: • Long GnRH agonist, short (flare) GnRH agonist, oral contraceptive, or GnRH antagonist protocol (decided according to age, scheduling, and previous treatment experience) • Gonadotrophin stimulation with rFSH • Oocyte maturation and ovulation induction with 250µg hCG • Embryo transfer on day 2 or 3 after IVF or ICSI (based on quality of embryos) • Luteal phase support with daily vaginal progesterone

Study arms

Total AFC ≥15 (N = 27)

Total AFC <15 (N = 88)

Outcomes

Clinical pregnancy

Outcome	Total AFC ≥15, , N = 27	Total AFC <15, , N = 88
Clinical pregnancy No of events	n = 13 ; % = 48.1	n = 25 ; % = 28.4

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Participants' duration of fertility at baseline not reported, and baseline differences are not reported between groups with/without poor ovarian reserve)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for 115 participants, it does not appear that any were lost to follow-up although this is not explicitly reported)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(All AFC evaluations performed by the same physician by ultrasound and were done prior to treatment. AFC was divided into 2 subpopulations of follicles of small AFC (2–5 mm) and large AFC (5–10 mm). There does not appear to be any missing data)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Clinical pregnancy was defined as the presence of an intrauterine gestational sac with a fetal pole and a documented heart rate on ultrasound scan 4 weeks after embryo transfer.)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting)*

Section	Question	Answer
Overall risk of bias and directness	Risk of Bias	High *(High risk of bias due to lack of accounting for confounders and lack of information about baseline differences between relevant groups.)*
Overall risk of bias and directness	Directness	Directly applicable

Brodin, 2013

Bibliographic Reference	Brodin, Thomas; Hadziosmanovic, Nermin; Berglund, Lars; Olovsson, Matts; Holte, Jan; Antimullerian hormone levels are strongly associated with live-birth rates after assisted reproduction.; The Journal of clinical endocrinology and metabolism; 2013; vol. 98 (no. 3); 1107-14

Study details

Country/ies where study was carried out	Sweden
Study type	Prospective cohort study
Study dates	Between April 2008 and June 2011
Inclusion criteria	• Patients undergoing IVF-ICSI treatment regardless of their levels of AMH or the cause or duration of infertility • No older than 42 years of age
Exclusion criteria	Not reported

Patient characteristics	N=892 women undergoing n=1230 ICSI cycles (observations):
	• Mean age at OPU (SD): 36 (4.2) years
	• Mean duration of infertility (SD): Not reported
	• Mean AMH at baseline (SD): Not reported
	  ○ AMH range at baseline: 0.06 to 26.3 ng/ml
	  ○ Mean log-transformed AMH values at baseline (SD): 2.3 (2.5) ng/ml
	• Mean FSH at baseline (SD): Not reported

	• Mean AFC at baseline (SD): Not reported
Risk factor(s) of interest	Serum AMH: • AMH <0.84 ng/ml • AMH 0.84 - 2.94 ng/ml • AMH >2.94 ng/ml AMH=0.84 ng/ml is the 25th percentile, AMH=2.94 ng/ml is the 75th percentile. Because of a skewed distribution, AMH values were log-transformed. Log AMH values were stratified into 4 groups using cut-offs defined by the 25th, 50th, and 75th percentiles. The 2 groups in the middle were alike in terms of outcome with equal pregnancy rates (28.2% and 28.25%, respectively; p=0.99) and live-birth rates (20.0% and 21.4%, respectively; p=0.67; figures per started cycle), therefore the 2 middle groups were joined, resulting in 3 AMH classes according to the 25th and 75th percentile. Serum AMH was collected regardless of day in the cycle.
Confounding factor(s) of interest	ORs adjusted for age but not for duration of fertility
Duration of follow-up	Not reported
Setting	University-affiliated private infertility center
Sources of funding	Supported by Carl von Linne Clinic, Uppsala, and the Department of Women's and Children's Health and the Family Planning Fund in Uppsala, Uppsala University, Uppsala, Sweden.

Other information	Serum levels of AMH were analysed by ELISA using the DSL kit. Coefficients of variation were 9% (intra-assay) and 6% (inter-assay) for low (2 ng/mL), and 6% (intra-assay) and 3% (inter-assay) for high (8 ng/mL) levels. The conversion factor (pmol/L to ng/mL) was 7.14 pmol/L = 1 ng/mL. AFC was defined as the sum of all follicles 2 to 10 mm in size. All participants underwent ICSI cycles, with: • Long GnRH-agonist (down-regulation with nafarelin/ buserelin) • Ovarian hyperstimulation with individual doses of rFSH (follitropin beta/ follitropin alfa) or hMG (menotropin). • Embryo scoring on day 2 in a 10-degree scale according to the integrated morphology cleavage embryo score • Luteal phase support vaginally for 2 weeks after embryo transfer (400 mg progesterone vagitories 3 times daily or 90 mg gel twice daily) Odds ratios have not been extracted as they were reported either as unadjusted or adjusted for age and not duration of fertility for clinical pregnancy rate and live birth rate. Live birth and clinical pregnancy rates were also reported per ovum pickup and per embryo transfer but were not extracted as the number of observations was not reported per AMH group and therefore could not be converted from percentages into numerical figures. Cycle cancellation was reported but not extracted as this was reported as a composite outcome including 'suboptimal ovarian stimulation, mainly because of poor response (fewer than three follicles maturing), or in the case of a threatening ovarian hyperstimulation syndrome and a failed coasting'.

Study arms

log AMH <0.84 ng/ml (N = 309)

Group 1 (log 25th percentile of AMH concentration <0.89 ng/ml; n=309 observations IVF-ICSI cycles)

log AMH 0.84-2.94 ng/ml (N = 613)

Group 2 (log 50th percentile of AMH concentration 0.84-2.94 ng/ml; n=613 observations IVF-ICSI cycles)

log AMH >2.94 ng/ml (N = 308)
Group 3 (log 75th percentile of AMH concentration >2.94 ng/ml; n=308 observations IVF-ICSI cycles)

Outcomes

Live birth

Outcome	log AMH <0.84 ng/ml, , N = 309	log AMH 0.84-2.94 ng/ml, , N = 613	log AMH >2.94 ng/ml, , N = 308
Live birth per start of stimulation Live birth defined as the delivery of ≥1 living child No of events	n = 33 ; % = 10.7	n = 127 ; % = 20.7	n = 95 ; % = 30.8

Higher values are better

Clinical pregnancy

Outcome	log AMH <0.84 ng/ml, , N = 309	log AMH 0.84-2.94 ng/ml, , N = 613	log AMH >2.94 ng/ml, , N = 308
Clinical pregnancy per start of stimulation Clinical pregnancy defined as the visualization of a gestational sac with vaginal ultrasound in gestational week >7. No of events	n = 48 ; % = 15.5	n = 173 ; % = 28.2	n = 116 ; % = 37.6

Higher values are better

Ovarian hyperstimulation syndrome (OHSS)

Outcome	log AMH <0.84 ng/ml, , N = 309	log AMH 0.84-2.94 ng/ml, , N = 613	log AMH >2.94 ng/ml, , N = 308
OHSS No of events	n = 0 ; % = 0	n = 7 ; % = 1	n = 12 ; % = 3.9

Lower values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Baseline differences are not reported between groups with/without poor ovarian reserve, and duration of infertility not reported)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants, it does not appear that any were lost to follow-up although this is not explicitly reported)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(AMH levels were determined by using ELISA (using DSL kit). Coefficients of variation were 9% (intra-assay) and 6% (inter-assay) for low (2 ng/mL), and 6% (intra-assay) and 3% (inter-assay) for high (8 ng/mL) levels. The conversion factor (pmol/L to ng/mL) was 7.14 pmol/L = 1 ng/mL)*
Outcome Measurement	Outcome Measurement Summary	Moderate risk of bias *(Clinical pregnancy was defined as the visualization of a gestational sac with vaginal ultrasound in gestational week >7. Live birth was defined as delivery of ≥1 living child. No information was reported on how OHSS was measured or defined)*
Study Confounding	Study Confounding Summary	High risk of bias *(ORs could not be extracted as the analysis did not adjust for duration of infertility. Relevant extracted data were therefore unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the results)*
Overall risk of bias and directness	Risk of Bias	High *(Baseline differences are not reported between groups with/without poor ovarian reserve, duration of infertility not reported, lack of accounting for confounders, and definitions of outcomes deviate from those defined in the protocol)*
Overall risk of bias and directness	Directness	Directly applicable

Fadini, 2011

Bibliographic Reference	Fadini, Rubens; Comi, Ruggero; Mignini Renzini, Mario; Coticchio, Giovanni; Crippa, Marilena; De Ponti, Elena; Dal Canto, Mariabeatrice; Anti-mullerian hormone as a predictive marker for the selection of women for oocyte in vitro maturation treatment.; Journal of assisted reproduction and genetics; 2011; vol. 28 (no. 6); 501-8

Study details

Country/ies where study was carried out	Italy
Study type	Prospective cohort study
Study dates	Between January and December 2008
Inclusion criteria	Women with an indication for In-vitro maturation (IVM) treatment who: • Were aged <39 years • Had regular menstrual cycles (25–34 days) • Had morphologically and endocrinologically normal ovaries • Had a BMI of ≤32 Also reported that women with an FSH ≤10 mIU/ml, 17-β estradiol level ≤200 pg/ml, an AFC ≥5 were admitted
Exclusion criteria	Women with: • Polycystic ovary • Polycystic ovary syndrome • Other ovarian and endocrinology abnormalities Also reported that women with ovarian cysts ≥12 mm were excluded
Patient characteristics	N=177 women selected for an IVM procedure: • Mean age (SD): 33.3 (2.89) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): 3.32 (2.34) g/ml • Mean FSH at baseline (SD): 5.9 (1.76) mIU/ml

	• Mean total AFC at baseline (SD): 9.14 (3.39)
Risk factor(s) of interest	Serum AMH: • >1.28 ng/ml • ≤ 1.28 ng/ml Results are reported in table 2 with a cut-off of 1.28 **g/ml**; however this appears to be an error as elsewhere in the text, results are expressed in ng/ml. Reported that an AMH value of 1.28 ng/ml was identified as a threshold for the prediction of the retrieval of at least 5 oocytes, with a sensitivity of 93.4% and a specificity of 33.8% Serum AMH was collected on day 3.
Confounding factor(s) of interest	Reports coeficients from the multivariate linear regression model adjusted for age and other factors but not for duration of fertility
Duration of follow-up	Not reported
Setting	Centre of Reproductive Medicine
Sources of funding	Not reported
Other information	AMH was measured using an enzymatic two-site immunoassay (MIS/AMH ELISA) using the DSL kit. The intra-and inter-assay coefficients of variation were <6.4% and <9.8%, respectively. All participants underwent IVF with IVM, with:

	• Oral 17-β estradiol supplementation (6 mg/day), starting on the day of oocyte retrieval • Luteal support by intravaginal progesterone supplementation (600 mg/day starting 1 day later) • Oocyte pick up when endometrium thickness was ≥5 mm and the leading follicle diameter was between 9 and 12 mm

Study arms

AMH ≤ 1.28 ng/ml (N = 32)

AMH > 1.28 ng/ml (N = 145)

Outcomes

Clinical pregnancy

Outcome	AMH ≤1.28 g/ml, , N = 32	AMH >1.28 g/ml , , N = 145
Clinical pregnancy per cycle All participants underwent 1 cycle of IVM. Clinical pregnancy defined as the presence of a gestational sac with foetal heart beat at transvaginal ultrasound examination 2 weeks after β-hCG testing No of events	n = 2 ; % = 6.3	n = 23 ; % = 15.9

Higher values are better

Clinical pregnancy

Outcome	AMH ≤1.28 g/ml, , N = 21	AMH >1.28 g/ml , , N = 130
Clinical pregnancy per transfer Excludes participants who did not undergo embryo transfer; all participants underwent 1 cycle of IVM. Clinical pregnancy defined as the presence of a gestational sac with foetal heart beat at transvaginal ultrasound examination 2 weeks after β-hCG testing	n = 2 ; % = 9.5	n = 23 ; % = 17.7

Outcome	AMH ≤1.28 g/ml, , N = 21	AMH >1.28 g/ml , , N = 130
No of events		

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Baseline differences are not reported between groups with/without poor ovarian reserve, and duration of infertility at baseline not reported)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants, it does not appear that any were lost to follow-up although this is not explicitly reported)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(AMH was measured using an enzymatic two-site immunoassay (MIS/AMH ELISA using DSL kit). The intra-and inter-assay coefficients of variation were <6.4% and <9.8%, respectively)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Clinical pregnancy defined as the presence of a gestational sac with foetal heart beat at transvaginal ultrasound examination 2 weeks after β-hCG testing)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the results)*

Section	Question	Answer
Overall risk of bias and directness	Risk of Bias	High *(High risk of bias due to lack of accounting for confounders, and lack of reporting of duration of infertility or baseline differences between groups with/without poor ovarian reserve)*
Overall risk of bias and directness	Directness	Directly applicable

Ficicioglu, 2014

Bibliographic Reference	Ficicioglu, Cem; Cenksoy, Pinar Ozcan; Yildirim, Gazi; Kaspar, Cigdem; Which cut-off value of serum anti-Mullerian hormone level can predict poor ovarian reserve, poor ovarian response to stimulation and in vitro fertilization success? A prospective data analysis.; Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology; 2014; vol. 30 (no. 5); 372-6

Study details

Country/ies where study was carried out	Turkey
Study type	Prospective cohort study
Study dates	April 2012 to March 2013
Inclusion criteria	Women undergoing their first IVF treatment cycle who: • Had BMI >19 and ≤30 kg/m2 • Were ≤40 years old • Had FSH levels on cycle day 3 of ≤12 mIU/ml • Were primary infertile patients • Had both ovaries present on transvaginal ultrasound scan • Had no previous history of ovarian surgery • Had no exposure to cytotoxic drugs or pelvic radiation • Had no hormonal therapy in the preceding 6 months

Exclusion criteria	Not reported
Patient characteristics	N=311 women undergoing their first IVF treatment cycle Women who did not achieve pregnancy (n=187): • Mean age (SD): 34.51 (5.75) years • Mean duration of infertility (SD): 4.75 (4.46) years • Mean AMH at baseline (SD): 2.174 (1.52) ng/ml • Mean FSH at baseline (SD): 7.63 (3.15) IU/l • Mean AFC at baseline (SD): Not reported Women who achieved pregnancy (n=124): • Mean age (SD): 31.43 (4.56) years • Mean duration of infertility (SD): 4.40 (3.09) years • Mean AMH at baseline (SD): 1.47 (1.24) ng/ml • Mean FSH at baseline (SD): 8.37 (4.03) IU/l • Mean AFC at baseline (SD): Not reported
Risk factor(s) of interest	Serum AMH: • ≤1 ng/ml • >1 ng/ml • ≤0.5 ng/ml • >0.5 ng/ml

	Serum AMH was collected on cycle day 2 or 3.
Confounding factor(s) of interest	People with certain factors that might affect fertility were excluded - see inclusion criteria
Duration of follow-up	Not reported
Setting	IVF center
Sources of funding	Not reported
Other information	AMH was measured using an ultrasensitive ELISA (Beckman Coulter). All participants underwent ICSI cycles, with: • GnRH antagonist protocol • Stimulation with recombinant FSH on day 2 after the baseline transvaginal scan (starting dose between 150-450 IU dependent on the age of the woman, baseline serum FSH and E2 levels, and serum AMH level) • Oocyte maturation and ovulation induction by a single dose of recombinant hCG (250 mg) when there were at least two follicles >17 mm • Oocyte retrieval 36h after hCG administration • Standard ICSI technique • Embryo transfer of 1-2 embryos on day 3 or 5 after oocyte retrieval • Luteal phase support started on the day of retrieval with progesterone gel The results for the comparison of AMH ≤1 ng/ml and AMH >1 ng/ml were prioritised for analysis due to similarity to cut-offs in other studies

Study arms

AMH ≤1 ng/ml (N = 101)

AMH >1 ng/ml (N = 210)

AMH ≤0.5 ng/ml (N = 85)

AMH >0.5 ng/ml (N = 226)

Outcomes

Clinical pregnancy

Outcome	AMH ≤1 ng/ml, , N = 101	AMH >1 ng/ml, , N = 210	AMH ≤0.5 ng/ml, , N = 85	AMH >0.5 ng/ml, , N = 226
Clinical pregnancy No of events	n = 29 ; % = 28.7	n = 100 ; % = 47.8	n = 21 ; % = 24.3	n = 105 ; % = 46.4

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Low risk of bias *(Sampling frame and recruitment partially described, but source of target population, recruitment period and place, inclusion/exclusion criteria, and baseline characteristics all fully described and participation in study was adequate)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(AMH levels were determined at a single reference laboratory by using an ultrasensitive ELISA (Beckman-Coulter). The assay range was 0.16–20 ng/ml, functional sensitivity was 0.08 ng/ml, and intra-assay and interassay coefficients of variation were 5.4% and 5.6%, respectively)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Clinical pregnancy was defined as the presence of a fetal heart beat visualized by transvaginal ultrasound examination)*

Section	Question	Answer
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the results)*
Overall risk of bias and directness	Risk of Bias	Moderate *(Moderate risk of bias due to lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Directly applicable

Friden, 2011

Bibliographic Reference	Friden, Barbro; Sjoblom, Peter; Menezes, Judith; Using anti-Mullerian hormone to identify a good prognosis group in women of advanced reproductive age.; The Australian & New Zealand journal of obstetrics & gynaecology; 2011; vol. 51 (no. 5); 411-5

Study details

Country/ies where study was carried out	Sweden
Study type	Prospective cohort study
Study dates	November 2006 to December 2008
Inclusion criteria	Women aged ≥39 years undergoing a first cycle of IVF/ICSI treatment. No other inclusion criteria reported
Exclusion criteria	Not reported
Patient characteristics	N=127 women undergoing a first cycle of IVF/ICSI treatment

	Women with AMH ≤8.6 pmol/L (n=90): • Mean age (SD): Not reported. Median (range): 42 (39-45) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): Not reported • Mean AFC at baseline (SD): Not reported Women with AMH >8.6 pmol/L (n=37): • Mean age (SD): Not reported. Median (range): 42 (39-46) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): Not reported • Mean AFC at baseline (SD): Not reported
Risk factor(s) of interest	Serum AMH: • ≤8.6 pmol/L • >8.6 pmol/L • ≤5 pmol/L* • >5 pmol/L* * For the outcome 'reduced number of oocytes retrieved' only Serum AMH was collected on any day of the menstrual cycle.

Confounding factor(s) of interest	Not reported
Duration of follow-up	Not reported; 1 IVF cycle
Setting	Fertility center
Sources of funding	Not reported
Other information	AMH was measured using commercial DSL ELISA assay kits. All participants underwent IVF/ICSI cycles (as determined by semen quality), with: • Standard agonist or antagonist protocols (as indicated by the clinical situation) • 1 or 2 embryos transferred on day 2, 3 or 5 after IVF or ICSI Odds ratios were reported for clinical pregnancy and live birth, however it is not reported if these were adjusted or what they were adjusted for, so these have not been extracted The results for the comparison of AMH ≤8.6 pmol/L and AMH >8.6 pmol/L were prioritised for analysis due to similarity to cut-offs in other studies

Study arms

AMH ≤8.6 pmol/L (N = 90)

AMH >8.6 pmol/L (N = 37)

AMH ≤5 pmol/L (N = 49)

AMH >5 pmol/L (N = 78)

Outcomes

Live birth

Outcome	AMH ≤8.6 pmol/L, , N = 90	AMH >8.6 pmol/L, , N = 37	AMH ≤5 pmol/L, , N = 49	AMH >5 pmol/L, , N = 78
Live birth Reported as delivery rate per oocyte retrieval No of events	n = 6 ; % = 7	n = 8 ; % = 22	n = NA ; % = NA	n = NA ; % = NA

Higher values are better

Clinical pregnancy

Outcome	AMH ≤8.6, , N = 90	AMH >8.6, , N = 37	AMH ≤5, , N = 49	AMH >5, , N = 78
Clinical pregnancy Reported as clinical pregnancy per oocyte retrieval No of events	n = 6 ; % = 7	n = 9 ; % = 25	n = NA ; % = NA	n = NA ; % = NA

Higher values are better

Reduced number of retrieved oocytes

Outcome	AMH ≤8.6, , N = 90	AMH >8.6, , N = 37	AMH ≤5, , N = 49	AMH >5, , N = 78
Reduced number of retrieved oocytes Reported as number of women with ≤3 oocytes obtained No of events	n = 30 ; % = 33	n = 1 ; % = 3	n = 25 ; % = 51	n = 6 ; % = 8

Lower values are better

Cycle cancellation due to low response

Outcome	AMH ≤8.6, , N = 90	AMH >8.6, , N = 37	AMH ≤5, , N = 49	AMH >5, , N = 78
Cycle cancellation due to low response Reported as number of women with no oocytes retrieved. Women with low AMH at risk of low oocyte yield were warned of the risk but agreed to try with oocyte retrieval anyway. Therefore only women with no oocytes at retrieval are included in this outcome No of events	n = 8 ; % = 9	n = 0 ; % = 0	n = NA ; % = NA	n = NA ; % = NA

Lower values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	High risk of bias *(Sampling frame and recruitment partially described, inclusion criteria partially described with no information about how the subset of women who underwent IVF during the study period and had AMH analysed was chosen. Participants' duration of fertility at baseline not reported)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Moderate risk of bias *(AMH levels were analysed using commercial DSL Elisa assay kits (Beckman Coulter) at 2 different laboratories in the UK and Sweden. Further information about the assay, such as range, functional sensitivity, and intra-assay and interassay variation coefficients are not reported so it is unclear if measurements were the same for all participants depending on laboratory used)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Low risk of bias for the outcomes clinical pregnancy, reduced number of retrieved oocytes and cycle cancellation due to insufficient eggs: clinical pregnancy was confirmed using vaginal ultrasound scan in the 7th week of pregnancy; clear definitions and cut-off points were given for the outcomes reduced number of retrieved oocytes and cycle cancellation due to insufficient eggs. Moderate risk of*

Section	Question	Answer
		bias for the outcome live birth: minimal information reported on its definition and it is unclear if it was defined as a live birth to include a gestational age of ≥ 20 weeks)
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant ORs could not be extracted as no information reported on the analysis. Relevant extracted data were therefore unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Moderate risk of bias *(Relevant ORs could not be extracted as insufficient information reported on the analysis. No evidence of selective reporting)*
Overall risk of bias and directness	Risk of Bias	High *(High risk of bias due to lack of information reported on study participants, potential variation in prognostic factor measurement, lack of information reported on measurement of the outcome live birth, lack of accounting for confounders, and insufficient information reported on the analysis)*
Overall risk of bias and directness	Directness	Directly applicable

Grynnerup, 2019

Bibliographic Reference	Grynnerup, A G; Lossl, K; Pilsgaard, F; Lunding, S A; Storgaard, M; Bogstad, J W; Praetorius, L; Zedeler, A; Bungum, L; Nyboe Andersen, A; Pinborg, A; Prediction of the lower serum anti-Mullerian hormone threshold for ovarian stimulation prior to in-vitro fertilization using the Elecsys R AMH assay: a prospective observational study.; Reproductive biology and endocrinology : RB&E; 2019; vol. 17 (no. 1); 11

Study details

Country/ies where study was carried out	Denmark
Study type	Prospective cohort study Prospective observational multicentre cohort study
Study dates	Between December 2015 to April 2017

Inclusion criteria	Women who: • Were between 18 and 40 years of age • Had BMI < 35 • Were referred for IVF/ICSI treatment with a regular menstrual cycle between 24 and 35 days and a pre-treatment AMH ≤ 12 pmol/L (as measured with the automated Elecsys® AMH assay) All included women had both ovaries
Exclusion criteria	Women who: • Had endometriosis stage III-IV • Had severe comorbidity (i.e. IDDM, NIDDM, gastrointestinal, cardiovascular, pulmonary, liver or kidney diseases) • Had dysregulation of thyroid disease • Were not Danish or English speaking • Had ovarian cyst at start of stimulation • Were previously included in the study
Patient characteristics	N=107 women who started ovarian stimulation with hMG: • Mean age (SD): Not reported. Median (IQR): 36 (34-38) years • Mean duration of infertility (SD): Not reported. Median (IQR): 24 (18–36) • Mean AMH at baseline (SD): Not reported. Median (IQR): 5.0 (3.3-8.3) pmol/L • Mean FSH at baseline (SD): Not reported. Median (IQR): 10.0 (8.0-13.2) IU/l • Mean AFC at baseline (SD): Not reported. Median (IQR): 8 (5-11)
Risk factor(s) of interest	Serum AMH: • <4 pmol/L • ≥4 pmol/L

	Serum AMH was collected on cycle day 2 or 3.
Confounding factor(s) of interest	Reports adjusted ORs for the outcome of predicting failure to reach the classical hCG criteria but not for the outcome of interest such as live birth and therefore the data have not been extracted
Duration of follow-up	Not reported
Setting	Three public fertility clinics in Denmark
Sources of funding	This work was supported by a scholarship from the Research Fund at Copenhagen University Hospital Hvidovre. A. G. G. was funded from September 2016 by ReproUnion (EU Interreg Öresund-Kattegat-Skagerrak). Roche Diagnostics provided free of charge products for the blood analyses
Other information	AMH was measured with an automated Elecsys AMH assay (Roche Diagnostics) on the Cobas e 601 analyser. The limit of detection and quantitation was 0.07 pmol/L and 0.21 pmol/L, respectively. The AMH cut-off value of 12 pmol/L corresponds to 15 pmol/L measured with the former manual ELISA assay as values are expected to be 20% lower when measured with the new assay. The cut-off value was chosen on the basis of Yates 2011. All participants were treated with: • GnRH antagonist protocol (with a fixed dose of 300 IE HP-hMG with fixed daily GnRH antagonist 0.25 mg/day added from stimulation day 6) • Triggering of ovulation by hCG when follicles reached a size ≥17 mm; any patient with at least 1 follicle ≥17 mm was offered hCG trigger and oocyte retrieval • Oocyte retrieval 36h ±2 h after hCG administration • Single embryo transfer on day 2 after oocyte retrieval; if available, surplus high-quality embryos were cryopreserved on day 2 or 5 • Either IVF or ICSI technique

Study arms

AMH <4 pmol/L (N = 35)

AMH ≥4 pmol/L (N = 72)

Outcomes

Live birth

Outcome	AMH <4 pmol/L, , N = 35	AMH ≥4 pmol/L, , N = 72
Live birth No definition of live birth provided No of events	n = 2 ; % = 5.7	n = 13 ; % = 18

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Baseline differences between groups with/without poor ovarian reserve are not reported)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants, it does not appear that any were lost to follow-up)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(AMH was measured with the new automated Elecsys® AMH assay from Roche Diagnostics on the Cobas e 601 analyser. The limit of detection and quantitation was 0.07 pmol/L and 0.21 pmol/L, respectively)*
Outcome Measurement	Outcome Measurement Summary	Moderate risk of bias *(No definition of live birth provided)*
Study Confounding	Study Confounding Summary	High risk of bias *(A multivariate analysis that adjusted for age and duration of infertility was done but not for a relevant outcome. Relevant extracted data were therefore unadjusted. There does not appear to be any missing data)*

Section	Question	Answer
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the results)*
Overall risk of bias and directness	Risk of Bias	High *(Baseline differences are not reported between groups with/without poor ovarian reserve, lack of accounting for confounders, and no definition of live birth outcome reported)*
Overall risk of bias and directness	Directness	Directly applicable

Holte, 2011

Bibliographic Reference	Holte, Jan; Brodin, Thomas; Berglund, Lars; Hadziosmanovic, Nermin; Olovsson, Matts; Bergh, Torbjorn; Antral follicle counts are strongly associated with live-birth rates after assisted reproduction, with superior treatment outcome in women with polycystic ovaries.; Fertility and sterility; 2011; vol. 96 (no. 3); 594-9

Study details

Country/ies where study was carried out	Sweden
Study type	Prospective cohort study
Study dates	January 1999 to October 2009
Inclusion criteria	All (unselected) patients eligible for sonographic scans before IVF-ICSI treatment. Participants were enrolled regardless of the amount of antral follicles and regardless of the cause and duration of infertility. No other inclusion criteria reported
Exclusion criteria	Not reported
Patient characteristics	N=2092 women undergoing 4308 IVF-ICSI cycles • Mean age (SD): 35.3 (4.2) years • Duration of infertility: Not reported • Mean AMH at baseline (SD): Not reported

- Mean FSH at baseline (SD): Not reported
- Mean AFC at baseline (SD): 19.2 (11.7)

Women in the AFC ≤5 group (n=129 cycles):

- Mean age at the stimulation start (SD): 38.1 (NR, 95% CI: 37.4 to 38.9) years
- Duration of infertility: Not reported
- Mean AMH at baseline (SD): Not reported
- Mean FSH at baseline (SD): Not reported
- Mean AFC at stimulation start (SD): 4.5 (NR, 95% CI: 4.4 to 4.6)

Women in the AFC 6-11 group (n=893 cycles):

- Mean age at the stimulation start (SD): 37.6 (NR, 95% CI: 37.4 to 37.9) years
- Duration of infertility: Not reported
- Mean AMH at baseline (SD): Not reported
- Mean FSH at baseline (SD): Not reported
- Mean AFC at stimulation start (SD): 8.4 (NR, 95% CI: 8.3 to 8.5)

Women in the AFC 12-23 group (n=2051 cycles):

- Mean age at the stimulation start (SD): 35.3 (NR, 95% CI: 35.1 to 35.4) years
- Duration of infertility: Not reported
- Mean AMH at baseline (SD): Not reported
- Mean FSH at baseline (SD): Not reported
- Mean AFC at stimulation start (SD): 15.9 (NR, 95% CI: 15.8 to 16.0)

Women in the AFC >23 group (n=1235 cycles):

- Mean age at stimulation start (SD): 33.5 (NR, 95% CI: 33.2 to 33.7) years
- Duration of infertility: Not reported
- Mean AMH at baseline (SD): Not reported

	• Mean FSH at baseline (SD): Not reported • Mean AFC at stimulation start (SD): 33.8 (NR, 95% CI: 33.2 to 34.4)

Risk factor(s) of interest	Total AFC (all follicles 2-10mm) stratified into 4 groups as defined by cut-offs corresponding to pregnancy rates 15%, 25%, and 35%:
	
	• ≤ 5
	• 6-23 (including the following groups reported in the study):
	  ○ 6-11
	  ○ 12-23
	• >23
	
	AFC was assessed on any day of the menstrual cycle.

Confounding factor(s) of interest	Not reported
Duration of follow-up	Not reported
Setting	University-affiliated private infertility center
Sources of funding	Not reported
Other information	Participants underwent the following ICSI treatment protocol: • Ovarian stimulation with individual starting doses of rFSH (follitropin alfa or follitropin beta, daily SC injections) or hMG (menotropin, daily SC injections) • Long GnRH-agonist (nafarelin 400 mg 2/day, nasal spray or buserelin 0.3 mg 3/day, nasal spray; both at half the dose during ovarian stimulation) were down-regulated • In some cases a GnRH-antagonist (cetrorelix 0.25 mg, daily SC injection starting on d 5-6 during stimulation; or ganirelix, same regimen) was given • Luteal phase support with progesterone for 2 weeks (vagitories 1200 mg daily or gel 180 mg) • ET on day 2 after OPU

	• Luteal phase support vaginally for 2 weeks after ET with 1200 mg of progesterone vagitories or 180 mg of gel daily The outcomes clinical pregnancy per ovum pickup, clinical pregnancy per embryo transfer, live birth per ovum pickup, and live birth per embryo transfer could not be extracted because the number of observations per group was not reported and therefore percentages could not be converted to numerical figures. Odds ratios were reported for live birth, however the analysis did not adjust for duration of infertility, so these have not been extracted

Study arms

AFC ≤5 (N = 129)
n reflects number of IVF-ICSI cycles

AFC 6-23 (N = 2944)
Includes AFC 6-11 (n = 893) and AFC 12-23 (n = 2051) groups. n reflects number of IVF-ICSI cycles

AFC >23 (N = 1235)
n reflects number of IVF-ICSI cycles

Outcomes

Live birth

Outcome	**AFC ≤ 5, , N = 129**	**AFC 6-23, , N = 2944**	**AFC >23, , N = 1235**
Live birth per IVF-ICSI cycle (%) Reported as mean live birth per start of stimulation. Data reported as mean percentages and converted to numerical figures. Data from AFC 6-23 group combines data from AFC 6-11	n = 13 ; % = 10.08	n = 574 ; % = 19.50	n = 338 ; % = 27.37

Outcome	AFC ≤ 5, , N = 129	AFC 6-23, , N = 2944	AFC >23, , N = 1235
(121/893, 13.55%) and AFC 12-23 (453/2051, 22.09%) groups. Live birth defined as delivery of ≥1 living child No of events			

Higher values are better

Clinical pregnancy

Outcome	AFC ≤ 5, , N = 129	AFC 6-23, , N = 2944	AFC >23, , N = 1235
Clinical pregnancy per IVF-ICSI cycle Reported as mean pregnancy (%) per start of stimulation. Data reported as mean percentages and converted to numerical figures. Data from AFC 6-23 group combines data from AFC 6-11 (177/893, 19.82%) and AFC 12-23 (610/2051, 29.74%) groups. Clinical pregnancy defined as the visualization of a gestational sac with vaginal ultrasound in gestational week >7 No of events	n = 17 ; % = 13.18	n = 787 ; % = 26.73	n = 449 ; % = 36.36

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Duration of infertility not reported at baseline)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants, it does not appear that any were lost to follow-up although this is not explicitly reported)*

Section	Question	Answer
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(All participants were scanned with two-dimensional ultrasound for AFC by one of two investigators and the AFC was recorded as the sum of all follicles of 2 to 10mm in size)*
Outcome Measurement	Outcome Measurement Summary	Moderate risk of bias *(Definition of outcomes deviate from those defined in the protocol: clinical pregnancy defined as the visualization of a gestational sac with vaginal ultrasound in gestational week >7; live birth defined as delivery of at least one living child)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant ORs could not be extracted as the analysis did not adjust for duration of infertility. Relevant extracted data were therefore unadjusted. There does not appear to be any missing data, although this is not explicitly reported)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Moderate risk of bias *(The outcomes clinical pregnancy per ovum pickup, clinical pregnancy per embryo transfer, live birth per ovum pickup, and live birth per embryo transfer could not be extracted because the number of observations per group was not reported)*
Overall risk of bias and directness	Risk of Bias	High *(Baseline duration of infertility not reported, definition of outcomes deviate from the protocol, some outcomes could not be extracted due to partial reporting of results, and lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Directly applicable

Hsieh, 2001

Bibliographic Reference	Hsieh, Y Y; Chang, C C; Tsai, H D; Antral follicle counting in predicting the retrieved oocyte number after ovarian hyperstimulation.; Journal of assisted reproduction and genetics; 2001; vol. 18 (no. 6); 320-4

Study details

Country/ies where study was carried out	China
Study type	Prospective cohort study
Study dates	Not reported
Inclusion criteria	All cases at the China Medical College Hospital receiving COH and IVF-ET, no other inclusion criteria reported
Exclusion criteria	Women with: • Polycystic ovarian disease • 1 ovary
Patient characteristics	N=372 cycles (n=343 couples) in infertile women receiving controlled ovarian stimulation (COH) and IVF-ET Women with ≤3 AFC (n=32 cycles): • Mean age (SD): 35.3 (4.0) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean basal day 3 FSH (SD): 14.3 (10.4) mIU/ml • Mean AFC (SD): 2.1 (0.7) Women with 4–10 AFC (n=223 cycles): • Mean age (SD): 31.9 (4.2) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean basal day 3 FSH (SD): 5.9 (5.4) mIU/ml

	• Mean AFC (SD): 7.2 (2.1) Women with ≥11 AFC (n=117 cycles): • Mean age (SD): 28.5 (3.6) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean basal day 3 FSH (SD): 4.1 (3.1) mIU/ml • Mean AFC (SD): 16.1 (5.3)
Risk factor(s) of interest	Total AFC (all follicles 2–10 mm; follicles >10 mm were excluded): • ≤3 • 4-10 • ≥11 AFC was assessed on cycle day 3.
Confounding factor(s) of interest	Not reported
Duration of follow-up	Not reported
Setting	A Medical College Hospital
Sources of funding	Not reported
Other information	Participants underwent IVF with: • Long down-regulation protocol where ovaries were stimulated by gonadotrophin and under the GnRHa suppression from the previous midluteal phase

	• 3 ampules of HMG daily for participants <30 years; 2 ampules of HMG and 2 ampules of FSH for participants ≥30 years during menstrual day 3–7 • Daily gonadotrophins decreased to 2 ampules HMG in the younger participants and to 2 ampules FSH and 1 ampule HMG in the elder patients, if serum E2 was ≥100 pg/mL on cycle day 7 • Gonadotrophin until ≥2 follicles ≥18 mm were formed, then human chorionic gonadotrophin was given • Oocytes retrieved trans-vaginally 34–36 h later • Luteal phase support with HCG (2500 IU/day) on days 1, 4, and 7 post-ET and progesterone since day 9 post-ET

Study arms

≤3 AFC (N = 32)
n refers to cycles

4–10 AFC (N = 223)
n refers to cycles

≥11 AFC (N = 117)
n refers to cycles

Outcomes

Clinical pregnancy

Outcome	≤3 AFC, , N = 32	4–10 AFC, , N = 223	≥11 AFC, , N = 117
Clinical pregnancy per cycle Clinical pregnancy defined as the presence of an intrauterine gestational sac. Some participants underwent multiple cycles No of events	n = 2 ; % = 6.3	n = 75 ; % = 33.6	n = 41 ; % = 35

Higher values are better

Clinical pregnancy

Outcome	≤3 AFC, , N = 16	4–10 AFC, , N = 217	≥11 AFC, , N = 117
Clinical pregnancy per transfer Clinical pregnancy defined as the presence of an intrauterine gestational sac. Excludes participants who did not undergo embryo transfer No of events	n = 2 ; % = 11.1	n = 75 ; % = 34.6	n = 41 ; % = 35

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Participants' duration of infertility not reported at baseline)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants, it does not appear that any were lost to follow-up although this is not explicitly reported)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(Day-3 AFC was measured by the transvaginal ultrasound and AFC with diameter 2–10 mm were recorded (>10 mm were excluded). There does not appear to be any missing data)*
Outcome Measurement	Outcome Measurement Summary	Moderate risk of bias *(Definition of outcome deviates from that defined in the protocol: clinical pregnancy was defined as the presence of an intrauterine gestational sac)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Moderate risk of bias *(Very sparse reporting regarding statistical analysis, difficult to judge if there was any selective reporting of the results)*

Section	Question	Answer
Overall risk of bias and directness	Risk of Bias	High *(Duration of infertility not reported at baseline, definition of outcome deviates from that defined in the protocol, lack of accounting for confounders, minimal information reported on the analysis)*
Overall risk of bias and directness	Directness	Directly applicable

Irez, 2011

Bibliographic Reference	Irez, Tulay; Ocal, Pelin; Guralp, Onur; Cetin, Meral; Aydogan, Begum; Sahmay, Sezai; Different serum anti-Mullerian hormone concentrations are associated with oocyte quality, embryo development parameters and IVF-ICSI outcomes.; Archives of gynecology and obstetrics; 2011; vol. 284 (no. 5); 1295-301

Study details

Country/ies where study was carried out	Turkey
Study type	Prospective cohort study
Study dates	January 2009 to February 2011
Inclusion criteria	Women undergoing IVF with ICSI who: • Were aged <38 years • Had both ovaries • Were patients without TESE or frozen TESE
Exclusion criteria	Not reported
Patient characteristics	N=209 women undergoing IVF with ICSI

	Women in AMH percentile ≤10 (n=21): • Mean age (SD): 32.0 (3.0) years • Mean duration of infertility (SD): 7.5 (4.1) years • Mean AMH at baseline (SD): 0.54 (0.30) ng/ml • Mean FSH at baseline (SD): 10.0 (5.9) mIU/ml • Mean AFC at baseline (SD): 4.1 (2.5) Women in AMH percentile 10-25 (n=31): • Mean age (SD): 32.3 (3.7) years • Mean duration of infertility (SD): 7.4 (4.2) years • Mean AMH at baseline (SD): 1.15 (0.14) ng/ml • Mean FSH at baseline (SD): 6.7 (3.5) mIU/ml • Mean AFC at baseline (SD): 6.2 (3.0) Women in AMH percentile 25-50 (n=53): • Mean age (SD): 30.9 (3.8) years • Mean duration of infertility (SD): 7.0 (4.0) years • Mean AMH at baseline (SD): 2.11 (0.39) ng/ml • Mean FSH at baseline (SD): 6.7 (2.8) mIU/ml • Mean AFC at baseline (SD): 7.1 (3.2)

	Women in AMH percentile 50-75 (n=28): • Mean age (SD): 30.0 (3.7) years • Mean duration of infertility (SD): 7.6 (3.3) years • Mean AMH at baseline (SD): 3.31 (0.27) ng/ml • Mean FSH at baseline (SD): 6.8 (4.6) mIU/ml • Mean AFC at baseline (SD): 6.2 (4.6) Women in AMH percentile 75-90 (n=55): • Mean age (SD): 29.3 (3.7) years • Mean duration of infertility (SD): 6.5 (3.3) years • Mean AMH at baseline (SD): 5.46 (1.27) ng/ml • Mean FSH at baseline (SD): 5.4 (1.5) mIU/ml • Mean AFC at baseline (SD): 13.3 (6.3) Women in AMH percentile ≥90 (n=21): • Mean age (SD): 28.4 (3.1) years • Mean duration of infertility (SD): 5.6 (3.5) years • Mean AMH at baseline (SD): 10.4 (2.08) ng/ml • Mean FSH at baseline (SD): 5.5 (1.6) mIU/ml • Mean AFC at baseline (SD): 13.0 (6.6)
Risk factor(s) of interest	Serum AMH: • AMH ≤0.89 ng/ml • AMH 0.89 - 8.06 ng/ml (including the following groups reported in the study): ○ AMH 0.89 - 1.40 ng/ml

	○ AMH 1.40 - 2.89 ng/ml ○ AMH 2.89 - 4.83 ng/ml ○ AMH 4.83 - 8.06 ng/ml • AMH >8.06 ng/ml Serum AMH was collected on cycle day 3.
Confounding factor(s) of interest	Relevant data were unadjusted as no ORs were extracted
Duration of follow-up	Not reported
Setting	IVF center
Sources of funding	Not reported
Other information	AMH was measured using the AMH/MIS enzyme-linked immunosorbent assay (ELISA) kit (DSL) All participants underwent ICSI cycles, with: • GnRH agonist protocol (leuprolide acetate 1 mg/day subcutaneously beginning on the 21st day of previous cycle. Leuprolide acetate was reduced to 50 µg/day) • Stimulation with gonadotropin (150–225 IU was started IM daily, with the dose of the gonadotropin adjusted according to follicular growth) • Oocyte maturation and ovulation induction with HCG (10,000 IU or 205 mcg injected) when there were at least two follicles >17 mm • Oocyte retrieval 36h after HCG administration • Standard ICSI technique • Embryo transfer of selected embryos

	• Luteal phase support until 12 days after the embryo transfer (progesterone 200 mg administered by vaginal route three times daily or by 100 mg progesterone injection IM daily)

Study arms

AMH ≤0.89 ng/ml (N = 21)
Group 1 (percentile of AMH concentration <10% or ≤0.89 ng/ml; n=21)

AMH 0.89 - 8.06 ng/ml (N = 167)
Combines group 2 (percentile of AMH concentration 10-25% or 0.89 - 1.40 ng/ml; n=31), group 3 (percentile of AMH concentration 25–50% or 1.40–2.89 ng/ml; n=53), group 4 (percentile of AMH concentration 50–75% or 2.89–4.83 ng/ml; n=28), and group 5 (percentile of AMH concentration 75-90% or 4.83–8.06 ng/ml; n=55)

AMH >8.06 ng/ml (N = 21)
Group 6 (percentile of AMH concentration >90% or >8.06 ng/ml; n=21)

Outcomes

Clinical pregnancy

Outcome	AMH ≤0.89 ng/ml, , N = 21	AMH 0.89 - 8.06 ng/ml, , N = 167	AMH >8.06 ng/ml, , N = 21
Clinical pregnancy Outcome reported as percentages and converted to numerical figures. Results for the AMH 0.89 - 8.06 ng/ml group are combined from the results for group 2 (6/31, 19.4%), group 3 (18/53, 34.0%), group 4 (11/28, 39.3%), and group 5 (17/55, 30.9%) No of events	n = 2 ; % = 9.5	n = 52 ; % = 31.1	n = 4 ; % = 19

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Low risk of bias *(Sampling frame and recruitment partially described, but source of target population, recruitment period and place, inclusion/exclusion criteria, and baseline characteristics all fully described and participation in study was adequate)*
Study Attrition	Study Attrition Summary	Low risk of bias *(It does not appear that any participants were lost to follow-up although this is not explicitly reported)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(AMH was measured in duplicate using the AMH/MIS enzyme-linked immunosorbent assay kit (DSL). The sensitivity of the assay was 0.017 ng/mL. The intra- and inter- assay variations were <5 and <8%, respectively.)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Clinical pregnancy was defined as detection of fetal heart beat through abdominal ultrasonography at 8 gestational weeks after the initiation of ART cycles)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data, although this is not explicitly reported)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the results)*
Overall risk of bias and directness	Risk of Bias	Moderate *(Moderate risk of bias due to lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Directly applicable

1

2 Jayaprakasan, 2012

Bibliographic Reference	Jayaprakasan, Kannamannadiar; Chan, Yeeyin; Islam, Rumana; Haoula, Zeina; Hopkisson, James; Coomarasamy, Arri; Raine-Fenning, Nick; Prediction of in vitro fertilization outcome at different antral follicle count thresholds in a prospective cohort of 1,012 women.; Fertility and sterility; 2012; vol. 98 (no. 3); 657-63

Study details

Country/ies where study was carried out	UK
Study type	Prospective cohort study
Study dates	Between March 2005 and July 2009
Inclusion criteria	Reported that the study aimed to recruit all subjects who were undergoing their first cycle of IVF or intracytoplasmic sperm injection (ICSI) treatment during the above study period, no other details given
Exclusion criteria	Subjects were excluded if had an ovarian cyst or follicle measuring ≥20 mm in diameter on their pre-treatment ultrasound scan
Patient characteristics	N=1012 women undergoing their first cycle of IVF or ICSI treatment: • Mean age (SD): 34.3 (4.3) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 6.6 (2.1) IU/L • Mean AFC at baseline (SD), n: 18.5 (11.6)

Risk factor(s) of interest	Total AFC (all follicles 2-10mm):
	• 3-10
	• 11-22 (including the following groups reported in the study):
	  ○ 11-15
	  ○ 16-22
	• ≥23

	AFC was measured between cycle days 2 and 4.
Confounding factor(s) of interest	Multiple logistics regression was performed and ORs for AFC predictability of OHSS reported but the model adjusted for age and not for the duration of fertility
Duration of follow-up	Not reported
Setting	University-based assisted conception unit
Sources of funding	Not reported
Other information	All participants underwent IVF or ICSI using a standard long protocol: • Down-regulation with a GnRH agonist (500 mg/d of buserelin or 800 mg/d of nafarelin) beginning in the midluteal phase of the menstrual cycle 7 days before the earliest expected date of menstruation • COS using either recombinant FSH or purified urinary hMG; the starting dose of gonadotropin was determined on the basis of participant's age (150 IU for women aged <30 years, 225 IU for women aged 30–38 years, and 300 IU for women aged >38 years); the dose was not modified according to the AFC • hCG (16,500 IU) was administered when there were ≥3 follicles measuring >18 mm in diameter and oocyte retrieval performed 36 hours later • Participants who did not develop ≥3 follicles measuring >14 mm in diameter after 12 days of gonadotropin treatment were advised to discontinue treatment or convert to IUI • 1 or 2 normally cleaved embryos were transferred into the uterus 2, 3, or 5 days after oocyte retrieval Reduced number of retrieved oocytes was reported as part of the composite outcome 'poor response', which also included cycle cancellation due to inadequate follicular response, and therefore not extracted

Study arms

AFC 3-10 (N = 239)

AFC 11-22 (N = 507)

Combines AFC 11-15 (n = 257) and AFC 16-22 (n = 250) groups

AFC ≥23 (N = 266)

Outcomes

Live birth

Outcome	AFC 3-10, , N = 239	AFC 11-22, , N = 507	AFC ≥23, , N = 266
Live birth Data from AFC 11-22 group combines data from the AFC 11-15 (86/257, 34%) and AFC 16-22 (96/250, 39%) groups. No definition provided No of events	n = 54 ; % = 23	n = 182 ; % = 35.9	n = 115 ; % = 44

Higher values are better

Ovarian Hyperstimulation Syndrome (OHSS)

Outcome	AFC 3-10, , N = 239	AFC 11-22, , N = 507	AFC ≥23, , N = 266
OHSS (moderate/severe) Data from AFC 11-22 group combines data from the AFC 11-15 (5/257, 2%) and AFC 16-22 (8/250, 3.3%) groups. Defined as evidence of nausea with or without vomiting, ascites evident clinically or on ultrasound, hydrothorax, oliguria, haematocrit >45%, hypoproteinaemia, and ovarian size >8 mm No of events	n = 0 ; % = 0	n = 13 ; % = 2.6	n = 18 ; % = 6.9

Lower values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Baseline differences between groups with/without poor ovarian reserve not reported; duration of infertility at baseline not reported)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(AFC was measured using 3D ultrasound by one of the two observers.)*
Outcome Measurement	Outcome Measurement Summary	Moderate risk of bias *(Moderate risk of bias for the outcome live birth as no definition reported. Low risk of bias for the outcome OHSS as moderate/severe OHSS defined as evidence of nausea with or without vomiting, ascites evident clinically or on ultrasound, hydrothorax, oliguria, haematocrit >45%, hypoproteinaemia, and ovarian size >8 mm)*
Study Confounding	Study Confounding Summary	High risk of bias *(ORs could not be extracted as the analysis did not adjust for duration of infertility. Relevant extracted data were therefore unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the unadjusted data)*
Overall risk of bias and directness	Risk of Bias	High *(Baseline differences between groups with/without poor ovarian reserve not reported, duration of infertility at baseline not reported, live birth definition not provided, and lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Directly applicable

Karimzadeh, 2009

Bibliographic Reference	Karimzadeh, M.A.; Ghandi, S.; Age and basal FSH as a predictor of ART outcome; Iranian Journal of Reproductive Medicine; 2009; vol. 7 (no. 1); 19-22

Study details

Country/ies where study was carried out	Iran
Study type	Prospective cohort study
Study dates	Between January 2005 to December 2007.
Inclusion criteria	Women undergoing their first IVF/ICSI cycle. No other inclusion criteria reported
Exclusion criteria	Women with: • The history of pelvic surgery • Endometrioma >2 cm in vaginal sonography • Severe endometriosis at laparoscopy
Patient characteristics	N=207 women with first IVF/ICSI cycles, no other baseline characteristics reported. Participants were divided in 4 groups according to age and FSH level: • Group 1: <37 years old and FSH <10 mIU/ml • Group 2: <37 years old and FSH ≥10 mIU/ml • Group 3: ≥37 years old and FSH <10 mIU/ml • Group 4: ≥37 years old and FSH ≥10 mIU/ml
Risk factor(s) of interest	Serum FSH: • <10 mIU/ml

	• ≥10 mIU/ml Serum FSH was collected on cycle day 3.
Confounding factor(s) of interest	Not reported
Duration of follow-up	Not reported
Setting	Research and Clinical Center for Infertility
Sources of funding	Not reported
Other information	All serum FSH samples were collected on the day 3 of the prior cycle to IVF/ICSI treatment and were measured using an Immunoenzymometric assay (MONOBIND). The intra-assay and inter-assay coefficient of variation for the FSH level were 4.3% and 6.9% for 5.9mIU/mL, respectively. All participants underwent IVF or ICSI cycles with the stimulation protocol: • Long GnRH-a protocol with subcutaneous buserelin started at a dose of 0.5 CC daily, from the day 21 of previous cycle and the dosage was reduced to 0.25 CC per day when the period started • Ovarian stimulation with hMG (150 – 375 IU per day consecutively) was initiated on the 2nd day • When ≥3 follicles ≥ 18 mm were observed hCG 10.000 IU was administered • Oocyte retrieval performed 36 h after hCG injection • Embryo transfer performed 2–3 days later • Luteal support with progesterone in oil (100 mg per day for 14 days)

Study arms
FSH <10 mIU/ml (N = 161)

FSH ≥10 mIU/ml (N = 46)

Outcomes

Clinical pregnancy

Outcome	FSH <10 mIU/ml, , N = 161	FSH ≥10 mIU/ml, , N = 46
Clinical pregnancy Clinical pregnancy defined as the presence of fetal cardiac activity in ultrasonography 3 weeks after embryos transferred No of events	n = 35 ; % = 21.7	n = 6 ; % = 13
Age <37 years (n=172) Total n with FSH <10 mIU/ml = 147; total n with FSH ≥10 mIU/ml = 25 No of events	n = 35 ; % = 23.8	n = 5 ; % = 20
Age ≥37 years (n=35) Total n with FSH <10 mIU/ml = 14; total n with FSH ≥10 mIU/ml = 21 No of events	n = 0 ; % = 0	n = 1 ; % = 4.8

Higher values are better

Cycle cancellation due to low response

Outcome	FSH <10 mIU/ml, , N = 161	FSH ≥10 mIU/ml, , N = 46
Cycle cancellation due to low response Cancellation rate was defined in the study as the cycles with no ovarian response. 'No ovarian response' is not defined. Results reported as percentages and converted to numerical figures No of events	n = 4 ; % = 2.5	n = 4 ; % = 8.7

Outcome	FSH <10 mIU/ml, , N = 161	FSH ≥10 mIU/ml, , N = 46
Age <37 years (n=172) Total n with FSH <10 mIU/ml = 147; total n with FSH ≥10 mIU/ml = 25 No of events	n = 3 ; % = 2	n = 2 ; % = 8
Age ≥37 years (n=35) Total n with FSH <10 mIU/ml = 14; total n with FSH ≥10 mIU/ml = 21 No of events	n = 1 ; % = 7.1	n = 2 ; % = 9.5

Lower values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	High risk of bias *(Sampling frame and recruitment not described, and baseline characteristics not reported)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(FSH was measured using an Immunoenzymometric assay (MONOBIND). The intra-assay and inter-assay coefficient of variation for the FSH level were 4.3% and 6.9% for 5.9mIU/mL, respectively.)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Low risk of bias for the outcome clinical pregnancy as this was defined as the presence of foetal cardiac activity in ultrasonography 3 weeks after embryos transferred. Moderate risk of bias for the outcome cancellation rate because authors described this outcome as cycles with no ovarian response, however 'no ovarian response' is not defined)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data)*

Section	Question	Answer
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Moderate risk of bias *(Minimal description of statistical analysis and no evidence of selective reporting of the results)*
Overall risk of bias and directness	Risk of Bias	High *(Baseline characteristics of participants not reported and lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Directly applicable

Korsholm, 2018

Bibliographic Reference	Korsholm, Anne-Sofie; Petersen, Kathrine Birch; Bentzen, Janne Gasseholm; Hilsted, Linda Maria; Andersen, Anders Nyboe; Hvidman, Helene Westring; Investigation of anti-Mullerian hormone concentrations in relation to natural conception rate and time to pregnancy.; Reproductive biomedicine online; 2018; vol. 36 (no. 5); 568-575

Study details

Country/ies where study was carried out	Denmark
Study type	Prospective cohort study
Study dates	2008 to 2014
Inclusion criteria	Women who initiated an attempt to conceive naturally or achieved an unplanned natural conception within 2 years after inclusion, from 2 cohorts: 1. Healthcare workers aged 25–41 years who were employed at Rigshospitalet 2. Women aged 25–42 years who consulted the Fertility Assessment and Counselling Clinic (FAC Clinic) at Rigshospitalet

	Inclusion criteria were: • Women of reproductive age in a heterosexual relationship • Tried to conceive naturally or had an unplanned natural conception within 2 years after inclusion • A known duration of the pregnancy attempt • AMH analysed by the Elecsys method
Exclusion criteria	• Hormonal contraceptive use
Patient characteristics	N=260 women: • Mean age (SD): 32.9 (4.06) years • Mean duration of infertility (SD): Not reported • Median AMH at baseline (90% population limits): 17.9 (3.7–66.3) pmol/l • Mean FSH at baseline (SD): Not reported • Mean AFC at baseline (SD): Not reported
Risk factor(s) of interest	Serum AMH • Low: <9.5 pmol/l • Intermediate: 9.5-33.0 pmol/l • High: >33.0 pmol/l Serum AMH was collected on cycle day 2-5 for cohort 1 and an independent cycle day for cohort 2.
Confounding factor(s) of interest	Not reported
Duration of follow-up	4 years for cohort 1 (healthcare workers); 2 years for cohort 2 (women consulting the fertility clinic)
Setting	Fertility clinic

Sources of funding	Roche Diagnostics A/S funded the kits for the AMH assay, but were not in any way involved in data analysis and preparation of the manuscript
Other information	AMH was measured using a fully automated Elecsys assay (Cobas 8000, e602 module, Roche Diagnostics A/S) Participants in the study did not receive ART at baseline; initiating fertility treatment was analysed as an outcome in the study separate to achievement of pregnancy

Study arms

Low AMH (AMH <9.5 pmol/l) (N = 51)

Intermediate AMH (AMH 9.5-33.0 pmol/l) (N = 157)

High AMH (AMH >33.0 pmol/l) (N = 52)

Outcomes

Clinical pregnancy - spontaneous conception

Outcome	**Low AMH (AMH <9.5 pmol/l), , N = 51**	**Intermediate AMH (AMH 9.5-33.0 pmol/l), , N = 157**	**High AMH (AMH >33.0 pmol/l), , N = 52**
Clinical pregnancy - spontaneous conception at <3 months Cumulative No of events	n = 20 ; % = 39.4	n = 75 ; % = 48.1	n = 32 ; % = 62.6
Clinical pregnancy - spontaneous conception at 4-12 months Cumulative No of events	n = 29 ; % = 57.9	n = 99 ; % = 65.9	n = 40 ; % = 78.3

Outcome	Low AMH (AMH <9.5 pmol/l), , N = 51	Intermediate AMH (AMH 9.5-33.0 pmol/l), , N = 157	High AMH (AMH >33.0 pmol/l), , N = 52
Clinical pregnancy - spontaneous conception at >12 months Cumulative No of events	n = 30 ; % = 60.1	n = 103 ; % = 70	n = 40 ; % = 78.3
Spontaneous (unplanned) clinical pregnancy No of events	n = 2 ; % = 6.7	n = 21 ; % = 20.4	n = 11 ; % = 27.5

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described, participants' duration of fertility at baseline not reported)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(AMH was analysed using the fully automated Elecsys assay (Cobas® 8000, e602 module, Roche Diagnostics A/S) at the Department of Clinical Biochemistry, Rigshospitalet, Copenhagen. The assay has a detection limit of 0.21 pmol/L, the intra- and inter-assay coefficients were ≤2.8% and 4.4% with the Elecsys® AMH assay (Anckaert et al., 2016; Nelson et al., 2015))*
Outcome Measurement	Outcome Measurement Summary	High risk of bias *(Pregnancy was self-reported by participants and not confirmed using ultrasound or other method)*

Section	Question	Answer
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There is no missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and there does not appear to be any missing data)*
Overall risk of bias and directness	Risk of Bias	High *(High risk of bias due to outcome measurement, no information on participants' duration of fertility at baseline, and lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Partially applicable *(106/260 participants (41%) are healthcare workers at a hospital and it is unclear if they were undergoing ORT to investigate subfertility.)*

Lee, 2009

Bibliographic Reference	Lee, Tsung-Hsien; Liu, Chung-Hsien; Huang, Chun-Chia; Hsieh, Kung-Chen; Lin, Pi-Mei; Lee, Maw-Sheng; Impact of female age and male infertility on ovarian reserve markers to predict outcome of assisted reproduction technology cycles.; Reproductive biology and endocrinology : RB&E; 2009; vol. 7; 100

Study details

Country/ies where study was carried out	Taiwan
Study type	Prospective cohort study
Study dates	Between March 2007 and December 2007
Inclusion criteria	Women who: • Underwent a long protocol for the use of a GnRH agonist • Had a first stimulation cycle for IVF/ICSI • Had bilateral ovaries present

	• Had no endocrine disorders, such as polycystic ovarian syndrome or hyperprolactinemia
Exclusion criteria	Women with endocrine disorders or unilateral ovaries
Patient characteristics	N=336 women undergoing their first IVF/ICSI procedures Women aged <35 years (n=213): • Mean age (SD): 30.8 (0.2) years • Mean duration of infertility (SD): 3.2 (0.2) years • Mean AMH level at baseline (SD): 2.73 (0.13) ng/ml • Mean FSH level at baseline (SD): 7.60 (0.26) IU/L • Mean AFC at baseline (SD): Not reported Women aged ≥35 years (n=123): • Mean age (SD): 38.6 (0.2) years • Sex (female/male): 123/0 • Mean duration of infertility (SD): 4.7 (0.3) years • Mean AMH level at baseline (SD): 1.85 (0.15) ng/ml • Mean FSH level at baseline (SD): 9.63 (0.47) IU/L • Mean AFC at baseline (SD): Not reported
Risk factor(s) of interest	• Serum log AMH Because of a skewed distribution, AMH values were log-transformed.

	Serum AMH was collected on cycle day 3.
Confounding factor(s) of interest	The multivariate logistic regression analysis controlled for: • Female age • Duration of infertility • Body mass index • Log AMH • Log AFC • Log FSH • Number of transferred embryos • Number of good embryos
Duration of follow-up	Not reported
Setting	Women's Hospital
Sources of funding	Not reported
Other information	Serum AMH measurements were assessed by the same technician on day 3-5 of the cycle using the AMH/MIS ELISA kit (DSL). The minimal detection limit and intra- and inter-assay CVs were 0.017 ng/ml and < 5% and < 8%, respectively All participants undergoing first IVF/ICSI cycles with: • A long protocol with GnRH agonist • Daily subcutaneous injections of 0.5 mg leuprolide acetate on day 21 of the pre-stimulation cycle • Gonadotrophin at a dose of 225 IU/ day given subcutaneously for cycle day 3 -7, adjusted according to the ovarian response • Ovarian response monitored by transvaginal ultrasound and serum oestradiol levels • hCG (250 µg) when ≥2 follicles reached a max diameter of 18 mm

	• Oocyte retrieval 32- 34 hours subsequent to hCG injection • ET transfer performed 3 days after oocyte retrieval

Study arms

logAMH (N = 324)

Outcomes

Live birth

Outcome	logAMH, , N = 324
Live birth OR (95% CI). Reported as the odds ratio subsequent to conditional logistic regression model based on the surveyed ovarian reserve markers and pregnancy-related parameters. Custom value	1.580 (1.197 to 2.086)
Women aged ≥35 years n = 114 Custom value	2.055 (1.285 to 3.286)

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Baseline differences between groups with/without poor ovarian reserve are not reported)*
Study Attrition	Study Attrition Summary	Moderate risk of bias *(No participants were lost to follow-up, however 12/336 participants (4%) were excluded from analysis due to no oocytes retrieved or no embryos available for transfer, and so data on these participants*

Section	Question	Answer
		could not be extracted. It is therefore difficult to assess if the ovarian reserve at baseline were important risk factors for these outcomes)
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(AMH was assessed using the AMH/MIS ELISA kit (DSL). The minimal detection limit and intra- and inter-assay CVs for the AMH assay were 0.017 ng/ml and < 5% and < 8%, respectively. AMH values did not have a normal distribution and were log transformed)*
Outcome Measurement	Outcome Measurement Summary	Moderate risk of bias *(Live birth definition deviates from that defined in the review protocol: defined as a living child 1 week after delivery and unclear how these data were collected)*
Study Confounding	Study Confounding Summary	Moderate risk of bias *(Multivariate regression model adjusted for age and duration of infertility. No information reported on how some confounding factors adjusted for were defined or measured (including duration of infertility and BMI). It is not reported whether information on all confounding factors was available at baseline or any methods used for potential missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Relevant data are adjusted. No evidence of selective reporting of the result)*
Overall risk of bias and directness	Risk of Bias	Moderate *(Moderate risk of bias due to potential study attrition, definition of the outcome deviates from the protocol, lack of information on definition/measurement of some confounding factors, and no reporting of baseline difference between groups according to baseline ovarian reserve)*
Overall risk of bias and directness	Directness	Directly applicable

Liao, 2019

Bibliographic Reference Liao, ShuJie; Xiong, Jianwu; Tu, Haiting; Hu, Cheng; Pan, Wulin; Geng, Yudi; Pan, Wei; Lu, Tingjuan; Jin, Lei; Prediction of in vitro fertilization outcome at different antral follicle count thresholds combined with female age, female cause of infertility, and ovarian response in a prospective cohort of 8269 women.; Medicine; 2019; vol. 98 (no. 41); e17470

1 Study details

Country/ies where study was carried out	China
Study type	Prospective cohort study
Study dates	Between January 2014 and August 2017
Inclusion criteria	Infertile women with: • Normal menstrual cycles • A single infertility cause
Exclusion criteria	Women with a combined cause of infertility
Patient characteristics	N=8269 infertile women undergoing their IVF/ICSI treatment Women who did not achieve pregnancy (n=5343): • Mean age (SD): 31.5 (4.8) years • Mean duration of infertility (SD): 4.0 (3.3) years • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 7.3 (1.9) mIU/mL • Mean AFC at baseline (SD): 12.8 (5.7) Women who achieved pregnancy (n=2926): • Mean age (SD): 30.4 (4.1) years • Mean duration of infertility (SD): 3.6 (2.6) years • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 7.3 (1.9) mIU/mL

- Mean AFC at baseline (SD): 14.0 (5.5)

Women in the AFC 1-8 group (n=1922):

- Mean age (SD): 33.4 (5.1) years
- Mean duration of infertility (SD): 4.2 (3.6) years
- Mean AMH at baseline (SD): Not reported
- Mean FSH at baseline (SD): Not reported
- Mean AFC at baseline (SD): Not reported

Women in the AFC 9-12 group (n=2261):

- Mean age (SD): 31.5 (4.4) years
- Mean duration of infertility (SD): 4.0 (3.2) years
- Mean AMH at baseline (SD): Not reported
- Mean FSH at baseline (SD): Not reported
- Mean AFC at baseline (SD): Not reported

Women in the AFC 13-17 group (n=2065):

- Mean age (SD): 30.4 (4.2) years
- Mean duration of infertility (SD): 3.7 (2.8) years
- Mean AMH at baseline (SD): Not reported
- Mean FSH at baseline (SD): Not reported
- Mean AFC at baseline (SD): Not reported

Women in the AFC ≥18 group (n=2021):

- Mean age (SD): 29.2 (3.7) years
- Mean duration of infertility (SD): 3.6 (2.5) years
- Mean AMH at baseline (SD): Not reported

	• Mean FSH at baseline (SD): Not reported • Mean AFC at baseline (SD): Not reported
Risk factor(s) of interest	AFC: • 1 to 8* • 9 to 12 • 13 to 17 • ≥18 *Reference group in the regression analysis Participants were categorized into 4 groups according to AFC quartiles. Study does not reported the size of the antral follicles or whether the grouping was based on total antral follicle count or otherwise.
Confounding factor(s) of interest	Multivariate regression analysis adjusted for: • Age • Duration of infertility • Female cause of infertility • Progesterone • E2 • Oocytes retrieved
Duration of follow-up	Not reported
Setting	Reproductive Medicine Center
Sources of funding	Supported by the National Natural Science Foundation of China (NSFC)

Other information	It is not reported how AFC was measured. All participants were treated with the following protocol: • Standard long GnRH-agonist protocol including downregulation with a GnRH agonist beginning in the mid-luteal phase of the menstrual cycle 7 days before the earliest expected date of menstruation • Successful ovarian suppression confirmation 2 weeks later through ultrasound • Gonadotrophin stimulation initiation with either recombinant FSH or urine purified FSH with or without human menopausal Gn with the initial dose ranging from 150 to 300 IU/d. The starting dose of Gn was determined on the basis of age, BMI, AFC, basal FSH or AMH levels, and doses were adjusted when needed • Ovarian response monitored through serum E2, progesterone, LH assessments, and serial transvaginal ultrasound examinations • Administration of 6000 to 10,000 units of human chorionic Gn when there were ≥3 follicles measuring 18mm in diameter • Oocytes retrieval 36hours later • Participants who did not develop ≥3 leading follicles measuring 14mm in diameter after 12 days of Gn treatment discontinued treatment or converted to IUI, depending on other factors (tubal status, partner's semen quality) • Types of insemination included IVF, ICSI, 50% IVF + 50% ICSI, and early rescue ICSI • Evidence for fertilization was assessed ~18hours after insemination (except for early rescue ICSI); initial fertilization check 6 hours after IVF insemination and, if the oocytes failed to fertilize, ICSI was performed • 1-2 normally cleaved embryos were transferred into the uterus 3 or 5 days after oocyte retrieval

Study arms

AFC 1-8 (N = 1922)

AFC 9-12 (N = 2261)

AFC 13-17 (N = 2065)

AFC ≥18 (N = 2021)

Outcomes

Clinical pregnancy

Outcome	AFC 9-12 vs AFC 1-8 , , N2 = 1922, N1 = 2261	AFC 13-17 vs AFC 1-8 , , N2 = 1900, N1 = 2065	AFC ≥18 vs AFC 1-8 , , N2 = 1922, N1 = 2021
Clinical pregnancy Defined as presence of an intrauterine gestation with evidence of cardiac activity; AFC 1-8 category is reference group Odds ratio/95% CI	1.39 (1.22 to 1.59)	1.52 (1.33 to 1.73)	1.7 (1.49 to 1.94)

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Low risk of bias *(Sampling frame and recruitment partially described, but source of target population, recruitment period and place, inclusion/exclusion criteria, and baseline characteristics all fully described and participation in study was adequate)*
Study Attrition	Study Attrition Summary	Low risk of bias *(It does not appear that any participants were lost to follow-up although this is not explicitly reported)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Moderate risk of bias *(AFC measured by a professional medical technician, but further information not reported)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Clinical pregnancy defined as presence of an intrauterine gestation with evidence of cardiac activity on transvaginal ultrasound)*
Study Confounding	Study Confounding Summary	Low risk of bias *(Multivariate regression analysis adjusted for age, duration of infertility, female cause of*

Section	Question	Answer
		infertility, progesterone, E2 and oocytes retrieved. There does not appear to be any missing data)
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the result)*
Overall risk of bias and directness	Risk of Bias	Low *(Minimal information on how AFC was measured)*
Overall risk of bias and directness	Directness	Directly applicable

Maged, 2020

Bibliographic Reference	Maged, Ahmed M; Nabil, Hala; Dieb, Amira S; Essam, Aimy; Ibrahim, Safaa; Deeb, Wesam; Fahmy, Radwa M; Prediction of metaphase II oocytes according to different levels of serum AMH in poor responders using the antagonist protocol during ICSI: a cohort study.; Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology; 2020; vol. 36 (no. 8); 728-733

Study details

Country/ies where study was carried out	Egypt
Study type	Prospective cohort study
Study dates	January 2014 to December 2018
Inclusion criteria	Poor responder women with ≥2 ICSI cycles with poor response after maximum stimulation protocol. Poor ovarian response was diagnosed by presence of at least two of the three criteria of: • Advanced maternal age (>40 years old) • A prior poor ovarian response (canceled cycles or retrieval of 3 oocytes using the conventional agonist protocol) • Abnormal ovarian reserve test (AFC <5–7 follicles or AMH 0.5–1.1 ng/ml)

Exclusion criteria	• Azoospermic partner • Abnormal uterine cavity (evaluated by HSG and hysteroscopy) • Untreated ovarian cysts • Hydrosalpinx • Diagnosed with PCOS • Endocrinological disorders • Immunological disease • Chronic diseases • Inadequately visualized ovaries • Endometriosis grades 3 and 4
Patient characteristics	N=206 poor responder women initially included, N=185 included in analysis Women with AMH <0.3 ng/ml (n=41): • Mean age (SD): 36.51 (5.134) years • Mean duration of infertility (SD): 6.10 (3.68) years • Mean AMH at baseline (SD): 0.201 (0.062) ng/ml • Mean FSH at baseline (SD): 11.64 (4.140) mIU/ml • Mean AFC at baseline (SD): 3.73 (1.361) Women with AMH 0.3–0.7 ng/ml (n=78): • Mean age (SD): 36.17 (5.233) years • Mean duration of infertility (SD): 6.23 (3.104) years • Mean AMH at baseline (SD): 0.515 (0.121) ng/ml • Mean FSH at baseline (SD): 9.41 (3.363) mIU/ml • Mean AFC at baseline (SD): 4.64 (1.238)

	Women with AMH >0.7–1 ng/ml (n=66): • Mean age (SD): 33.68 (5.744) years • Mean duration of infertility (SD): 5.73 (2.814) years • Mean AMH at baseline (SD): 0.898 (0.092) ng/ml • Mean FSH at baseline (SD): 8.52 (2.683) mIU/ml • Mean AFC at baseline (SD): 5.32 (1.112)
Risk factor(s) of interest	Serum AMH: • <0.3 ng/ml • 0.3-0.7 ng/ml • >0.7-1 ng/ml Serum AMH was collected on cycle day 2 or 3.
Confounding factor(s) of interest	People with certain factors that might affect fertility were excluded - see inclusion criteria
Duration of follow-up	Not reported
Setting	IVF unit and an IVF hospital
Sources of funding	Not reported
Other information	AMH was measured using an enzyme-linked immunosorbent assay (ELISA) kit (DSL). All participants underwent ICSI cycles, with:

	• Gonadotropin induction with recombinant HMG on cycle day 2 after the baseline transvaginal scan (75 IU with starting dose based on serum AMH, FSH, and BMI). This continued until day of triggering • Gonadotropin releasing hormone antagonist cetrorelix (0.25 subcutaneously) flexible protocol when the leading follicle reached ≥12mm and continued till the day of HCG triggering • Ovulation triggering (HCG 10,000 IU intramuscularly) when ≥3 follicles reached ≥14mm and the leading follicle reached >17mm • Transvaginal ultrasound guided ovum pick up 34–36 h after HCG injection • Embryo transfer on day 2-3 after oocyte retrieval • Luteal phase support started on the day of ovum pick up with natural progesterone 400mg vaginal suppository twice daily until the day of serum HCG testing (14 days after embryo transfer)

Study arms

AMH <0.3 ng/ml (N = 41)

AMH 0.3–0.7 ng/ml (N = 78)

AMH > 0.7–1 ng/ml (N = 66)

Outcomes

Clinical pregnancy

Outcome	AMH <0.3 ng/ml, , N = 41	AMH 0.3–0.7 ng/ml, , N = 78	AMH > 0.7–1 ng/ml, , N = 66
Clinical pregnancy No of events	n = 2 ; % = 4.9	n = 6 ; % = 7.7	n = 13 ; % = 19.7

Higher values are better

Cycle cancellation due to low response

Outcome	AMH <0.3 ng/ml, , N = 50	AMH 0.3–0.7 ng/ml, , N = 85	AMH > 0.7–1 ng/ml, , N = 71
Cycle cancellation due to low response Includes participants who had their cycles cancelled due to no oocyte retrieved and participants who dropped out of the study due to no oocyte developed or retrieved. No of events	n = 6 ; % = 12	n = 5 ; % = 5.88	n = 4 ; % = 5.63

Lower values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Low risk of bias
Study Attrition	Study Attrition Summary	Moderate risk of bias *(21/206 participants (10%) dropped out and were not included in the analysis but reasons are provided for why they dropped out. Outcomes are reported but baseline characteristics are not reported for these participants. It is unclear whether key characteristics were different in participants who completed the study and those who did not, however number of participants who dropped out due to low response or a reduced number of retrieved oocytes were similar between groups)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(AMH was measured using an enzyme-linked immunosorbent assay kit with a detection sensitivity of 0.01 ng/ml (Beckman Coulter). Information about the assay range or intra-assay and interassay coefficients of variation are not reported)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Clinical pregnancy was defined as fetal cardiac activity within a gestational sac on ultrasonography examination. Cycle cancellation due to low response was defined as cycle cancellation due to no oocytes developed)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. Data regarding confounders are not reported for participants who dropped out)*

Section	Question	Answer
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the results)*
Overall risk of bias and directness	Risk of Bias	High *(High risk of bias due to 10% of participants dropping out and being excluded from analysis, with no information reported on key characteristics at baseline, and lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Directly applicable

Sahmay, 2012

Bibliographic Reference	Sahmay, Sezai; Demirayak, Gokhan; Guralp, Onur; Ocal, Pelin; Senturk, Levent M; Oral, Engin; Irez, Tulay; Serum anti-mullerian hormone, follicle stimulating hormone and antral follicle count measurement cannot predict pregnancy rates in IVF/ICSI cycles.; Journal of assisted reproduction and genetics; 2012; vol. 29 (no. 7); 589-95

Study details

Country/ies where study was carried out	Turkey
Study type	Prospective cohort study
Study dates	Between February 2009 and June 2010
Inclusion criteria	Women who: • Were <40 years old • Had FSH <15 mIU/mL, prolactin <50 ng/ml, thyroid stimulating hormone (TSH) <5.0 mIU/L
Exclusion criteria	Women who:

	• Had current or past diseases such as hepatic, renal, adrenal or thyroid disorders, affecting ovaries or gonadotropin or sex steroid secretion, clearance, or excretion
Patient characteristics	N=200 consecutive women with infertility included at baseline; N=189 included in analysis (n=11 were excluded during the study (n=5 (2.5%) had no follicle >18 mm at the end of the controlled ovarian hyperstimulation; n=2 (1%) had ovarian hyperstimulation, n=2 (1%) requested cryopreservation, n=1 (0.5%) withdrew her informed consent, n=1 (0.5%) moved to another city)). Women who did not achieve pregnancy (n=142): • Mean age (SD): 31.7 (4.7) years • Mean duration of infertility (SD): 7.0 (4.2) years • Mean AMH at baseline (SD): 3.8 (3.0) ng/mL • Mean FSH at baseline (SD): 6.2 (2.0) mIU/mL • Mean AFC at baseline (SD): 8.7 (5.3) Women who achieved pregnancy (n=47) • Mean age (SD): 30.7 (4.0) years • Mean duration of infertility (SD): 6.6 (4.2) years • Mean AMH at baseline (SD): 3.9 (2.5) ng/mL • Mean FSH at baseline (SD): 5.7 (2.1) mIU/mL • Mean AFC at baseline (SD): 9.6 (5.1)
Risk factor(s) of interest	Serum AMH: • <25% = <1.81 ng/mL • 25-75% = 1.81-4.92 ng/mL

	• >75% = >4.92 ng/mL Total AFC (all follicles 2–9 mm): • <25% = <5 follicles • 25-75% = 5-10.5 follicles • >75% = >10.5 follicles Serum FSH: • <25% = <4.92 ng/mL • 25-75% = 4.92-6.97 ng/mL • >75% = >6.97 ng/mL Participants were categorized into groups according to quartiles. Serum AMH and FSH were assessed during the early follicular phase of menses. The study does not report when AFC was assessed.
Confounding factor(s) of interest	Analysis did not adjust for confounders, therefore unadjusted data reported
Duration of follow-up	Not reported
Setting	IVF Center, Department of Obstetrics and Gynecology

Sources of funding	Not reported
Other information	AMH was measured in duplicate using the AMH/MIS enzyme-linked immunosorbent assay (ELISA) kit (DSL). The sensitivity of the assay was 0.017 ng/ml. The intra- and inter-assay variations were 5% and 8%, respectively. All participants underwent IVF/ICSI with: • GnRH agonist (leuprolide acetate 1 mg/day s.c.) beginning on the 21st day of the previous cycle, then reduced to 0.5 mg/day • Gonadotropin (150 IU for participants <30 years old and 225 IU for participants >30 years old) daily IM • Transvaginal ultrasound scan on days 7 and 9 of ovarian stimulation and every 1 or 2 days thereafter, as required • Gonadotropin dose changed according to follicular growth: when >2 follicles were seen that were >17 mm, hCG (10,000 IU or 250 mcg) was injected to induce final oocyte maturation • OPU 36 hours later • Luteal phase support with progesterone 90 mg administered vaginally once or twice a day or by 100 mg progesterone injection daily IM until the day of the pregnancy test 12 days after the embryo transfer

Study arms

AMH <25% = <1.81 ng/mL (N = 47)

AMH 25-75% = 1.81-4.92 ng/mL (N = 94)

AMH 75% = >4.92 ng/mL (N = 48)

AFC <25% = <5 follicles (N = 32)

AFC 25-75% = 5-10.5 follicles (N = 106)

AFC 75% = >10.5 follicles (N = 43)

FSH <25% = <4.92 ng/mL (N = 45)

FSH 25-75% = 4.92-6.97 ng/mL (N = 90)

FSH >75% = >6.97 ng/mL (N = 45)

Outcomes

Clinical pregnancy

Outcome	AMH <25% = <1.81 ng/mL, , N = 47	AMH 25-75% = 1.81-4.92 ng/mL, , N = 94	AMH 75% = >4.92 ng/mL, , N = 48	AFC <25% = <5 follicles, , N = 32	AFC 25-75% = 5-10.5 follicles, , N = 106	AFC 75% = >10.5 follicles, , N = 43	FSH <25% = <4.92 ng/mL, , N = 45	FSH 25-75% = 4.92-6.97 ng/mL, , N = 90	FSH >75% = >6.97 ng/mL, , N = 45
Clinical pregnancy rate Clinical pregnancy defined as the ultrasound observation of foetal heart movements at 7–8 weeks of gestation; Outcome reported as percentages and converted to numerical figures No of events	n = 10 ; % = 21.3	n = 23 ; % = 24.5	n = 14 ; % = 29.2	n = 6 ; % = 18.8	n = 26 ; % = 24.5	n = 15 ; % = 34.9	n = 11 ; % = 23.8	n = 18 ; % = 20	n = 10 ; % = 22.2

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Baseline differences between groups with/without poor ovarian reserve are not reported)*

Section	Question	Answer
Study Attrition	Study Attrition Summary	High risk of bias *(Moderate risk of bias for AMH-related outcomes. N=11 participants (6%) were excluded during the study, with no characteristics reported and no outcomes reported according to baseline ORT levels. High risk of bias for FSH- and AFC-related outcome: there are some missing outcome data for FSH and for AFC: 9/189 participants (5%) and 8/189 participants (4%) do not have data reported for the outcome clinical pregnancy rates for FSH and AFC levels respectively, but no reason for the missing data is provided)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(Low risk of bias for AMH- and FSH-related outcomes: AMH was measured using the AMH/MIS enzyme-linked immunosorbent assay kit (ELISA). The sensitivity of the assay was 0.017 ng/ml and the intra- and inter-assay variations were 5% and 8%, respectively. FSH was measured on a Roche E-170 automated immunoassay analyzer. Between-batch coefficients of variation for this assay was 10%. Moderate risk of bias for AFC-related outcomes as the study did not report how AFC was measured)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Clinical pregnancy defined as the ultrasound observation of foetal heart movements at 7–8 weeks of gestation)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There were missing baseline characteristics data for 11 participants (6%) who were excluded during the study)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the results)*
Overall risk of bias and directness	Risk of Bias	High *(No reporting of baseline differences between groups with/without poor ovarian reserve or of those lost to follow-up or excluded, lack of accounting for confounders, missing data for FSH- and AFC-related outcomes and no information reported on how AFC was measured)*
Overall risk of bias and directness	Directness	Directly applicable

1

Sahmay, 2013

Bibliographic Reference	Sahmay, Sezai; Guralp, Onur; Aydogan, Begum; Cepni, Ismail; Oral, Engin; Irez, Tulay; Anti-Mullerian hormone and polycystic ovary syndrome: assessment of the clinical pregnancy rates in in vitro fertilization patients.; Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology; 2013; vol. 29 (no. 5); 440-3

Study details

Country/ies where study was carried out	Turkey
Study type	Prospective cohort study
Study dates	Between February 2010 and June 2012
Inclusion criteria	Women who: • Were <40 years of age • Had PCOS (diagnosed using the Rotterdam-2003 criteria) • Had FSH <15 mIU/mL • Had normal prolactin (PRL) and thyroid stimulation hormone (TSH) levels • Had both ovaries present on transvaginal ultrasound scan • Had no previous history of ovarian surgery To avoid the introduction of a potential bias on patient selection, only first fresh treatment cycles were included
Exclusion criteria	• Any current or past systemic diseases which may affect ovaries, or gonadotropin or sex steroid secretion, clearance, or excretion • Exposure to cytotoxic drugs or pelvic radiation therapy or any hormonal therapy in the past 6 months before the therapy
Patient characteristics	N=150 consecutive women with PCOS

	Women who did not achieve pregnancy (n=99): • Mean age (SD): 29.6 (4.33) years • Mean duration of infertility (SD): 5.94 (3.34) years • Mean AMH at baseline (SD): 7.16 (4.29) ng/mL • Mean FSH at baseline (SD): 4.78 (2.81) mIU/mL • Mean AFC at baseline (SD): 12.25 (5.33) Women who achieved pregnancy (n=51): • Mean age (SD): 28.6 (3.86) years • Mean duration of infertility (SD): 5.75 (3.23) years • Mean AMH at baseline (SD): 6.79 (2.9) ng/mL • Mean FSH at baseline (SD): 5.44 (3.83) mIU/mL • Mean AFC at baseline (SD): 13.61 (4.5)
Risk factor(s) of interest	Serum AMH: • <25% = <4.23 ng/mL • 25-75% = 4.23-8.66 ng/mL • >75% = >8.66 ng/mL Serum FSH: • <25% = <4.03 mIU/mL • 25-75% = 4.03-5.98 mIU/mL • >75% = >5.98 mIU/mL

	Total AFC (all follicles 2-9mm): • <25% = <9 follicles • 25-75% = 9-17 follicles • >75% = >17 follicles Participants were categorized into groups according to quartiles. Serum AMH and FSH were measured on cycle day 2 to 4. The study does not report when AFC was assessed
Confounding factor(s) of interest	Analysis did not adjust for confounders, therefore unadjusted data reported
Duration of follow-up	Not reported
Setting	University hospital
Sources of funding	Not reported
Other information	Serum AMH was measured using an enzymatically amplified two-site immunoassay, DSL-10–14400 active MIS/AMH enzyme-linked immunosorbent assay (ELISA) kit. The theoretical sensitivity of the method is 0.006 ng/mL, the intra-assay coefficient of variation for high values is 3.3% and the inter-assay coefficient of variation for high values is 6.7%. All participants underwent IVF with: • GnRHa agonist, leuprolide acetate 1 mg/d s.c. beginning on the 21st day of the previous cycle • Leuprolide acetate was reduced to 0.5 mg/d, and gonadotropin 150 IU was started daily

	• When >2 follicles were seen that were >17 mm, hCG (10 000 IU or 250 mcg) was injected to induce final oocyte maturation • Ovum pick-up was performed 36 hours later • Embryos were transferred after 3 days if fertilization had occurred • Luteal phase was supported with progesterone

Study arms

AMH <25% = <4.23 ng/mL (N = 36)

AMH 25-75% = 4.23-8.66 ng/mL (N = 77)

AMH 75% = >8.66 ng/mL (N = 37)

FSH <25% = <4.03 mIU/mL (N = 38)

FSH 25-75% = 4.03-5.98 mIU/mL (N = 74)

FSH 75% = >5.98 mIU/mL (N = 38)

AFC <25% = <9 follicles (N = 45)

AFC 25-75% = 9-17 follicles (N = 69)

AFC 75% = >17 follicles (N = 36)

Outcomes

Clinical pregnancy

Outcome	AMH <25% = <4.23 ng/mL , , N = 36	AMH 25-75% = 4.23-8.66 ng/mL , , N = 77	AMH 75% = >8.66 ng/mL , , N = 37	FSH <25% = <4.03 mIU/mL, , N = 38	FSH 25-75% = 4.03-5.98 mIU/mL, , N = 74	FSH 75% = >5.98 mIU/mL, , N = 38	AFC <25% = <9 follicles, , N = 45	AFC 25-75% = 9-17 follicles, , N = 69	AFC 75% = >17 follicles, , N = 36
Clinical pregnancy rate Clinical pregnancy defined as the ultrasound observation of foetal heart movements at 7–8 weeks of gestation; Outcome reported as percentages and converted to numerical figures No of events	n = 10 ; % = 27.8	n = 27 ; % = 35	n = 14 ; % = 37.8	n = 16 ; % = 43.2	n = 25 ; % = 33.7	n = 10 ; % = 27	n = 15 ; % = 32.6	n = 20 ; % = 28.9	n = 17 ; % = 48.5

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Baseline differences between groups with/without poor ovarian reserve are not reported)*
Study Attrition	Study Attrition Summary	Low risk of bias *(It does not appear that any participants were lost to follow-up although this is not explicitly reported)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Moderate risk of bias *(Low risk of bias for AMH-related outcomes: AMH was measured using an ELISA kit (DSL). The theoretical sensitivity of the method is 0.006 ng/mL, the intra-assay coefficient of variation for high values is 3.3% and the inter-assay coefficient of variation for high values is 6.7%. Moderate risk of bias for FSH- and AFC-related outcomes as it is not reported how FSH or AFC were measured)*

Section	Question	Answer
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Clinical pregnancy was established as the ultrasound observation of foetal heart movements at 7–8 weeks of gestation)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the results)*
Overall risk of bias and directness	Risk of Bias	High *(Baseline differences between groups with/without poor ovarian reserve are not reported, and it is not reported how FSH or AFC was measured, and lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Directly applicable

Silva, 2016

Bibliographic Reference	Silva, Joyce B da; Panaino, Tatiana R; Tamm, Maria A; Lira, Paloma; Areas, Patricia C F; Mancebo, Ana C A; Souza, Marcelo M de; Antunes, Roberto A; Souza, Maria do Carmo B de; Prediction of metaphase II oocytes according to different serum Anti-Mullerian hormone (AMH) levels in antagonist ICSI cycles.; JBRA assisted reproduction; 2016; vol. 20 (no. 4); 222-226

Study details

Country/ies where study was carried out	Brazil
Study type	Prospective cohort study
Study dates	January 2012 to January 2016
Inclusion criteria	Women undergoing antagonist ICSI cycles. No other inclusion criteria reported
Exclusion criteria	Not reported

Patient characteristics	N=287 women undergoing antagonist ICSI cycles Women with AMH ≤0.30 (n=64): • Mean age (SD): 37.83 (4.11) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 12.45 (8.24)* • Mean AFC at baseline (SD): 6.75 (3.47) Women with AMH >0.30 to ≤0.70 (n=76): • Mean age (SD): 38.61 (3.67) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 8.95 (5.54)* • Mean AFC at baseline (SD): 9.11 (4.93) Women with AMH >0.70 to ≤1.0 (n=32): • Mean age (SD): 38.15 (3.0) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 7.99 (3.86)* • Mean AFC at baseline (SD): 9.53 (3.74)

	Women with AMH >1.0 to <3.0 (n=86): • Mean age (SD): 37.23 (3.64) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 7.40 (3.11)* • Mean AFC at baseline (SD): 12.60 (5.24) Women with AMH ≥3.0 (n=29): • Mean age (SD): 35.48 (3.97) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 6.81 (2.11)* • Mean AFC at baseline (SD): 17.58 (7.64) *Unit of measurement not reported
Risk factor(s) of interest	Serum AMH: • ≤0.7 ng/mL • >0.7 to <3.0 ng/mL • ≥3.0 ng/mL Cycle day of serum AMH collection is not reported

Confounding factor(s) of interest	Relevant data were unadjusted as no ORs were reported
Duration of follow-up	Not reported
Setting	Not reported
Sources of funding	Not reported
Other information	The assay used to measure AMH depended on the year of collection: • 2012-2013: an enzymatically amplified two-site immunoassay AMH Gen II ELISA (Beckman Coulter) • 2014: dual monoclonal antibodies in a chemiluminescent immunoassay (Quest Diagnostics) • From 2015: EletroChemiLuminescence (Elecsys, Roche Diagnostics), a technology developed for immunoassay detection All participants underwent ICSI cycles, with: • No pretreatment with oral contraceptives or estradiol • Stimulation on cycle day 2 or 3; most protocols used recombinant FSH (150-225 IU per day), with LH added for women ≥35 years (2:1 ratio FSH/ LH) and aromatase inhibitors whenever AMH <1 ng/mL (5mg per day, until the rhCG day) • Daily GnRH antagonist dose based on a flexible protocol once a follicle ≥14 mm in diameter was seen in the ultrasound scan (0.25 mg continued until hCG administration) • Oocyte maturation with recombinant hCG (250mcg) when at least one follicle was >18 and two follicles were ≥16mm in diameter. In patients at risk of OHSS,+ triptorelin (0.2mg) was used • Oocyte retrieval 35h after ovulation induction Individual dosages were adjusted based on AMH levels

	Number of cancelled cycles was an outcome reported separately to number of participants with no oocytes retrieved, however no definition was provided and so the no oocytes outcome was prioritised for extraction instead.

Study arms

AMH ≤0.7 ng/mL (N = 140)
Combines group 1 (probably negligible response) AMH ≤0.3 ng/mL (n=64) and group 2 (expected lower response) AMH >0.3 to ≤0.7 ng/mL (n=76)

AMH >0.7 to <3.0 ng/mL (N = 118)
Combines group 3 (possibly intermediate response) AMH >0.7 to ≤1.0 ng/mL (n=32) and group 4 (normal response) AMH >1.0 to <3.0 ng/mL (n=86)

AMH ≥3.0 ng/mL (N = 29)
Group 5 (high response)

Outcomes

Cycle cancellation due to low response

Outcome	AMH ≤0.7 ng/mL, , N = 140	AMH >0.7 to <3.0 ng/mL, , N = 118	AMH ≥3.0 ng/mL, , N = 29
Cycle cancellation due to low response Reported as number of failed cycles due to no oocytes retrieved No of events	n = 7 ; % = 5	n = 1 ; % = 1	n = 0 ; % = 0

Cycle cancellation due to low response - Polarity - Lower values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	High risk of bias *(Limited information reported on study setting, inclusion and exclusion criteria, and sampling frame and recruitment. Duration of infertility and AMH levels not reported at baseline)*
Study Attrition	Study Attrition Summary	Low risk of bias *(Data reported for all participants)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Moderate risk of bias *(Participants had their AMH levels measured using different assays based on the year of measurement: an enzymatically amplified two-site immunoassay, AMH Gen II ELISA (Beckman Coulter), dual monoclonal antibodies in a chemiluminescent immunoassay (Quest Diagnostics), and EletroChemiLuminescence (ELECSYS, Roche), a technology developed for immunoassay detection, were all used on participants. The lower AMH detection limit was 0.012 ng/mL, though it is not clear if this is for all assays, and further information about the sensitivity, intra-assay and interassay coefficients of variation is not reported for any of the assays. 80% of measurements were performed in the same laboratory)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(A clear definition and cut-off point was given for the outcome cycle cancellation due to insufficient eggs)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the unadjusted data)*
Overall risk of bias and directness	Risk of Bias	High *(High risk of bias due to limited reporting of baseline characteristics and study participation, differences in measurement of prognostic factors between participants, and lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Directly applicable

Xi, 2012

Bibliographic Reference	Xi, Wenyan; Gong, Fei; Lu, Guangxiu; Correlation of serum Anti-Mullerian hormone concentrations on day 3 of the in vitro fertilization stimulation cycle with assisted reproduction outcome in polycystic ovary syndrome patients.; Journal of assisted reproduction and genetics; 2012; vol. 29 (no. 5); 397-402

Study details

Country/ies where study was carried out	China
Study type	Prospective cohort study
Study dates	Not reported
Inclusion criteria	Women with polycystic ovary syndrome (PCOS) who: • Were referred for IVF because of previously unsuccessful conception with ovulation induction or bilateral tubal blockage at hysterosalpingography but without hydrosalpinges on transvaginal ultrasonography • Were 35 years old or younger without previous IVF attempts and partners with normal semen parameters
Exclusion criteria	Not reported
Patient characteristics	N=164 women with PCOS undergoing ovarian stimulation IVF cycles Women with low AMH (≤4.85 ng/ml; n=41): • Mean age (SD): 28.63 (3.35) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 6.25 (1.28) IU/L • Mean AFC at baseline (SD): Not reported

	Women with average AMH (4.85-8.82 ng/ml; n=82): • Mean age (SD): 28.80 (3.71) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 6.42 (1.34) IU/L • Mean AFC at baseline (SD): Not reported Women with high AMH (≥8.82 ng/ml; n=41): • Mean age (SD): 28.07 (3.42) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): Not reported • Mean FSH at baseline (SD): 6.27 (1.05) IU/L • Mean AFC at baseline (SD): Not reported
Risk factor(s) of interest	Serum AMH (cut-offs according to quartiles): • <25% = ≤4.85 ng/ml • 25-75% = 4.85-8.82 ng/ml • >75% = ≥8.82 ng/ml Serum AMH was collected on cycle day 3.
Confounding factor(s) of interest	Relevant data were unadjusted as no ORs were reported
Duration of follow-up	Not reported
Setting	Reproductive & Genetics Hospital although not explicitly reported

Sources of funding	Not reported
Other information	AMH was assessed by a second-generation ELISA (Beckman Coulter) with the analytical sensitivity of 0.14 ng/mL. Intra- and inter-assay coefficients of variation were ≤12.3% and ≤14.2%, respectively. All participants underwent IVF with: • Long down-regulation protocol • 1 intramuscular injection with triptorelin acetate 1.5 mg on the 21st day of treatment with contraceptive pills • COH performed by administration of recombinant FSH after pituitary suppression was reached • The initial FSH dose was 112.5–150 IU daily • Administration of 5,000–10,000 IU of hCG when ≥3 follicles were 18 mm in diameter • Follicular aspiration performed 34–36 hours later • Embryo transfers performed on day 3 transferring 2 embryos • The luteal phase with vaginal micronized progesterone (600 mg daily), starting from the day of oocyte retrieval

Study arms

Low AMH (≤4.85 ng/ml) (N = 41)

Average AMH (4.85-8.82 ng/ml) (N = 82)

High AMH (≥8.82 ng/ml) (N = 41)

Outcomes

Clinical pregnancy

Outcome	Low AMH (≤4.85 ng/ml), , N = 40	Average AMH (4.85-8.82 ng/ml), , N = 75	High AMH (≥8.82 ng/ml), , N = 37
Clinical pregnancy per transfer Excludes participants who did not undergo embryo transfer; all participants underwent 1 cycle of IVF. Clinical pregnancy defined as the presence of a gestational sac on ultrasound performed at 4 weeks after embryo transfer No of events	n = 26 ; % = 65	n = 50 ; % = 66.7	n = 17 ; % = 45.9

Higher values are better

Cycle cancellation due to risk of ovarian hyperstimulation syndrome (OHSS)

Outcome	Low AMH (≤4.85 ng/ml), , N = 41	Average AMH (4.85-8.82 ng/ml), , N = 82	High AMH (≥8.82 ng/ml), , N = 41
Cycle cancellation due to OHSS No of events	n = 1 ; % = 2.4	n = 4 ; % = 4.9	n = 7 ; % = 17.1

Lower values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Exclusion criteria, duration of infertility and AMH levels at baseline not reported.)*
Study Attrition	Study Attrition Summary	High risk of bias *(High risk of bias for the outcome clinical pregnancy as it was only reported for participants who underwent embryo transfer and not reported per cycle/ according to number of participants included. Low risk of bias for the outcome cycle cancellation due to risk of OHSS as data reported for all participants)*

Section	Question	Answer
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(AMH was assessed by a second-generation ELISA with the analytical sensitivity of 0.14 ng/mL. Intra- and inter-assay coefficients of variation were ≤12.3% and ≤14.2%, respectively.)*
Outcome Measurement	Outcome Measurement Summary	Moderate risk of bias *(Clinical pregnancy was defined as the presence of a gestational sac on ultrasound performed at 4 weeks after embryo transfer. OHSS was confirmed according to 'local criteria' but this is not defined and it is unclear if this differed between participants)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	High risk of bias *(Although a logistic regression analysis was done no effect estimates were reported.)*
Overall risk of bias and directness	Risk of Bias	High *(High risk of bias due to lack of information reported on exclusion criteria, duration of infertility or AMH/AFC levels at baseline, lack of information on how OHSS was defined, risk of attrition, the definition of outcome clinical pregnancy deviates from that defined in the protocol, lack of accounting for confounders, and evidence of selective reporting)*
Overall risk of bias and directness	Directness	Directly applicable

Zebitay, 2017

Bibliographic Reference Zebitay, Ali G; Cetin, Orkun; Verit, Fatma F; Keskin, Seda; Sakar, M Nafi; Karahuseyinoglu, Sercin; Ilhan, Gulsah; Sahmay, Sezai; The role of ovarian reserve markers in prediction of clinical pregnancy.; Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology; 2017; vol. 37 (no. 4); 492-497

Study details

Country/ies where study was carried out	Turkey
Study type	Prospective cohort study

Study dates	Between August 2011 and February 2014
Inclusion criteria	Consecutive poor ovarian reserve (POR) patients, defined as: • A previous POR (≤3 oocytes with a conventional stimulation protocol) • An abnormal ovarian reserve test (ORT) (AFC <7 follicles or AMH <1.1 ng/mL) Patients with a history of 2 episodes of POR after maximal stimulation were defined as a poor responder in the absence of abnormal ORT
Exclusion criteria	Women with: • Systemic diseases and receiving medical treatments, which may influence the clearance or excretion of gonadotropins and sex steroids
Patient characteristics	N=308 women with POR initially included, N=304 women included in analysis (n=4 (1.3%) lost to follow-up) Women who did not achieve pregnancy after ET (n=181): • Mean age (SD): 32.4 (4.1) years • Mean duration of infertility (SD): 7.4 (4.1) years • Mean AMH at baseline (SD): 0.75 (0.45) ng/mL • Mean FSH at baseline (SD): 7.4 (4.3) mIU/mL • Mean AFC at baseline (SD): 5.5 (2.9) Women who achieved pregnancy after ET (n=22): • Mean age (SD): 32.1 (3.9) years • Mean duration of infertility (SD): 5.8 (2.9) years • Mean AMH at baseline (SD): 0.88 (0.35) ng/ml

	• Mean FSH at baseline (SD): 7.3 (2.4) mIU/mL • Mean AFC at baseline (SD): 5.5 (2.6) Women who did not have ET performed because of failed oocyte retrieval/ fertilisation (n=101): • Mean age (SD): 33.3 (3.8) years • Mean duration of infertility (SD): 7.4 (4.4) years • Mean AMH at baseline (SD): 0.38 (0.36) ng/ml • Mean FSH at baseline (SD): 8.2 (2.9) mIU/mL • Mean AFC at baseline (SD): 5.2 (1.8)
Risk factor(s) of interest	Serum AMH (cut off values at 25th and 75th percentiles): • <0.21 ng/mL • 0.21-0.97 ng/mL • >0.97 ng/mL Serum FSH (cut off values at 25th and 75th percentiles): • <5.3 mIU/mL • 5.3-9.8 mIU/mL • >9.8 mIU/mL AFC (cut off values at 25th and 75th percentiles): • ≤3 follicles • 4-6 follicles

	• >6 follicles Serum AMH and FSH were collected on cycle day 2-4. The study does not report when AFC was assessed, nor whether the total antral follicle count or only follicles of a certain size were assessed
Confounding factor(s) of interest	Not clear if the analysis was adjusted for confounders; no ORs reported
Duration of follow-up	Not reported
Setting	IVF Unit of a Maternity and Women's Disease Training and Research Hospital
Sources of funding	Not reported
Other information	Basal serum levels of AMH and FSH were obtained at day 3 (±1) of the preceding month of the IVF cycle. AMH was measured with an enzymatically amplified two-sided immunoassay (AMH Gen 2 ELISA A79765, Beckman Coulter). The lowest amount of AMH that could be detected with a 95% probability was 0.08 ng/mL. The estimated minimum dose achieved at 20% total imprecision was 0.16 ng/mL. All participants underwent ICSI with: • hCG (250 mcg) when ≥2 dominant follicles (average diameter 18 mm) were detected in women whose stimulation was initiated on day 3 and continued until the dominant follicle reached 14 mm, at what time GnRH antagonist was started • Ovarian stimulation with 150 IU hMG and 300 IU recombinant FSH daily • Oocyte aspiration after 36 hours • Day 3 transfer using fresh spermatozoa • Luteal phase support with 100 mg intramuscular progesterone injection daily until the day of the pregnancy test (12 days after ET)

1

Study arms

AMH <0.21 ng/mL (N = 76)

AMH 0.21-0.97 ng/mL (N = 153)

AMH >0.97 ng/mL (N = 75)

FSH <5.3 mIU/mL (N = 76)

FSH 5.3-9.8 mIU/mL (N = 152)

FSH >9.8 mIU/mL (N = 76)

AFC ≤3 (N = 77)

AFC 4-6 (N = 152)

AFC >6 (N = 75)

Outcomes

Clinical pregnancy

Outcome	AMH <0.21 ng/mL, , N = 76	AMH 0.21-0.97 ng/mL, , N = 153	AMH >0.97 ng/mL, , N = 75	FSH <5.3 mIU/mL, , N = 76	FSH 5.3-9.8 mIU/mL, , N = 152	FSH >9.8 mIU/mL, , N = 76	AFC ≤3, , N = 77	AFC 4-6, , N = 152	AFC >6, , N = 75
Clinical pregnancy Results reported as percentages and converted to numerical figures. Clinical pregnancy defined as the determination of the foetal heart beat or the foetus itself on ultrasonography at 4–5 weeks after ET	0 ; % = 0	16 ; % = 10.4	6 ; % = 8	5 ; % = 6.58	12 ; % = 7.9	5 ; % = 6.58	2 ; % = 2.6	15 ; % = 9.87	5 ; % = 6.67

Outcome	AMH <0.21 ng/mL, , N = 76	AMH 0.21-0.97 ng/mL, , N = 153	AMH >0.97 ng/mL, , N = 75	FSH <5.3 mIU/mL, , N = 76	FSH 5.3-9.8 mIU/mL, , N = 152	FSH >9.8 mIU/mL, , N = 76	AFC ≤3, , N = 77	AFC 4-6, , N = 152	AFC >6, , N = 75
Custom value									

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Baseline differences are not reported between groups with/without poor ovarian reserve)*
Study Attrition	Study Attrition Summary	Low risk of bias *(n=4 participants (1.3%) lost to follow-up; no characteristics reported for these participants)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Low risk of bias *(Low risk of bias for AMH- and FSH-related outcomes: AMH was measured with an enzymatically amplified two-sided immunoassay (AMH Gen 2 Elisa A79765, Beckman Coulter), the lowest amount of AMH that could be detected with a 95% probability was 0.08 ng/mL and the estimated minimum dose achieved at 20% total imprecision was 0.16 ng/mL. Serum FSH was measured on a Siemens Immulite 2000 automated immunoassay analyser with a sensitivity of 0.1 mIU/mL. Moderate risk of bias for AFC-related outcomes as information on how AFC evaluation was performed was not reported)*
Outcome Measurement	Outcome Measurement Summary	Low risk of bias *(Clinical pregnancy defined as the determination of the foetal heart beat or the foetus itself on ultrasonography at 4–5 weeks after ET)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. Missing data from participants lost to follow-up are minimal (1.3%))*

Section	Question	Answer
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the results)*
Overall risk of bias and directness	Risk of Bias	Moderate *(Moderate risk of bias due to lack of accounting for confounders, baseline differences not reported between groups with/without poor ovarian reserve, and lack of information on how AFC evaluation was performed)*
Overall risk of bias and directness	Directness	Directly applicable

Zhang, 2019

Bibliographic Reference	Zhang, Yangyang; Xu, Yang; Xue, Qing; Shang, Jing; Yang, Xiuli; Shan, Xuemin; Kuai, Yanrong; Wang, Sheng; Zeng, Cheng; Discordance between antral follicle counts and anti-Mullerian hormone levels in women undergoing in vitro fertilization.; Reproductive biology and endocrinology : RB&E; 2019; vol. 17 (no. 1); 51

Study details

Country/ies where study was carried out	China
Study type	Prospective cohort study
Study dates	Between January 2016 and December 2017
Inclusion criteria	Infertile women undergoing in vitro fertilization (IVF) /intracytoplasmic sperm injection (ICSI), no other inclusion criteria reported
Exclusion criteria	Women with: • A history of ovarian surgery • Polycystic ovarian syndrome

	• Hormonal therapy in the past 6 months or other endocrine diseases, including diabetes mellitus, thyroid disease, and hyperprolactinemia
Patient characteristics	N=1121 infertile women undergoing IVF/ICSI Women with AFC and AMH levels in the normal range (AFC ≥7 and AMH ≥1.1 ng/ml; n=611): • Mean age (SD): 32.69 (4.59) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): 3.46 (1.88) ng/ml • Mean FSH at baseline (SD): 7.48 (2.20) mIU/mL • Mean AFC at baseline (SD): 12.29 (4.08) Women with normal AFC and low AMH levels (AFC ≥7 and AMH <1.1 ng/ml; n=85): • Mean age (SD): 33.98 (4.89) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): 0.76 (0.24) ng/ml • Mean FSH at baseline (SD): 8.81 (2.87) mIU/mL • Mean AFC at baseline (SD): 8.47 (1.72) Women with low AFC and normal AMH levels (AFC <7 and AMH ≥1.1 ng/ml; n=118): • Mean age (SD): 36.81 (4.79) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): 1.94 (1.03) ng/ml

	• Mean FSH at baseline (SD): 10.14 (4.57) mIU/mL • Mean AFC at baseline (SD): 4.53 (1.41) Women with low AFC and low AMH levels (AFC <7 and AMH <1.1 ng/ml; n=307): • Mean age (SD): 37.74 (5.16) years • Mean duration of infertility (SD): Not reported • Mean AMH at baseline (SD): 0.51 (0.30) ng/ml • Mean FSH at baseline (SD): 11.24 (4.83) mIU/mL • Mean AFC at baseline (SD): 3.69 (1.59)
Risk factor(s) of interest	Participants were divided into 4 groups according to the boundaries for the AFC and AMH level in the ovarian reserve test provided by the “Bologna criteria”. Total AFC (all follicles 2mm to 10mm) and serum AMH: • Group A: AFC ≥7 and AMH ≥1.1 ng/ml (both AFCs and AMH levels in the normal range) • Group B: AFC ≥7 and AMH <1.1 ng/ml (normal AFCs and low AMH levels) • Group C: AFC <7 and AMH ≥1.1 ng/ml (low AFCs and normal AMH levels) • Group D: AFC <7 and AMH <1.1 ng/ml (low AFCs and low AMH levels) Serum AMH was collected on cycle day 2 or 3.
Confounding factor(s) of interest	Not reported if the study adjusted for any confounders; no ORs were reported
Duration of follow-up	Not reported

Setting	Reproductive and Genetic Medical Center of a University hospital
Sources of funding	Reported as not applicable
Other information	Serum AMH levels were analysed by enzyme-linked immunosorbent assay (ELISA). All participants underwent IVF/ICSI with: • Individualized COH protocols according to specific characteristics, such as ovarian reserve and follicle size • Gonadotropin therapy • HCG was administered subcutaneously when the leading follicle was 18–20 mm in diameter • Oocytes retrieval by transvaginal ultrasound-guided follicular aspiration within approximately 36 hours after HCG administration • Oocytes fertilization by conventional IVF/ICSI, and embryos transferral under abdominal ultrasound guidance on day 3 after oocyte retrieval • HCG tests on day 14 after ET, and if the result was positive, luteal support continued as before until 10 weeks of gestation Cycle cancellation was reported but not extracted as this was reported as a composite outcome including cancellation due to risk of OHSS, no transplantable embryos were obtained, progesterone levels >2.5 ng/ml on HCG day, or to accumulate embryos Results are presented together across groups, in order to compare all participants with low AMH to all those with normal AMH, and to compare all participants with low AFC to all those with normal AFC.

Study arms

Normal AMH (N = 729)

Combines group A: AFC ≥7 and AMH ≥1.1 ng/ml (both AFCs and AMH levels in the normal range) (N = 611) and group C: AFC <7 and AMH ≥1.1 ng/ml (low AFCs and normal AMH levels) (N = 118)

Low AMH (N = 392)
Combines group B: AFC ≥7 and AMH <1.1 ng/ml, (normal AFCs and low AMH levels) (N = 85) and group D: AFC <7 and AMH <1.1 ng/ml (low AFCs and low AMH levels) (N = 307)

Normal AFC (N = 696)
Includes group A: AFC ≥7 and AMH ≥1.1 ng/ml (both AFCs and AMH levels in the normal range) (N = 611) and group B: AFC ≥7 and AMH <1.1 ng/ml, (normal AFCs and low AMH levels) (N = 85)

Low AFC (N = 425)
Combines group C: AFC <7 and AMH ≥1.1 ng/ml (low AFCs and normal AMH levels) (N = 118) and group D: AFC <7 and AMH <1.1 ng/ml (low AFCs and low AMH levels) (N = 307)

Outcomes

Clinical pregnancy

Outcome	Low AMH, , N = 392	Normal AMH, , N = 729	Low AFC, , N = 425	Normal AFC, , N = 696
Clinical pregnancy Reported in study according to groups: group A (normal AFC and AMH): 175/611 (28.64%); group B (normal AFCs and low AMH levels): 25/85 (29.41); group C (low AFCs and normal AMH levels): 15/118 (12.71%); group D (low AFCs and low AMH levels): 24/307 (25%). Clinical pregnancy defined as the presence of an intrauterine gestational sac 4 weeks after ET No of events	n = 49 ; % = 12.5	n = 190 ; % = 26.06	n = 39 ; % = 9.18	n = 200 ; % = 28.74

Higher values are better

Critical appraisal - QUIPS checklist

Section	Question	Answer
Study participation	Summary Study participation	Moderate risk of bias *(Sampling frame and recruitment partially described. Inclusion criteria partially described with no*

Section	Question	Answer
		information about how the subset of women who underwent the treatment during the study period and had AMH/AFC analysed was chosen. Duration of infertility at baseline not reported.)
Study Attrition	Study Attrition Summary	Low risk of bias *(It does not appear that any participants were lost to follow-up although this is not explicitly reported)*
Prognostic factor measurement	Prognostic factor Measurement Summary	Moderate risk of bias *(Low risk of bias for AFC-related outcomes: transvaginal ultrasound was performed to assess the AFC on days 2–3 of the treatment cycle with a 5 MHz transvaginal probe. Moderate risk of bias for AMH-related outcomes: AMH was assessed using ELISA but no further information about the assay, including which assay was used, is reported)*
Outcome Measurement	Outcome Measurement Summary	Moderate risk of bias *(Definition of outcome deviates from that defined in the protocol: clinical pregnancy was defined as the presence of an intrauterine gestational sac 4 weeks after ET)*
Study Confounding	Study Confounding Summary	High risk of bias *(Relevant extracted data were unadjusted. There does not appear to be any missing data)*
Statistical Analysis and Reporting	Statistical Analysis and Presentation Summary	Low risk of bias *(Sufficient presentation of statistical analysis and no evidence of selective reporting of the results)*
Overall risk of bias and directness	Risk of Bias	High *(Inclusion criteria partially described, duration of infertility at baseline and information on the AMH assay used not reported, definition of the outcome deviates from that in the protocol, and lack of accounting for confounders)*
Overall risk of bias and directness	Directness	Directly applicable

Appendix E Forest plots

Forest plots for review question: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

This section includes forest plots only for outcomes that are meta-analysed. Outcomes from single studies are not presented here; the quality assessment for such outcomes is provided in the GRADE profiles in appendix F.

Figure 2: Low versus normal AMH, live birth per cycle

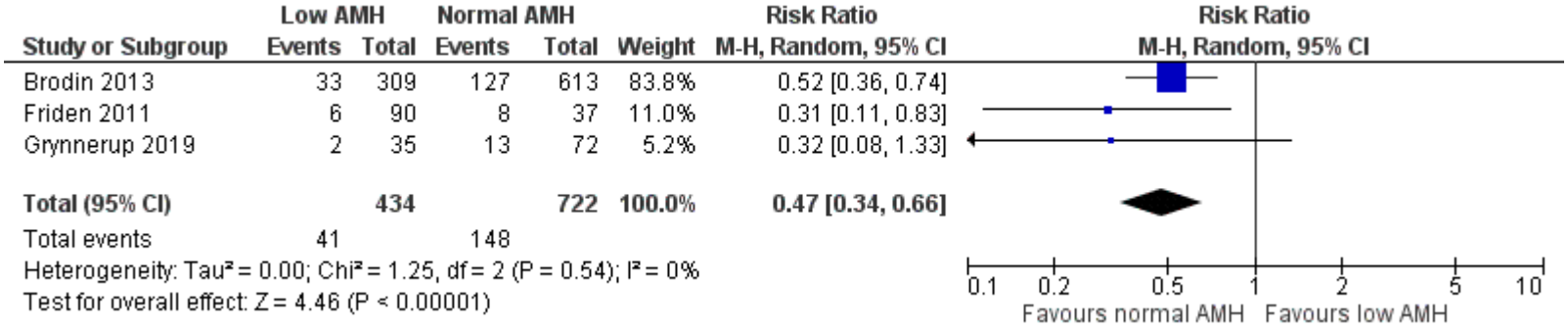


Figure 3: Low versus normal AMH, clinical pregnancy per cycle

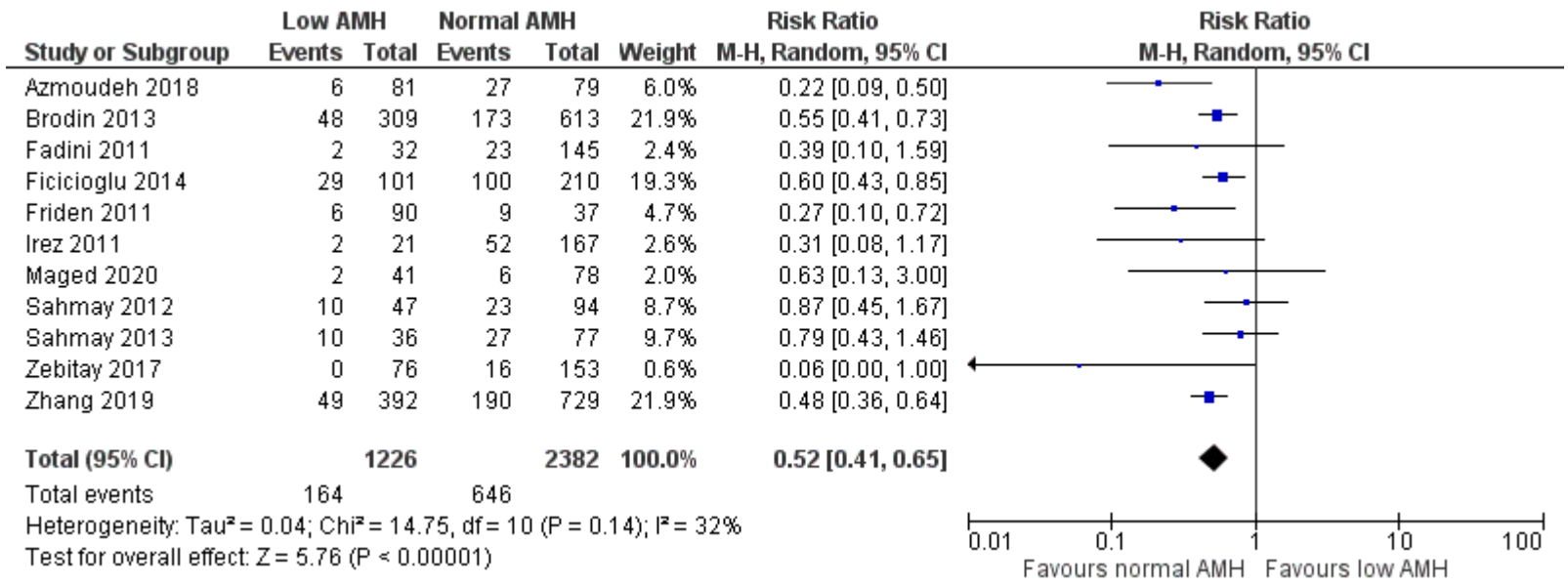


Figure 4: Low versus normal AMH, clinical pregnancy per transfer

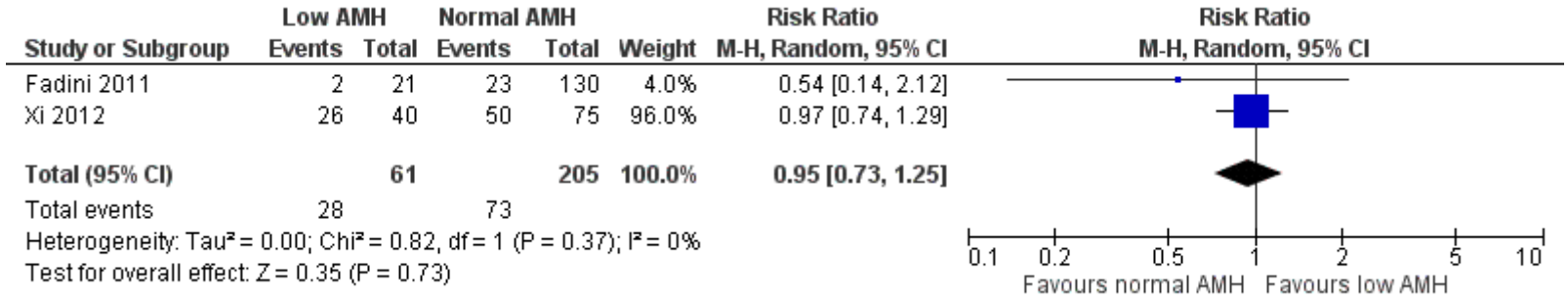


Figure 5: Low versus normal AMH, cycle cancellation due to low response

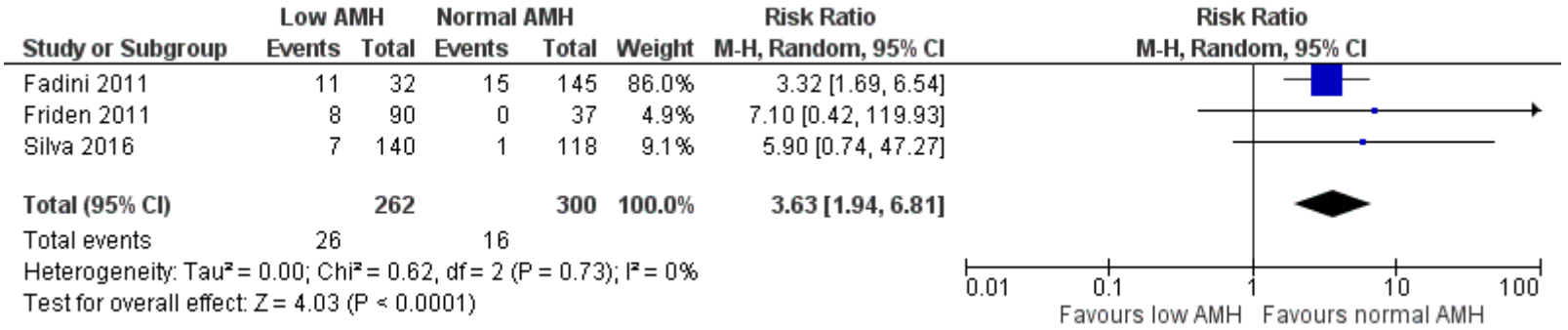


Figure 6: High versus normal FSH, clinical pregnancy per cycle

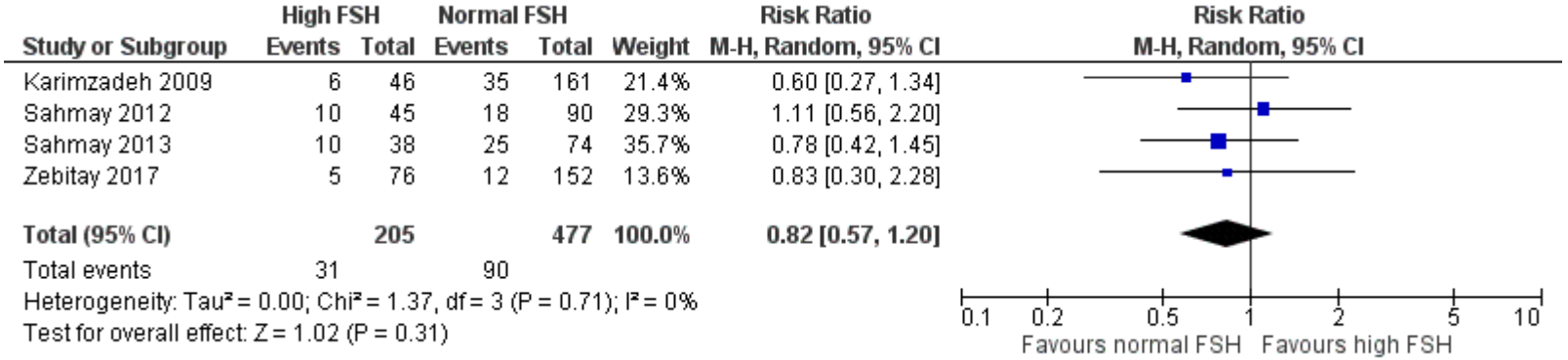


Figure 7: Low versus normal AFC, live birth per cycle

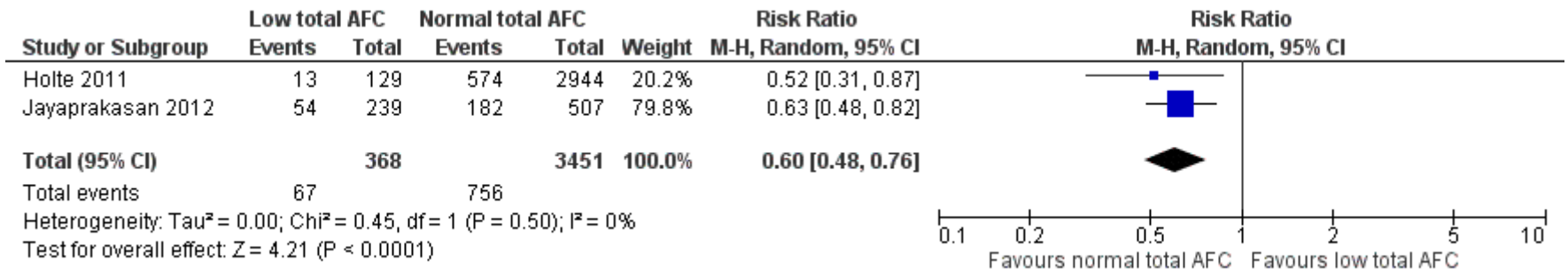
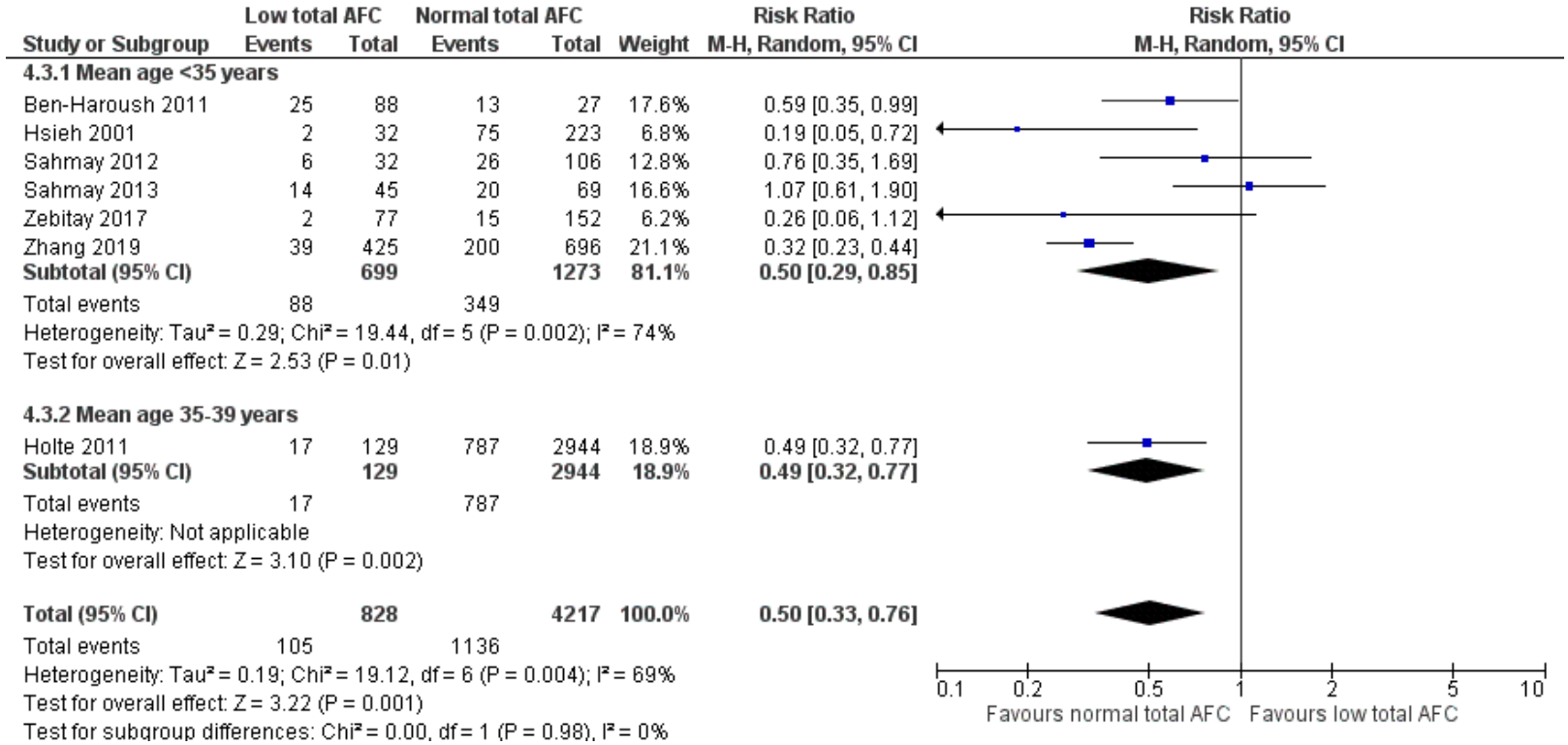


Figure 8: Low versus normal AFC, clinical pregnancy per cycle



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Appendix F GRADE tables

GRADE tables for review question: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

Table 4: Evidence profile for low AMH (versus normal AMH) as a marker of diminished ovarian reserve

Quality assessment							No of events		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Low AMH	Normal AMH	Relative (95% CI)	Absolute		
Live birth per cycle												
3[a]	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	41/434 (9.4%)	148/722 (20.5%)	RR 0.47 (0.34 to 0.66)	109 fewer per 1000 (from 70 fewer to 135 fewer)	LOW	CRITICAL
Clinical pregnancy per cycle												
11[b]	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	164/1226 (13.4%)	646/2382 (27.1%)	RR 0.52 (0.41 to 0.65)	130 fewer per 1000 (from 95 fewer to 160 fewer)	LOW	CRITICAL
Clinical pregnancy per transfer (excluding participants who did not undergo embryo transfer)												
2[c]	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	28/61 (45.9%)	73/205 (35.6%)	RR 0.95 (0.73 to 1.25)	18 fewer per 1000 (from 96 fewer to 89 more)	VERY LOW	CRITICAL
Spontaneous clinical pregnancy at ≤3 months												
1 (Korsholm 2018)	prospective cohort studies	very serious[1]	no serious inconsistency	serious[3]	serious[2]	none	20/51 (39.2%)	75/157 (47.8%)	RR 0.82 (0.56 to 1.2)	86 fewer per 1000 (from 210 fewer to 96 more)	VERY LOW	CRITICAL
Spontaneous clinical pregnancy at 4-12 months												
1 (Korsholm 2018)	prospective cohort studies	very serious[1]	no serious inconsistency	serious[3]	serious[2]	none	29/51 (56.9%)	99/157 (63.1%)	RR 0.9 (0.69 to 1.18)	63 fewer per 1000 (from 195 fewer to 114 more)	VERY LOW	CRITICAL
Spontaneous clinical pregnancy at >12 months												
1 (Korsholm 2018)	prospective cohort studies	very serious[1]	no serious inconsistency	serious[3]	serious[2]	none	30/51 (58.8%)	103/157 (65.6%)	RR 0.9 (0.69 to 1.16)	66 fewer per 1000 (from 203 fewer to 105 more)	VERY LOW	CRITICAL
Spontaneous (unplanned) clinical pregnancy												
1 (Korsholm 2018)	prospective cohort studies	very serious[1]	no serious inconsistency	serious[3]	serious[2]	none	2/51 (3.9%)	21/157 (13.4%)	RR 0.29 (0.07 to 1.21)	95 fewer per 1000 (from 124 fewer to 28 more)	VERY LOW	CRITICAL
Reduced number of retrieved oocytes per cycle												
2[d]	prospective cohort studies	very serious[1]	very serious[4]	no serious indirectness	very serious[5]	reporting bias[6]	71/144 (49.3%)	65/202 (32.2%)	RR 4.17 (0.44 to 39.76)	1000 more per 1000 (from 180 fewer to 1000 more)	VERY LOW	CRITICAL
Cycle cancellation due to low response												

3[e]	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	26/262 (9.9%)	16/300 (5.3%)	RR 3.63 (1.94 to 6.81)	140 more per 1000 (from 50 more to 310 more)	LOW	CRITICAL

AMH: anti-mullerian hormone; CI: confidence intervals; MID: minimally important difference; ORT: ovarian reserve testing; QUIPS: Quality In Prognosis Studies; RR: risk ratio
[a] Brodin 2013, Friden 2011, Grynnerup 2019
[b] Azmoudeh 2018, Brodin 2013, Fadini 2011, Ficicioglu 2014, Friden 2011, Irez 2011, Maged 2020, Sahmay 2012, Sahmay 2013, Zebitay 2017, Zhang 2019
[c] Fadini 2011, Xi 2012
[d] Barriere 2022, Friden 2011
[e] Fadini 2011, Friden 2011, Silva 2016
1 Very serious risk of bias in the evidence contributing to the outcomes as per QUIPS checklist
2 95% CI crosses 1 MID
3 Population is indirect because 106/260 participants (41%) are healthcare workers at a fertility clinic and it is unclear if they were undergoing ORT to investigate subfertility
4 Very serious heterogeneity (>80%) unexplained by subgroup analysis by age, assay used, or AMH level cut-offs
5 95% CI crosses 2 MIDs
6 Publication bias suspected due to study with the most weight being industry funded by Ferring Pharmaceuticals

Table 5: Evidence profile for independent association between AMH and live birth

Quality assessment									Effect	Quality	Importance
Potential risk factors examined (reference category)	**Outcome**	**No of studies**	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Relative (95% CI)**		
AMH (not reported)[a]	Live birth	1 (Lee 2009)	prospective cohort studies	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	aOR[2] 0.52 (0.36 to 0.74)	MODERATE	CRITICAL

AFC: antral follicle count; AMH: anti-mullerian hormone; aOR: adjusted odds ratio; CI: confidence intervals; FSH: follicle stimulating hormone; OR: odds ratio QUIPS: Quality In Prognosis Studies
[a] AMH levels were log transformed; reported as the odds ratio subsequent to conditional logistic regression model based on the surveyed ovarian reserve markers and pregnancy-related parameters
1 Serious risk of bias in the evidence contributing to the outcomes as per QUIPS checklist
2 ORs adjusted for age, duration of infertility, body mass index, log AMH, log AFC, log FSH, number of transferred embryos, and number of good embryos

Table 6: Evidence profile for high AMH (versus normal AMH) as a marker of increased risk of OHSS

Quality assessment							No of events		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**High AMH**	**Normal AMH**	**Relative (95% CI)**	**Absolute**		
OHSS per cycle												
1 (Brodin 2013)	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	12/308 (3.9%)	7/613 (1.1%)	RR 3.41 (1.36 to 8.58)	28 more per 1000 (from 4 more to 87 more)	LOW	CRITICAL

Cycle cancellation due to risk of OHSS												
1 (Xi 2012)	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	7/41 (17.1%)	4/82 (4.9%)	RR 3.50 (1.09 to 11.28)	427 more per 1000 (from 15 more to 1000 more)	VERY LOW	CRITICAL

AMH: anti-mullerian hormone; CI: confidence intervals; MID: minimally important difference; OHSS: ovarian hyperstimulation syndrome; QUIPS: Quality In Prognosis Studies; RR: risk ratio

1 Very serious risk of bias in the evidence contributing to the outcomes as per QUIPS checklist

2 95% CI crosses 1 MID

Table 7: Evidence profile for high FSH (versus normal serum FSH) as a marker of diminished ovarian reserve

Quality assessment							No of events		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**High FSH**	**Normal FSH**	**Relative (95% CI)**	**Absolute**		
Clinical pregnancy per cycle												
4[a]	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	31/205 (15.1%)	90/477 (18.9%)	RR 0.82 (0.57 to 1.20)	27 fewer per 1000 (from 65 fewer to 30 more)	VERY LOW	CRITICAL
Cycle cancellation due to low response												
1 (Karimzadeh 2009)	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	4/46 (8.7%)	4/161 (2.5%)	RR 3.50 (0.91, 13.46)	217 more per 1000 (from 8 fewer to 1000 more)	VERY LOW	CRITICAL

FSH: follicle-stimulating hormone; CI: confidence intervals; MID: minimally important difference; QUIPS: Quality In Prognosis Studies; RR: risk ratio

[a] Karimzadeh 2009, Sahmay 2012, Sahmay 2013, Zebitay 2017

1 Very serious risk of bias in the evidence contributing to the outcomes as per QUIPS checklist

2 95% CI crosses 1 MID

Table 8: Evidence profile for low AFC (versus normal AFC) as a marker of diminished ovarian reserve

Quality assessment							No of events		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Low AFC**	**Normal AFC**	**Relative (95% CI)**	**Absolute**		
Live birth per cycle												
2[a]	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	67/368 (18.2%)	756/3451 (21.9%)	RR 0.6 (0.48 to 0.76)	88 fewer per 1000 (from 53 fewer to 114 fewer)	LOW	CRITICAL
Clinical pregnancy per cycle												
7[b]	prospective cohort studies	very serious[1]	serious[2]	no serious indirectness	no serious imprecision	none	105/828 (12.7%)	1136/4217 (26.9%)	RR 0.5 (0.33 to 0.76)	135 fewer per 1000 (from 65 fewer to 180 fewer)	VERY LOW	CRITICAL
Clinical pregnancy per cycle – Mean age <35 years												

6[c]	prospective cohort studies	very serious[1]	serious[2]	no serious indirectness	serious[3]	none	88/699 (12.6%)	349/1273 (27.4%)	RR 0.5 (0.29 to 0.85)	137 fewer per 1000 (from 41 fewer to 195 fewer)	VERY LOW	CRITICAL
Clinical pregnancy per cycle - Mean age 35-39 years												
1 (Holte 2011)	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	17/129 (13.2%)	787/2944 (26.7%)	RR 0.49 (0.32 to 0.77)	136 fewer per 1000 (from 61 fewer to 182 fewer)	LOW	CRITICAL
Clinical pregnancy per transfer (excluding participants who did not undergo embryo transfer)												
1 (Hsieh 2001)	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	very serious[4]	none	2/16 (12.5%)	75/217 (34.6%)	RR 0.36 (0.1 to 1.34)	221 fewer per 1000 (from 311 fewer to 118 more)	VERY LOW	CRITICAL

AFC: antral follicle count; CI: confidence intervals; MID: minimally important difference; QUIPS: Quality In Prognosis Studies; RR: risk ratio
[a] Holte 2011, Jayaprakasan 2012
[b] Ben-Haroush 2011, Holte 2011, Hsieh 2001, Sahmay 2012, Sahmay 2013, Zebitay 2017, Zhang 2019
[c] Ben-Haroush 2011, Hsieh 2001, Sahmay 2012, Sahmay 2013, Zebitay 2017, Zhang 2019
1 Very serious risk of bias in the evidence contributing to the outcomes as per QUIPS checklist
2 Serious heterogeneity (>50%) unexplained by subgroup analysis by age or AFC cut-offs
3 95% CI crosses 1 MID
4 95% CI crosses 2 MIDs

Table 9: Evidence profile for independent association between AFC and clinical pregnancy

Quality assessment									Effect	Quality	Importance
Potential risk factors examined (reference category)	**Outcome**	**No of studies**	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Relative (95% CI)**		
AFC 9-12 (AFC 1-8)	Clinical pregnancy	1 (Liao 2019)	prospective cohort studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	aOR[2] 1.39 (1.22 to 1.59)	MODERATE	CRITICAL
AFC 13-17 (AFC 1-8)	Clinical pregnancy	1 (Liao 2019)	prospective cohort studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	aOR[2] 1.52 (1.33 to 1.73)	HIGH	CRITICAL
AFC ≥18 (AFC 1-8)	Clinical pregnancy	1 (Liao 2019)	prospective cohort studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	aOR[2] 1.7 (1.49 to 1.94)	HIGH	CRITICAL

AFC: antral follicle count; aOR: adjusted odds ratio; CI: confidence intervals; MID: minimally important difference; OR: odds ratio
1 95% CI crosses 1 MID
2 ORs adjusted for age, duration of infertility, female cause of infertility, progesterone, oestradiol (E2), and oocytes retrieved

Table 10: Evidence profile for high AFC (versus normal AFC) as a marker of increased risk of OHSS

Quality assessment							No of events		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**High AFC**	**Normal AFC**	**Relative (95% CI)**	**Absolute**		
Ovarian hyperstimulation syndrome												

1 (Jayaprakasan 2012)	prospective cohort studies	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	18/266 (6.8%)	13/507 (2.6%)	RR 2.64 (1.31 to 5.30)	42 more per 1000 (from 8 more to 110 more)	LOW	CRITICAL

AFC: antral follicle count; CI: confidence intervals; QUIPS: Quality In Prognosis Studies; RR: risk ratio

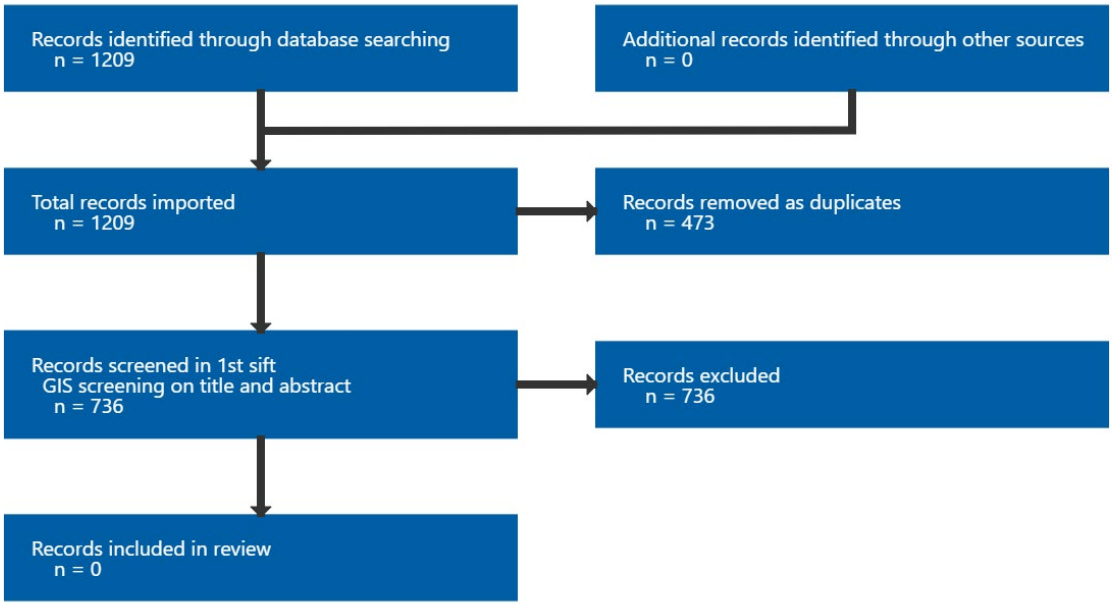
1 Very serious risk of bias in the evidence contributing to the outcomes as per QUIPS checklist

Appendix G Economic evidence study selection

Study selection for: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

No economic evidence was identified which was applicable to this review question.

Figure 9: Study selection flow chart



Appendix H Economic evidence tables

Economic evidence tables for review question: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

No evidence was identified which was applicable to this review question.

Appendix I Economic model

Economic model for review question: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

No economic analysis was conducted for this review question.

Appendix J Excluded studies

Excluded studies for review question: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

Excluded prognostic studies

Table 11: Excluded studies and reasons for their exclusion

Study	Code [Reason]
Aanesen, Arthur and Westerbotn, Margareta (2014) Prospective study of a Swedish infertile cohort 2005-08: population characteristics, treatments and pregnancy rates. Family practice 31(3): 290-7	- Insufficient presentation of results *Only continuous data reported (basal FSH/AMH as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Abdalla, H and Thum, M Y (2006) Repeated testing of basal FSH levels has no predictive value for IVF outcome in women with elevated basal FSH. Human reproduction (Oxford, England) 21(1): 171-4	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Abdalla, H and Thum, M Y (2004) An elevated basal FSH reflects a quantitative rather than qualitative decline of the ovarian reserve. Human reproduction (Oxford, England) 19(4): 893-8	- Study conducted pre-2000
Abdelsalam, Walid A; Harb, Ola A; Shazly, Sherin A (2022) Antimullerian Hormone Levels and Association with Abortion and Preterm Delivery in Patients with Polycystic Ovary Syndrome Who Conceived with Assisted Reproductive Techniques. Journal of obstetrics and gynaecology of India 72(suppl1): 295-298	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Abhari, Sina, Lu, Jingqiao, Hipp, Heather S et al. (2022) A Case-Control Study of Follicular Fluid Cytokine Profiles in Women with Diminished Ovarian Reserve. Reproductive sciences (Thousand Oaks, Calif.) 29(9): 2515-2524	- Study type does not match protocol criteria *Case-control study*
Abide Yayla, C, Ozkaya, E, Kayatas Eser, S et al. (2018) Association of basal serum androgen levels with ovarian response and ICSI cycle outcome. Irish journal of medical science 187(2): 409-415	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Aboulghar, Mohamed, Saber, Walid, Amin, Yahia et al. (2014) Impact of antimullerian hormone assays on the outcomes of in vitro fertilization: a prospective controlled study. Fertility and sterility 101(1): 134-7	- Prognostic factors do not match protocol criteria *Participants were split into groups according to high or low risk of poor ovarian reserve (determined by a diagnosis of unexplained infertility or endometriosis, a history of ovarian*

Study	Code [Reason]
	surgery for any condition other than polycystic ovary syndrome (PCOS) and women between the ages of 37 and 40 years). Only participants with a high risk for a poor ovarian reserve had their AMH levels tested and therefore had data available on a prognostic factor of interest, however baseline characteristics are not reported separately for this group.
Abrahami, N.; Izhaki, I.; Younis, J.S. (2019) Do young women with unexplained infertility show manifestations of decreased ovarian reserve?. Journal of Assisted Reproduction and Genetics 36(6): 1143-1152	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Study type does not match protocol criteria *Case-control*
Abu-Fakher, B.; Al-Quobaili, F.; Alhalabi, M. (2013) Follicular fluid antimullerian hormone (AMH) does not predict IVF outcomes in polycystic ovary syndrome patients. Middle East Fertility Society Journal 18(2): 110-114	- Insufficient presentation of results *Participants are grouped according to presence of PCOS, and outcomes are reported according to those groups. Data are not sufficiently presented to analyse ORT results as a prognostic factor* - Study type does not match protocol criteria *Case-control*
Acharya, Kelly S, Harris, Benjamin S, Weber, Jeremy M et al. (2022) Impact of increasing antimullerian hormone level on in vitro fertilization fresh transfer and live birth rate. F&S reports 3(3): 223-230	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Aflatoonian, A., Oskouian, H., Ahmadi, S. et al. (2009) Prediction of high ovarian response to controlled ovarian hyperstimulation: Anti-Mullerian hormone versus small antral follicle count (2-6 mm). Journal of Assisted Reproduction and Genetics 26(6): 319-325	- Outcomes do not match protocol criteria *Only relevant outcome reported is a composite outcome including both positive and negative outcomes (high ovarian response, defined as the presence of ≥15 follicles with a mean diameter ≥12mm per each ovary at the end of the follicular phase of COH, and/or E2 levels on the day of hCG administration >3000 pg/mL, and/or >15 oocytes retrieved and/or cycle cancellation on the day of hCG, and/or cryopreservation of all embryos because of high risk of OHSS)* - Insufficient presentation of results *Multiple logistic regression analysis does not adjust for duration of infertility, no relevant data other than ORs reported*
Aghssa, M.M., Tarafdari, A.M., Tehraninejad, E.S. et al. (2015) Optimal cutoff value of basal anti-mullerian hormone in iranian infertile women for prediction of ovarian hyper-stimulation syndrome and poor response to	- Insufficient presentation of results *Multivariable regression analysis adjusted for age but not duration of infertility. Continuous data are reported but basal FSH/AMH are reported as means and SEs in relation to*

Study	Code [Reason]
stimulation Female Fertility. Reproductive Health 12(1): 85	*outcomes, without a threshold for low/high/normal levels*
Ahn, So Hyun, Lee, Inha, Cho, SiHyun et al. (2021) Predictive Factors of Conception and the Cumulative Pregnancy Rate in Subfertile Couples Undergoing Timed Intercourse With Ultrasound. Frontiers in endocrinology 12: 650883	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Akande, V A, Fleming, C F, Hunt, L P et al. (2002) Biological versus chronological ageing of oocytes, distinguishable by raised FSH levels in relation to the success of IVF treatment. Human reproduction (Oxford, England) 17(8): 2003-8	- Study conducted pre-2000
Akande, Valentine A, Keay, Stephen D, Hunt, Linda P et al. (2004) The practical implications of a raised serum FSH and age on the risk of IVF treatment cancellation due to a poor ovarian response. Journal of assisted reproduction and genetics 21(7): 257-62	- Study conducted pre-2000
Akbari Sene, Azadeh, Ashrafi, Mahnaz, Alaghmand-Fard, Nasim et al. (2021) Anti-Mullerian Hormone Predictive Levels to Determine The Likelihood of Ovarian Hyper-Response in Infertile Women with Polycystic Ovarian Morphology. International journal of fertility & sterility 15(2): 115-122	- Insufficient presentation of results *Multiple logistic regression analysis does not adjust for duration of infertility. Continuous data are reported but basal FSH/AMH are reported as means and SDs/ medians and IQRs in relation to outcomes, without a threshold for low/high/normal levels*
Al Safi, W.G. and Hassan, M.F. (2021) Pregnancy rate in women with pcos with high lh/fsh ratio undergoing icsi. Latin American Journal of Pharmacy 40(specialissue): 336-340	- Number of participants <100
Al-Azemi, Majedah, Killick, Stephen R, Duffy, Sheila et al. (2011) Multi-marker assessment of ovarian reserve predicts oocyte yield after ovulation induction. Human reproduction (Oxford, England) 26(2): 414-22	- Insufficient presentation of results *Multiple logistic regression analysis does not adjust for duration of infertility. Continuous data are reported but basal FSH/AMH are reported as means and SDs in relation to outcomes, without a threshold for low/high/normal levels*
Alanazi, H., Bushaqer, N., Ayyoub, H. et al. (2018) Antimullerian hormone (AMH) level and IVF/ICSI cycle outcome in expected poor responders. Middle East Fertility Society Journal 23(3): 246-250	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Alebic, Miro Simun; Stojanovic, Natasa; Zuvic-Butorac, Marta (2013) The IVF Outcome Counseling Based on the Model Combining DHEAS and Age in Patients with Low AMH Prior to the First Cycle of GnRH Antagonist Protocol of Ovarian Stimulation. International journal of endocrinology 2013: 637919	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Aleyasin, Ashraf, Aghahoseini, Marzie, Mokhtar, Sara et al. (2011) Anti-mullerian hormone as a predictive factor in assisted reproductive technique of polycystic ovary syndrome patients. Acta medica Iranica 49(11): 715-20	- Number of participants <100
Alsafi, W.G. (2021) The correlation between female age and ovarian reserve biomarkers (Fsh & amh) and its' effect on the response to controlled ovarian hyper-stimulation (cos) and pregnancy rate following intracytoplasm sperm injection (icsi). Eastern Journal of Medicine 26(4): 555-560	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Alson, Sara S E, Bungum, Leif J, Giwercman, Aleksander et al. (2018) Anti-mullerian hormone levels are associated with live birth rates in ART, but the predictive ability of anti-mullerian hormone is modest. European journal of obstetrics, gynecology, and reproductive biology 225: 199-204	- Insufficient presentation of results *Live birth rate is presented as a continuous outcome only. Data cannot be extracted in the form specified in the protocol without transformation of data requiring multiple assumptions*
Alvaro Mercadal, Beatriz, Rodriguez, Ignacio, Arroyo, Gemma et al. (2018) Characterization of a suboptimal IVF population and clinical outcome after two IVF cycles. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 34(2): 125-128	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Amer, S.A., Mahran, A., Abdelmaged, A. et al. (2013) The influence of circulating anti-Mullerian hormone on ovarian responsiveness to ovulation induction with gonadotrophins in women with polycystic ovarian syndrome: A pilot study. Reproductive Biology and Endocrinology 11(1): 115	- Number of participants <100
Anckaert, Ellen, Denk, Barbara, He, Ying et al. (2019) Evaluation of the Elecsys R anti-Mullerian hormone assay for the prediction of hyper-response to controlled ovarian stimulation with a gonadotrophin-releasing hormone antagonist protocol. European journal of obstetrics, gynecology, and reproductive biology 236: 133-138	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Anckaert, Ellen, Smitz, Johan, Schiettecatte, Johan et al. (2012) The value of anti-Mullerian hormone measurement in the long GnRH agonist protocol: association with ovarian response and gonadotrophin-dose adjustments. Human reproduction (Oxford, England) 27(6): 1829-39	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Anderson, Richard A, Cameron, David, Clatot, Florian et al. (2022) Anti-Mullerian hormone as a marker of ovarian reserve and premature ovarian insufficiency in children and women with cancer: a systematic review. Human reproduction update 28(3): 417-434	- Systematic review - included studies checked for relevance
Arat, Ozgur, Deveci, Derya, Ozkan, Zehra Sema et al. (2020) What is the effect of the early follicular phase FSH/LH ratio on the number of mature oocytes and embryo development?. Turkish journal of medical sciences 50(2): 420-425	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Arce, Joan-Carles, La Marca, Antonio, Mirner Klein, Bjarke et al. (2013) Antimullerian hormone in gonadotropin releasing-hormone antagonist cycles: prediction of ovarian response and cumulative treatment outcome in good-prognosis patients. Fertility and sterility 99(6): 1644-53	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Armijo, O., Alonso-Luque, B., Vargas, S. et al. (2021) Results of IVF-ICSI cycles in low responder patients: An observational study. Medicina Reproductiva y Embriologia Clinica 8(3): 100109	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Asada, Yoshimasa, Morimoto, Yoshiharu, Nakaoka, Yoshiharu et al. (2017) Age-specific serum anti-Mullerian hormone concentration in Japanese women and its usefulness as a predictor of the ovarian response. Reproductive medicine and biology 16(4): 364-373	- Study type does not match protocol criteria *Cross-sectional*
Asada, Yoshimasa, Tsuiki, Miyako, Sonohara, Megumi et al. (2019) Performance of anti-Mullerian hormone (AMH) levels measured by Beckman Coulter Access AMH assay to predict oocyte yield following controlled ovarian stimulation for in vitro fertilization. Reproductive medicine and biology 18(3): 273-277	- Study type does not match protocol criteria *Cross-sectional*
Ashrafi, M, Madani, T, Tehranian, A Seirafi et al. (2005) Follicle stimulating hormone as a predictor of ovarian response in women undergoing controlled ovarian hyperstimulation for IVF. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 91(1): 53-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Ashrafi, Mahnaz, Bahmanabadi, Akram, Akhond, Mohammad Reza et al. (2015) Predictive factors of early moderate/severe ovarian hyperstimulation syndrome in non-	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
polycystic ovarian syndrome patients: a statistical model. Archives of gynecology and obstetrics 292(5): 1145-52	
Ashrafi, Mahnaz, Hemat, Mandana, Arabipoor, Arezoo et al. (2017) Predictive values of anti-mullerian hormone, antral follicle count and ovarian response prediction index (ORPI) for assisted reproductive technology outcomes. Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology 37(1): 82-88	- Insufficient presentation of results *No information reported on multivariable regression analysis, unclear if age or duration of infertility are adjusted for. No data other than ORs reported*
Avrech, O M, Royburt, M, Sabah, G et al. (1996) The initial flare-up induced by gonadotropin releasing hormone agonist may serve as a predictor of ovarian response in the current IVF-ET treatment cycle in normogonadotropic women aged 40-48 years. Journal of assisted reproduction and genetics 13(5): 395-400	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Study conducted pre-2000
Awartani, Khalid, Al Ghabshi, Rahma, Al Shankiti, Hanan et al. (2016) Association of blood groups with ovarian reserve and outcome of in vitro fertilization treatment. Annals of Saudi medicine 36(2): 116-20	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Aydin, Gultekin Adanas, Yavuz, Arzu, Terzi, Hasan et al. (2015) Assessment of the relationship of basal serum anti-mullerian hormone levels with oocyte quality and pregnancy outcomes in patients undergoing ICSI. Iranian journal of reproductive medicine 13(4): 231-6	- Study type does not match protocol criteria *Cross-sectional*
Aydin, T, Kara, M, Aran, T et al. (2015) The association between anti-Mullerian hormone and IVF-ICSI outcome in poor responder patients performing long protocol. Clinical and experimental obstetrics & gynecology 42(5): 663-5	- Insufficient presentation of results *Only continuous data reported (basal FSH/AMH as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Aydin, Yunus, Hassa, Hikmet, Oge, Tufan et al. (2013) Factors predictive of clinical pregnancy in the first intrauterine insemination cycle of 306 couples with favourable female patient characteristics. Human fertility (Cambridge, England) 16(4): 286-90	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Azizi, Elham, Naji, Mohammad, Nazari, Leila et al. (2019) Serum anti-Mullerian hormone is associated with oocyte dysmorphisms and ICSI outcomes. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 147(2): 179-186	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Bakas, Panagiotis, Boutas, Ioannis, Creatsa, Maria et al. (2015) Can anti-Mullerian hormone (AMH) predict the outcome of intrauterine insemination with controlled ovarian stimulation?. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 31(10): 765-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Baker, Valerie L, Glassner, Michael J, Doody, Kevin et al. (2021) Validation study of the Access antimullerian hormone assay for the prediction of poor ovarian response to controlled ovarian stimulation. Fertility and sterility 116(2): 575-582	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH/AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels). OR reported but without CIs or other sufficient summary measure*
Baker, Valerie L, Gracia, Clarisa, Glassner, Michael J et al. (2018) Multicenter evaluation of the Access AMH antimullerian hormone assay for the prediction of antral follicle count and poor ovarian response to controlled ovarian stimulation. Fertility and sterility 110(3): 506-513e3	- Study type does not match protocol criteria *Cross-sectional*
Balachandren, N, Salman, M, Diu, N L et al. (2020) Ovarian reserve as a predictor of cumulative live birth. European journal of obstetrics, gynecology, and reproductive biology 252: 273-277	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Balasch, J, Creus, M, Fabregues, F et al. (1996) Inhibin, follicle-stimulating hormone, and age as predictors of ovarian response in in vitro fertilization cycles stimulated with gonadotropin-releasing hormone agonist-gonadotropin treatment. American journal of obstetrics and gynecology 175(5): 1226-30	- Study conducted pre-2000 - Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Ballester, Marcos, Oppenheimer, Anne, d'Argent, Emmanuelle Mathieu et al. (2012) Nomogram to predict pregnancy rate after ICSI-IVF cycle in patients with endometriosis. Human reproduction (Oxford, England) 27(2): 451-6	- Insufficient presentation of results *Study aims to develop a prediction model for clinical pregnancy rate in patients with and without endometriosis. Outcomes are presented per the training and validation cohorts according to presence of endometriosis, and sufficient data is not reported to extract association of AMH levels with pregnancy rates*
Bancsi, L F, Huijs, A M, den Ouden, C T et al. (2000) Basal follicle-stimulating hormone levels are of limited value in predicting ongoing pregnancy rates after in vitro fertilization. Fertility and sterility 73(3): 552-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Bancsi, Laszlo F J M M, Broekmans, Frank J M, Eijkemans, Marinus J C et al. (2002) Predictors of poor ovarian response in in vitro fertilization: a prospective study comparing basal markers of	- Study conducted pre-2000

Study	Code [Reason]
ovarian reserve. Fertility and sterility 77(2): 328-36	
Bancsi, Laszlo F J M M, Broekmans, Frank J M, Looman, Caspar W N et al. (2004) Impact of repeated antral follicle counts on the prediction of poor ovarian response in women undergoing in vitro fertilization. Fertility and sterility 81(1): 35-41	- Duplicate *Same study as Bancsi 2002 ("Predictors of poor ovarian response in in vitro fertilization: a prospective study comparing basal markers of ovarian reserve")*
Bancsi, Laszlo F J M M, Broekmans, Frank J M, Looman, Caspar W N et al. (2004) Predicting poor ovarian response in IVF: use of repeat basal FSH measurement. The Journal of reproductive medicine 49(3): 187-94	- Duplicate *Same study as Bancsi 2002 ("Predictors of poor ovarian response in in vitro fertilization: a prospective study comparing basal markers of ovarian reserve")*
Bancsi, Laszlo F J M M, Broekmans, Frank J M, Mol, Ben W J et al. (2003) Performance of basal follicle-stimulating hormone in the prediction of poor ovarian response and failure to become pregnant after in vitro fertilization: a meta-analysis. Fertility and sterility 79(5): 1091-100	- Systematic review - included studies checked for relevance
Barad, David H; Weghofer, Andrea; Gleicher, Norbert (2007) Age-specific levels for basal follicle-stimulating hormone assessment of ovarian function. Obstetrics and gynecology 109(6): 1404-10	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Barnabei, Agnese, Strigari, Lidia, Marchetti, Paolo et al. (2015) Predicting Ovarian Activity in Women Affected by Early Breast Cancer: A Meta-Analysis-Based Nomogram. The oncologist 20(10): 1111-8	- Systematic review - included studies checked for relevance
Barton, Sara E, Missmer, Stacey A, Ashby, Rachel K et al. (2010) Multivariate analysis of the association between oocyte donor characteristics, including basal follicle stimulating hormone (FSH) and age, and IVF cycle outcomes. Fertility and sterility 94(4): 1292-1295	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Bassil, S, Godin, P A, Gillerot, S et al. (1999) In vitro fertilization outcome according to age and follicle-stimulating hormone levels on cycle day 3. Journal of assisted reproduction and genetics 16(5): 236-41	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Bastu, Ercan, Gokulu, Sevki Goksun, Dural, Ozlem et al. (2015) The association between follicular fluid levels of cathepsin B, relaxin or AMH with clinical pregnancy rates in infertile patients. European journal of obstetrics, gynecology, and reproductive biology 187: 30-4	- Number of participants <100

Study	Code [Reason]
Baykal, B., Celik, C., Bastu, E. et al. (2014) Effect of antral follicle count on in vitro fertilization outcome. Journal of Clinical and Analytical Medicine 5(4): 324-327	- Insufficient presentation of results *Study investigates prognostic value of antral follicle size. Data are not sufficiently presented to analyse AFC results as a prognostic factor*
Bayram, Hale, Dundar, Ozgur, Donmez Cakil, Yaprak et al. (2022) Anti-Mullerian hormone as a predictor of pregnancy in women under 35 years with unexplained infertility undergoing ICSI: a retrospective study. Minerva obstetrics and gynecology 74(2): 117-122	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Beckers, N.G.M., Macklon, N.S., Eijkemans, M.J.C. et al. (2002) Women with regular menstrual cycles and a poor response to ovarian hyperstimulation for in vitro fertilization exhibit follicular phase characteristics suggestive of ovarian aging. Fertility and Sterility 78(2): 291-297	- Study type does not match protocol criteria *Case-control*
Ben-Haroush, Avi, Farhi, Jacob, Zahalka, Yasmin et al. (2012) Correlations between antral follicle count and ultrasonographic ovarian parameters and clinical variables and outcomes in IVF cycles. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 28(6): 432-5	- Duplicate *Study participants seem to overlap with Ben-Haroush 2011* - Outcomes do not match protocol criteria *No outcomes of interest reported*
Bensdorp, Alexandra J, van der Steeg, Jan Willem, Steures, Pieternel et al. (2017) A revised prediction model for natural conception. Reproductive biomedicine online 34(6): 619-626	- Insufficient presentation of results *Study only reports HRs*
Bhide, Priya, Gudi, Anil, Shah, Amit et al. (2013) Anti-Mullerian hormone as a predictor of pregnancy following IVF. Reproductive biomedicine online 26(3): 247-52	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Billington, Emma O and Corenblum, Bernard (2016) Anti-Mullerian hormone levels do not predict response to pulsatile GnRH in women with hypothalamic amenorrhea. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 32(9): 728-732	- Number of participants <100
Binder, Helge, Strick, Reiner, Zaherdoust, Olga et al. (2012) Assessment of FSHR variants and antimullerian hormone in infertility patients with a reduced ovarian response to gonadotropin stimulation. Fertility and sterility 97(5): 1169-75e1	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Bishop, Lauren A, Richter, Kevin S, Patounakis, George et al. (2017) Diminished ovarian reserve as measured by means of baseline follicle-	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
stimulating hormone and antral follicle count is not associated with pregnancy loss in younger in vitro fertilization patients. Fertility and sterility 108(6): 980-987	
Blazar, Andrew S, Lambert-Messerlian, Geralyn, Hackett, Richard et al. (2011) Use of in-cycle antimullerian hormone levels to predict cycle outcome. American journal of obstetrics and gynecology 205(3): 223e1-5	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Bolat, Seda Eymen, Ozdemirci, Safak, Kasapoglu, Taner et al. (2016) The effect of serum and follicular fluid anti-Mullerian hormone level on the number of oocytes retrieved and rate of fertilization and clinical pregnancy. Northern clinics of Istanbul 3(2): 90-96	- Number of participants <100
Bonilla-Musoles, F, Castillo, J C, Caballero, O et al. (2012) Predicting ovarian reserve and reproductive outcome using antimullerian hormone (AMH) and antral follicle count (AFC) in patients with previous assisted reproduction technique (ART) failure. Clinical and experimental obstetrics & gynecology 39(1): 13-8	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH/AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Bord, Ilia, Tamir, Belle, Harlev, Avraham et al. (2016) Recurrent implantation failure in IVF: features of cycles that eventually ended in conception. Archives of gynecology and obstetrics 293(4): 893-900	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Borges, Edson, Braga, Daniela P A F, Setti, Amanda et al. (2017) The predictive value of serum concentrations of anti-Mullerian hormone for oocyte quality, fertilization, and implantation. JBRA assisted reproduction 21(3): 176-182	- Insufficient presentation of results *Odds ratios reported but multivariate analysis does not adjust for duration of infertility*
Bosch, E., Labarta, E., Zuzuarregui, J. et al. (2023) Prediction of ovarian response using the automated Elecsys anti-Mullerian hormone assay in gonadotrophin-releasing hormone antagonist cycles. Reproductive BioMedicine Online 46(2): 295-301	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Brodin, Thomas, Bergh, Torbjorn, Berglund, Lars et al. (2009) High basal LH levels in combination with low basal FSH levels are associated with high success rates at assisted reproduction. Human reproduction (Oxford, England) 24(11): 2755-9	- Insufficient presentation of results *Results for FSH and LH are not presented separately from each other. Participants are grouped into 4 according to low or high FSH/LH levels; results for groups 2 and 3 (group 2: low FSH, low LH; group 3: high FSH, high LH) are presented together so necessary transformation of data could not be completed*

Study	Code [Reason]
Brodin, Thomas, Hadziosmanovic, Nermin, Berglund, Lars et al. (2015) Comparing four ovarian reserve markers--associations with ovarian response and live births after assisted reproduction. Acta obstetricia et gynecologica Scandinavica 94(10): 1056-63	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Broekmans, F J, Kwee, J, Hendriks, D J et al. (2006) A systematic review of tests predicting ovarian reserve and IVF outcome. Human reproduction update 12(6): 685-718	- Systematic review - included studies checked for relevance
Broekmans, Frank J, Verweij, Pierre J M, Eijkemans, Marinus J C et al. (2014) Prognostic models for high and low ovarian responses in controlled ovarian stimulation using a GnRH antagonist protocol. Human reproduction (Oxford, England) 29(8): 1688-97	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Broer, S L, Dolleman, M, Opmeer, B C et al. (2011) AMH and AFC as predictors of excessive response in controlled ovarian hyperstimulation: a meta-analysis. Human reproduction update 17(1): 46-54	- Systematic review - included studies checked for relevance
Broer, Simone L, Broekmans, Frank J M, Laven, Joop S E et al. (2014) Anti-Mullerian hormone: ovarian reserve testing and its potential clinical implications. Human reproduction update 20(5): 688-701	- Systematic review - included studies checked for relevance
Broer, Simone L, Mol, Ben Willem J, Hendriks, Dave et al. (2009) The role of antimullerian hormone in prediction of outcome after IVF: comparison with the antral follicle count. Fertility and sterility 91(3): 705-14	- Systematic review - included studies checked for relevance
Broer, Simone L, van Disseldorp, Jeroen, Broeze, Kimiko A et al. (2013) Added value of ovarian reserve testing on patient characteristics in the prediction of ovarian response and ongoing pregnancy: an individual patient data approach. Human reproduction update 19(1): 26-36	- Systematic review - included studies checked for relevance
Brugo Olmedo, Santiago, De Vincentiis, Sabrina, De Martino, Evelyn et al. (2013) Prediction of reproductive outcomes according to different serum anti-Mullerian hormone levels in females undergoing intracystoplasmic sperm injection. PloS one 8(9): e75685	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Bruno-Gaston, J, Jung, J, Kumar, T et al. (2021) Association of ovarian response with picoAMH in women undergoing controlled ovarian hyperstimulation. Clinical biochemistry 95: 34-40	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Buratini, Jose, Dal Canto, Mariabeatrice, De Ponti, Elena et al. (2021) Maternal age affects the relationship of basal FSH and anti-Mullerian hormone concentrations with post-ICSI/IVF live birth. Reproductive biomedicine online 42(4): 748-756	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Buratini, Jose, Dellaqua, Thaisy Tino, Dal Canto, Mariabeatrice et al. (2022) The putative roles of FSH and AMH in the regulation of oocyte developmental competence: from fertility prognosis to mechanisms underlying age-related subfertility. Human reproduction update 28(2): 232-254	- Systematic review - included studies checked for relevance
Burwinkel, T H, Buster, J E, Scoggan, J L et al. (1994) Basal follicle stimulating hormone (FSH) predicts response to controlled ovarian hyperstimulation (COH)-intrauterine insemination (IUI) therapy. Journal of assisted reproduction and genetics 11(1): 24-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Buyalos, R P; Daneshmand, S; Brzechffa, P R (1997) Basal estradiol and follicle-stimulating hormone predict fecundity in women of advanced reproductive age undergoing ovulation induction therapy. Fertility and sterility 68(2): 272-7	- Study conducted pre-2000
Buyalos, R P; Ghosh, K; Daneshmand, S T (1998) Infertile women of advanced reproductive age. Variability of day 3 FSH and E2 levels. The Journal of reproductive medicine 43(12): 1023-6	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Buyuk, Erkan, Seifer, David B, Younger, Joshua et al. (2011) Random anti-Mullerian hormone (AMH) is a predictor of ovarian response in women with elevated baseline early follicular follicle-stimulating hormone levels. Fertility and sterility 95(7): 2369-72	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Cahill, D J, Prosser, C J, Wardle, P G et al. (1994) Relative influence of serum follicle stimulating hormone, age and other factors on ovarian response to gonadotrophin stimulation. British journal of obstetrics and gynaecology 101(11): 999-1002	- Study conducted pre-2000
Cai, Jiali, Liu, Lanlan, Zheng, Juan et al. (2018) Differential response of AMH to GnRH agonist among individuals: the effect on ovarian stimulation outcomes. Journal of assisted reproduction and genetics 35(3): 467-473	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Cai, Jie, Lou, Hang-ying, Dong, Min-yue et al. (2007) Poor ovarian response to gonadotropin	- Insufficient presentation of results

Study	Code [Reason]
stimulation is associated with low expression of follicle-stimulating hormone receptor in granulosa cells. Fertility and sterility 87(6): 1350-6	*Study investigated the levels of FSH receptor expression in granulosa cells from young women with normal basal FSH levels. Data on basal serum FSH or AFC in relation to ovarian response is not presented in sufficient detail to extract for the purpose of the relevant outcomes of this review*
Cai, Q F, Wan, F, Huang, R et al. (2011) Factors predicting the cumulative outcome of IVF/ICSI treatment: a multivariable analysis of 2450 patients. Human reproduction (Oxford, England) 26(9): 2532-40	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Cai, Qianfang, Wan, Fei, Appleby, Dina et al. (2014) Quality of embryos transferred and progesterone levels are the most important predictors of live birth after fresh embryo transfer: a retrospective cohort study. Journal of assisted reproduction and genetics 31(2): 185-94	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Calamera, P., Buffone, M.G., De Vincentiis, S. et al. (2013) Serum AMH level can predict the risk of cycle cancellation and the chances of good ovarian response, independently of patient's age or FSH. Jornal Brasileiro de Reproducao Assistida 17(2): 101-108	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Calero Ruiz, M.M., Gutierrez Romero, J.M., Lopez Pelayo, I. et al. (2017) Levels of anti-mullerian hormone in serum and follicular fluids as predictive markers for ovarian response in assisted reproduction treatments. Medicina Reproductiva y Embriologia Clinica 4(1): 22-31	- Paper not available *Not available in English*
Carbone, L, Di Girolamo, R, Conforti, A et al. (2023) Ovarian reserve in patients with multiple sclerosis: A systematic review and meta-analysis. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics	- Systematic review - included studies checked for relevance
Caroppo, Ettore, Matteo, Maria, Schonauer, Luca Maria et al. (2006) Basal FSH concentration as a predictor of IVF outcome in older women undergoing stimulation with GnRH antagonist. Reproductive biomedicine online 13(6): 815-20	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Casadei, L, Manicuti, C, Puca, F et al. (2013) Can anti-Mullerian hormone be predictive of spontaneous onset of pregnancy in women with unexplained infertility?. Journal of obstetrics and	- Number of participants <100

Study	Code [Reason]
gynaecology : the journal of the Institute of Obstetrics and Gynaecology 33(8): 857-61	
Celik, E, Bastu, E, Dural, O et al. (2013) Relevance of anti-Mullerian hormone on in vitro fertilization outcome. Clinical and experimental obstetrics & gynecology 40(1): 66-9	- Number of participants <100
Celik, Handan, Bildircin, Devran, Guven, Davut et al. (2012) Random anti-Mullerian hormone predicts ovarian response in women with high baseline follicle-stimulating hormone levels : anti-Mullerian hormone in poor responders in assisted reproductive treatment. Journal of assisted reproduction and genetics 29(8): 797-802	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Celtemen, M.B., Telli Celtemen, P., Bozkurt, N. et al. (2018) Follicular fluid anti-Mullerian hormone, inhibin-A, progesterone, and estradiol level differences in patients under controlled ovarian stimulation. Clinical and Experimental Obstetrics and Gynecology 45(2): 166-169	- Number of participants <100
Chae, H D, Kim, C H, Kang, B M et al. (2000) Clinical usefulness of basal FSH as a prognostic factor in patients undergoing intracytoplasmic sperm injection. The journal of obstetrics and gynaecology research 26(1): 55-60	- Study conducted pre-2000
Chan, Y.F., Ho, P.C., So, W.W.K. et al. (1993) Basal serum pituitary hormone levels and outcome of in vitro fertilization utilizing a flare nasal gonadotropin releasing hormone agonist and fixed low- dose follicle-stimulating hormone/human menopausal gonadotropin regimen. Journal of Assisted Reproduction and Genetics 10(4): 251-254	- Study conducted pre-2000
Chang, M Y, Chiang, C H, Chiu, T H et al. (1998) The antral follicle count predicts the outcome of pregnancy in a controlled ovarian hyperstimulation/intrauterine insemination program. Journal of assisted reproduction and genetics 15(1): 12-7	- Study conducted pre-2000
Chang, M Y, Chiang, C H, Hsieh, T T et al. (1998) Use of the antral follicle count to predict the outcome of assisted reproductive technologies. Fertility and sterility 69(3): 505-10	- Study conducted pre-2000
Checa, Miguel A; Prat, Maria; Carreras, Ramon (2010) Antral follicle count as a predictor of hyperresponse in controlled ovarian hyperstimulation/intrauterine insemination in	- ORT conducted after beginning ART - Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*

Study	Code [Reason]
unexplained sterility. Fertility and sterility 94(3): 1105-7	
Check, J H, Katsoff, B, Brasile, D et al. (2008) Pregnancy outcome following in vitro fertilization-embryo transfer (IVF-ET) in women of more advanced reproductive age with elevated serum follicle stimulating hormone (FSH) levels. Clinical and experimental obstetrics & gynecology 35(1): 13-5	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Check, J H and Liss, J (2013) The effect of diminished oocyte reserve in younger women (age < or = 37) on pregnancy rates in natural cycles. Clinical and experimental obstetrics & gynecology 40(1): 27-8	- Conference abstract
Check, J H, Nazari, P, Check, M L et al. (2002) Prognosis following in vitro fertilization-embryo transfer (IVF-ET) in patients with elevated day 2 or 3 serum follicle stimulating hormone (FSH) is better in younger vs older patients. Clinical and experimental obstetrics & gynecology 29(1): 42-4	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Check, J H; Peymer, M; Lurie, D (1998) Effect of age on pregnancy outcome without assisted reproductive technology in women with elevated early follicular phase serum follicle-stimulating hormone levels. Gynecologic and obstetric investigation 45(4): 217-20	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Check, J H, Whetstone, A, Choe, J K et al. (2015) The effect of oocyte reserve on pregnancy rates per oocyte harvest in women aged 36-39. Clinical and experimental obstetrics & gynecology 42(5): 573-5	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Check, J.H. and Wilson, C. (2013) The younger the patients the less adverse effect of diminished oocyte reserve on outcome following in vitro fertilization-embryo transfer as long as the proper ovarian stimulation protocol is used. Journal of Reproduction and Contraception 24(4): 221-227	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Chen, SL, Xia, R, Chen, X et al. (2011) [Prediction of ovarian reserve, poor response and pregnancy outcome based on basal antral follicle count and age in patients undergoing in vitro fertilization-embryo transfer]. Nan fang yi ke da xue xue bao = Journal of Southern Medical University 31(4): 572-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Chen, Ya, Ye, Bilv, Yang, Xiaojing et al. (2017) Predicting the outcome of different protocols of	- Study type does not match protocol criteria *Case-control study*

Study	Code [Reason]
in vitro fertilization with anti-Muullerian hormone levels in patients with polycystic ovary syndrome. The Journal of international medical research 45(3): 1138-1147	
Chen, Yi-Pin, Wu, Wen-Hsiang, Wu, Hsien-Ming et al. (2014) Effects of anti-Mullerian hormone and follicle stimulating hormone levels on in vitro fertilization pregnancy rate. Taiwanese journal of obstetrics & gynecology 53(3): 313-6	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Child, Tim J, Sylvestre, Camille, Pirwany, Imran et al. (2002) Basal serum levels of FSH and estradiol in ovulatory and anovulatory women undergoing treatment by in-vitro maturation of immature oocytes. Human reproduction (Oxford, England) 17(8): 1997-2002	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Choi, Min Hye, Yoo, Ji Hee, Kim, Hye Ok et al. (2011) Serum anti-Mullerian hormone levels as a predictor of the ovarian response and IVF outcomes. Clinical and experimental reproductive medicine 38(3): 153-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Chowdhury, T.S.; Begum, S.A.; Chowdhury, T.A. (2015) The correlation of basal serum FSH, antral follicle count with ovarian response in women with advanced reproductive age. Bangladesh Journal of Obstetrics and Gynecology 30(1): 20-24	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Chuang, Chih Chi, Chen, Chin-Der, Chao, Kuang-Han et al. (2003) Age is a better predictor of pregnancy potential than basal follicle-stimulating hormone levels in women undergoing in vitro fertilization. Fertility and sterility 79(1): 63-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Ciepiela, P, Duleba, A J, Kario, A et al. (2019) Oocyte matched follicular fluid anti-Mullerian hormone is an excellent predictor of live birth after fresh single embryo transfer. Human reproduction (Oxford, England) 34(11): 2244-2253	- Insufficient presentation of results *No information reported on multivariable regression analysis, unclear if age or duration of infertility are adjusted for. Continuous data reported (basal FSH/AMH as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Coelho Neto, Marcela Alencar, Martins, Wellington de Paula, Luz, Caroline Mantovani da et al. (2016) Endometriosis, Ovarian Reserve and Live Birth Rate Following In Vitro Fertilization/Intracytoplasmic Sperm Injection. Revista brasileira de ginecologia e obstetricia : revista da Federacao Brasileira das Sociedades de Ginecologia e Obstetricia 38(5): 218-24	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Cohen, Jonathan, Mounsambote, Leonisse, Prier, Perrine et al. (2017) Outcomes of first IVF/ICSI in young women with diminished ovarian reserve. Minerva ginecologica 69(4): 315-321	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Colmorn, Lotte B, Pedersen, Anette T, Larsen, Elisabeth C et al. (2022) Reproductive and Endocrine Outcomes in a Cohort of Danish Women following Auto-Transplantation of Frozen/Thawed Ovarian Tissue from a Single Center. Cancers 14(23)	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion *Retrospective and prospective study - majority of participants included retrospectively, prospective and retrospective results not presented separately*
Conforti, A., Alfano, S., De Rosa, P. et al. (2017) The role of gonadotropin polymorphisms and their receptors in assisted reproductive technologies and controlled ovarian stimulation: A prospective observational study. Italian Journal of Gynaecology and Obstetrics 29(2): 15-21	- Number of participants <100
Cornille, Anne-Sophie, Sapet, Clemence, Reignier, Arnaud et al. (2022) Is low anti-Mullerian hormone (AMH) level a risk factor of miscarriage in women <37 years old undergoing in vitro fertilization (IVF)?. Human fertility (Cambridge, England) 25(3): 600-606	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Cortes-Vazquez, Alfredo, Goitia-Landeros, Guillermo A, Regalado, Miguel A et al. (2021) Prediction of ovarian response in IVF/ICSI cycles. JBRA assisted reproduction 25(3): 422-427	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Coughlan, Carol, Yuan, Xi, Demirol, Aygul et al. (2014) Factors affecting the outcome of "endometrial scratch" in women with recurrent implantation failure. The Journal of reproductive medicine 59(12): 39-43	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Creus, M, Penarrubia, J, Fabregues, F et al. (2000) Day 3 serum inhibin B and FSH and age as predictors of assisted reproduction treatment outcome. Human reproduction (Oxford, England) 15(11): 2341-6	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Csemiczky, G; Wramsby, H; Landgren, B M (1996) Luteal phase oestradiol and progesterone levels are stronger predictors than follicular phase follicle stimulating hormone for the outcome of in-vitro fertilization treatment in women with tubal infertility. Human reproduction (Oxford, England) 11(11): 2396-9	- Study conducted pre-2000

Study	Code [Reason]
Cupisti, S, Dittrich, Ralf, Mueller, A et al. (2007) Correlations between anti-mullerian hormone, inhibin B, and activin A in follicular fluid in IVF/ICSI patients for assessing the maturation and developmental potential of oocytes. European journal of medical research 12(12): 604-8	- Number of participants <100
Dabkowska-Huc, Anna, Lemm, Magdalena, Sikora, Jerzy et al. (2013) Anti-Mullerian hormone dynamics during ovulation induction treatment with recombinant follicle-stimulating hormone in women with polycystic ovary syndrome. Endokrynologia Polska 64(3): 203-7	- Number of participants <100
Dai, X.; Liu, J.-Y.; Wu, J. (2014) Improved prediction of in vitro fertilization clinical outcomes by combining ultrasound, serum hormones and body mass index. Journal of Reproduction and Contraception 25(3): 147-158	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Dai, Xiuliang, Wang, Yufeng, Yang, Haiyan et al. (2020) AMH has no role in predicting oocyte quality in women with advanced age undergoing IVF/ICSI cycles. Scientific reports 10(1): 19750	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Daney de Marcillac, F, Pinton, A, Guillaume, A et al. (2017) What are the likely IVF/ICSI outcomes if there is a discrepancy between serum AMH and FSH levels? A multicenter retrospective study. Journal of gynecology obstetrics and human reproduction 46(8): 629-635	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
De Geyter, C, De Geyter, M, Castro, E et al. (1993) Predictive parameters for ovarian response to hyperstimulation with exogenous gonadotropins after suppression of gonadotropin secretion of the pituitary using a long-acting GnRH agonist. European journal of obstetrics, gynecology, and reproductive biology 51(2): 139-47	- Number of participants <100 - Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Dehghani-Firouzabadi, Razieh; Tayebi, Naeimeh; Asgharnia, Maryam (2008) Serum level of anti-mullerian hormone in early follicular phase as a predictor of ovarian reserve and pregnancy outcome in assisted reproductive technology cycles. Archives of Iranian medicine 11(4): 371-6	- Number of participants <100
Deng, Y., Ou, Z.-H., Yin, M.-N. et al. (2021) Age and anti-Mullerian hormone: Prediction of cumulative pregnancy outcome in in vitro fertilization with diminished ovarian reserve.	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Clinical and Experimental Obstetrics and Gynecology 48(4): 835-841	
Devine, Kate, Mumford, Sunni L, Wu, Mae et al. (2015) Diminished ovarian reserve in the United States assisted reproductive technology population: diagnostic trends among 181,536 cycles from the Society for Assisted Reproductive Technology Clinic Outcomes Reporting System. Fertility and sterility 104(3): 612-19e3	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Devranoglu, Belgin, Ozdamar, Ozkan, Kole, Emre et al. (2016) Do younger women with elevated basal follicular stimulating hormone levels undergoing gonadotropin-stimulated intrauterine insemination cycles represent compromised reproductive outcomes?. European journal of obstetrics, gynecology, and reproductive biology 199: 141-5	- Study type does not match protocol criteria *Cross-sectional study*
DiMattina, Michael, Gordon, John David, Botes, Awie et al. (2014) Follicular and estradiol parameters that improve success with natural cycle in vitro fertilization. The Journal of reproductive medicine 59(56): 267-73	- Prognostic factors do not match protocol criteria *Outcomes not reported according to AMH, AFC, or FSH levels*
Dinelli, Laka, Courbiere, Blandine, Achard, Vincent et al. (2014) Prognosis factors of pregnancy after intrauterine insemination with the husband's sperm: conclusions of an analysis of 2,019 cycles. Fertility and sterility 101(4): 994-1000	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Dondik, Yelena, Virji, Nassim, Butler, Thomas S et al. (2017) The Value of Anti-Mullerian Hormone in Predicting Clinical Pregnancy After Intrauterine Insemination. Journal of obstetrics and gynaecology Canada : JOGC = Journal d'obstetrique et gynecologie du Canada : JOGC 39(10): 880-885	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Ebner, T, Sommergruber, M, Moser, M et al. (2006) Basal level of anti-Mullerian hormone is associated with oocyte quality in stimulated cycles. Human reproduction (Oxford, England) 21(8): 2022-6	- Outcomes do not match protocol criteria *No outcomes of interest reported*
Ebrahim, A, Rienhardt, G, Morris, S et al. (1993) Follicle stimulating hormone levels on cycle day 3 predict ovulation stimulation response. Journal of assisted reproduction and genetics 10(2): 130-6	- Study conducted pre-2000 - Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Eftekhar, Maryam; Rahmani, Elham; Pourmasumi, Soheila (2014) Evaluation of clinical factors influencing pregnancy rate in frozen embryo transfer. Iranian journal of reproductive medicine 12(7): 513-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Ejzenberg, Dani, Gomes, Tiago J O, Monteleone, Pedro A A et al. (2019) Prognostic factors for pregnancy after intrauterine insemination. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 147(1): 65-72	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
El-Din, H.A.B., El Gindy, E.A., Ahmed, A.K. et al. (2020) The role of follicular fluid anti-mullerian hormone in success rate of intracytoplasmic sperm injection. Open Access Macedonian Journal of Medical Sciences 8: 962-965	- Number of participants <100
El-Shawarby, Salem A and Khalaf, Yakoub (2009) Age-specific serum FSH concentrations and their correlation with the outcome of ovarian stimulation for IVF. Reproductive biomedicine online 18(6): 750-5	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Eldar-Geva, Talia, Ben-Chetrit, Avraham, Spitz, Irving M et al. (2005) Dynamic assays of inhibin B, anti-Mullerian hormone and estradiol following FSH stimulation and ovarian ultrasonography as predictors of IVF outcome. Human reproduction (Oxford, England) 20(11): 3178-83	- Number of participants <100
Elgindy, Eman A; El-Haieg, Dahlia O; El-Sebaey, Azza (2008) Anti-Mullerian hormone: correlation of early follicular, ovulatory and midluteal levels with ovarian response and cycle outcome in intracytoplasmic sperm injection patients. Fertility and sterility 89(6): 1670-6	- Number of participants <100
Erdem, Mehmet, Erdem, Ahmet, Guler, Ismail et al. (2008) Role of antral follicle count in controlled ovarian hyperstimulation and intrauterine insemination cycles in patients with unexplained subfertility. Fertility and sterility 90(2): 360-6	- ORT conducted after beginning ART
Erdogan, K., Sanlier, N.T., Guvey, H. et al. (2022) Evaluation of Anti-Mullerian Hormone in Predicting In Vitro Fertilization Cycle Outcomes. Duzce Medical Journal 24(3): 328-332	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Eroglu, M, Helvacioglu, C, Eser, A C et al. (2021) What are the factors affecting IVF success in women with hypogonadotropic hypogonadism?. European review for medical and pharmacological sciences 25(24): 7750-7753	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Esposito, M A; Coutifaris, C; Barnhart, K T (2002) A moderately elevated day 3 FSH concentration has limited predictive value, especially in younger women. Human reproduction (Oxford, England) 17(1): 118-23	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Esteves, Sandro C, Yarali, Hakan, Vuong, Lan N et al. (2021) Antral follicle count and anti-Mullerian hormone to classify low-prognosis women under the POSEIDON criteria: a classification agreement study of over 9000 patients. Human reproduction (Oxford, England) 36(6): 1530-1541	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Evers, J L, Slaats, P, Land, J A et al. (1998) Elevated levels of basal estradiol-17beta predict poor response in patients with normal basal levels of follicle-stimulating hormone undergoing in vitro fertilization. Fertility and sterility 69(6): 1010-4	- Study conducted pre-2000
Ezoe, Kenji, Ni, Xiaowen, Kobayashi, Tamotsu et al. (2020) Anti-Mullerian hormone is correlated with cumulative live birth in minimal ovarian stimulation with clomiphene citrate: a retrospective cohort study. BMC pregnancy and childbirth 20(1): 740	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Fabregues, F, Balasch, J, Creus, M et al. (2000) Ovarian reserve test with human menopausal gonadotropin as a predictor of in vitro fertilization outcome. Journal of assisted reproduction and genetics 17(1): 13-9	- Number of participants <100 - Study conducted pre-2000
Fadini, R, Dal Canto, M B, Renzini, M Mignini et al. (2009) Predictive factors in in-vitro maturation in unstimulated women with normal ovaries. Reproductive biomedicine online 18(2): 251-61	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Fanchin, R, de Ziegler, D, Olivennes, F et al. (1994) Exogenous follicle stimulating hormone ovarian reserve test (EFORT): a simple and reliable screening test for detecting 'poor responders' in in-vitro fertilization. Human reproduction (Oxford, England) 9(9): 1607-11	- Study conducted pre-2000 - Number of participants <100
Fanchin, Renato, Mendez Lozano, Daniel H, Frydman, Nelly et al. (2007) Anti-Mullerian hormone concentrations in the follicular fluid of	- Prognostic factors do not match protocol criteria

Study	Code [Reason]
the preovulatory follicle are predictive of the implantation potential of the ensuing embryo obtained by in vitro fertilization. The Journal of clinical endocrinology and metabolism 92(5): 1796-802	*Study investigates follicular fluid AMH levels and not serum AMH levels*
Fang, Tingfeng, Su, Zheng, Wang, Liangan et al. (2015) Predictive value of age-specific FSH levels for IVF-ET outcome in women with normal ovarian function. Reproductive biology and endocrinology : RB&E 13: 63	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Feldman, B, Seidman, D S, Levron, J et al. (2001) In vitro fertilization following natural cycles in poor responders. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 15(5): 328-34	- Number of participants <100
Ferlitsch, Kathrin, Sator, Michael O, Gruber, Doris M et al. (2004) Body mass index, follicle-stimulating hormone and their predictive value in in vitro fertilization. Journal of assisted reproduction and genetics 21(12): 431-6	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Ferrario, Marina, Secomandi, Rita, Cappato, Matteo et al. (2015) Ovarian and adrenal androgens may be useful markers to predict oocyte competence and embryo development in older women. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 31(2): 125-30	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Ficicioglu, Cem, Kutlu, Tayfun, Baglam, Elif et al. (2006) Early follicular antimullerian hormone as an indicator of ovarian reserve. Fertility and sterility 85(3): 592-6	- Number of participants <100
Filippi, Francesca, Martinelli, Fabio, Paffoni, Alessio et al. (2019) Fertility preservation in women with malignancies: the accuracy of antral follicle count collected randomly during the menstrual cycle in predicting the number of oocytes retrieved. Journal of assisted reproduction and genetics 36(3): 569-578	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Fouda, F., Rezk, A.Y., Razik, M.A. et al. (2010) Anti-mullerian hormone level is a reliable predictor for cycle cancellation in ICSI. Middle East Fertility Society Journal 15(3): 194-199	- Number of participants <100
Fourati, S., Merdassi, G., Khrouf, M. et al. (2012) Basal fsh level is only predictive of the quantitative aspect of the ovarian response. Tunisie Medicale 90(7): 524-529	- Paper not available *Article not available in English*

Study	Code [Reason]
Frattarelli, J L, Lauria-Costab, D F, Miller, B T et al. (2000) Basal antral follicle number and mean ovarian diameter predict cycle cancellation and ovarian responsiveness in assisted reproductive technology cycles. Fertility and sterility 74(3): 512-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Frattarelli, John L, Levi, Andrew J, Miller, Bradley T et al. (2003) A prospective assessment of the predictive value of basal antral follicles in in vitro fertilization cycles. Fertility and sterility 80(2): 350-5	- Insufficient presentation of results *The number of participants in each group is not reported and so outcome data cannot be extracted*
Frazier, Linda M, Grainger, David A, Schieve, Laura A et al. (2004) Follicle-stimulating hormone and estradiol levels independently predict the success of assisted reproductive technology treatment. Fertility and sterility 82(4): 834-40	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Freour, T, Mirallie, S, Colombel, A et al. (2006) Anti-mullerian hormone: clinical relevance in assisted reproductive therapy. Annales d'endocrinologie 67(6): 567-74	- Number of participants <100
Fu, Kaiyou, Li, Yanrui, Lv, Houyi et al. (2022) Development of a Model Predicting the Outcome of In Vitro Fertilization Cycles by a Robust Decision Tree Method. Frontiers in endocrinology 13: 877518	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Fujimoto, Akihisa, Fujiwara, Toshihiro, Oishi, Hajime et al. (2009) Predictive factors of successful pregnancy after assisted reproductive technology in women aged 40 years and older. Reproductive medicine and biology 8(4): 145-149	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Fukuda, Misao, Fukuda, Kiyomi, Yding Andersen, Claus et al. (2003) Do basal oestradiol and oestradiol:androgens and oestradiol:FSH ratios reflect pregnancy potential of women receiving intrauterine insemination during natural cycles?. Reproductive biomedicine online 6(4): 452-5	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Gaba, Aulona, Horath, Steffen, Hager, Marlene et al. (2019) Basal Anti Mullerian hormone levels and endometrial thickness at midcycle can predict the outcome after clomiphene citrate stimulation in anovulatory women with PCOS, a retrospective study. Archives of gynecology and obstetrics 300(6): 1751-1757	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Galey-Fontaine, Julie, Cedrin-Durnerin, Isabelle, Chaibi, Rachid et al. (2005) Age and ovarian reserve are distinct predictive factors of cycle outcome in low responders. Reproductive biomedicine online 10(1): 94-9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Ganer Herman, Hadas, Horowitz, Eran, Mizrachi, Yossi et al. (2022) Prediction, assessment, and management of suboptimal GnRH agonist trigger: a systematic review. Journal of assisted reproduction and genetics 39(2): 291-303	- Systematic review - included studies checked for relevance
Gibreel, A, Maheshwari, A, Bhattacharya, S et al. (2010) Ultrasound tests of ovarian reserve: a systematic review of accuracy in predicting fertility outcomes. Database of Abstracts of Reviews of Effects (DARE)	- Systematic review - included studies checked for relevance
Gibreel, Ahmed, Maheshwari, Abha, Bhattacharya, Siladitya et al. (2009) Ultrasound tests of ovarian reserve; a systematic review of accuracy in predicting fertility outcomes. Human fertility (Cambridge, England) 12(2): 95-106	- Systematic review - included studies checked for relevance
Gingold, Julian A, Lee, Joseph A, Whitehouse, Michael C et al. (2015) Maximum basal FSH predicts reproductive outcome better than cycle-specific basal FSH levels: waiting for a "better" month conveys limited retrieval benefits. Reproductive biology and endocrinology : RB&E 13: 91	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Giugliano, Emilio, Cagnazzo, Elisa, Giugliano, Brunella et al. (2014) Can Doppler study of the ovarian artery predict the fertility outcome of intrauterine insemination?. Journal of clinical ultrasound : JCU 42(6): 331-5	- Insufficient presentation of results *Continuous data reported (basal FSH/AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Gizzo, Salvatore, Andrisani, Alessandra, Esposito, Federica et al. (2014) Ovarian reserve test: an impartial means to resolve the mismatch between chronological and biological age in the assessment of female reproductive chances. Reproductive sciences (Thousand Oaks, Calif.) 21(5): 632-9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Gleicher, Norbert, Darmon, Sarah K, Kushnir, Vitaly A et al. (2016) How FSH and AMH reflect probabilities of oocyte numbers in poor prognosis patients with small oocyte yields. Endocrine 54(2): 476-483	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Gleicher, Norbert, Kim, Ann, Kushnir, Vitaly et al. (2013) Clinical relevance of combined FSH and AMH observations in infertile women. The	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Journal of clinical endocrinology and metabolism 98(5): 2136-45	
Gleicher, Norbert, Kushnir, Vitaly A, Sen, Aritro et al. (2016) Definition by FSH, AMH and embryo numbers of good-, intermediate- and poor-prognosis patients suggests previously unknown IVF outcome-determining factor associated with AMH. Journal of translational medicine 14(1): 172	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Gleicher, Norbert; Weghofer, Andrea; Barad, David H (2010) Anti-Mullerian hormone (AMH) defines, independent of age, low versus good live-birth chances in women with severely diminished ovarian reserve. Fertility and sterility 94(7): 2824-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Gleicher, Norbert; Weghofer, Andrea; Barad, David H (2010) Discordances between follicle stimulating hormone (FSH) and anti-Mullerian hormone (AMH) in female infertility. Reproductive biology and endocrinology : RB&E 8: 64	- Insufficient presentation of results *Study groups participants according to whether their age-specific AMH and FSH levels are normal and only compares FSH and AMH levels within these groups. Relevant outcomes are not reported*
Gnoth, C, Schuring, A N, Friol, K et al. (2008) Relevance of anti-Mullerian hormone measurement in a routine IVF program. Human reproduction (Oxford, England) 23(6): 1359-65	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Gomez, R, Schorsch, M, Hahn, T et al. (2016) The influence of AMH on IVF success. Archives of gynecology and obstetrics 293(3): 667-73	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Gonzalez-Foruria, Inaki, Martinez, Francisca, Rodriguez-Purata, Jorge et al. (2019) Can anti-Mullerian hormone predict success outcomes in donor sperm inseminations?. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 35(1): 40-43	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Goswami, Mohar and Nikolaou, Dimitrios (2017) Is AMH Level, Independent of Age, a Predictor of Live Birth in IVF?. Journal of human reproductive sciences 10(1): 24-30	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Griesinger, Georg, Verweij, Pierre J M, Gates, Davis et al. (2016) Prediction of Ovarian Hyperstimulation Syndrome in Patients Treated with Corifollitropin alfa or rFSH in a GnRH Antagonist Protocol. PloS one 11(3): e0149615	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Guerif, F, Lemseffer, M, Couet, M -L et al. (2009) Serum antimullerian hormone is not	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
predictive of oocyte quality in vitro fertilization. Annales d'endocrinologie 70(4): 230-4	
Gungor, N.D. and Gurbuz, T. (2021) Pregnancy outcomes of intrauterine insemination in age-matched young women according to serum anti-mullerian hormone levels. Journal of Reproductive Medicine 66(78): 195-202	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Guo, Yaxin, Liu, Shuai, Hu, Shiqiao et al. (2021) High Serum Anti-Mullerian Hormone Concentrations Are Associated With Poor Pregnancy Outcome in Fresh IVF/ICSI Cycle but Not Cumulative Live Birth Rate in PCOS Patients. Frontiers in endocrinology 12: 673284	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Guo, Zaixin, Chen, Shuwen, Chen, Zhiyan et al. (2023) Predictors of response to ovulation induction using letrozole in women with polycystic ovary syndrome. BMC endocrine disorders 23(1): 90	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Haadsma, M L, Groen, H, Fidler, V et al. (2008) The predictive value of ovarian reserve tests for spontaneous pregnancy in subfertile ovulatory women. Human reproduction (Oxford, England) 23(8): 1800-7	- Insufficient presentation of results *Study investigates the added predictive value of FSH and CCCT to existing prediction models. Prognostic value of FSH not presented separately*
Haadsma, M L, Groen, H, Fidler, V et al. (2009) The predictive value of ovarian reserve tests for miscarriage in a population of subfertile ovulatory women. Human reproduction (Oxford, England) 24(3): 546-52	- Outcomes do not match protocol criteria *The main outcome of interest is miscarriage, and women who did not get pregnant during follow-up were excluded from analysis*
Hamdine, O, Eijkemans, M J C, Lentjes, E W G et al. (2015) Ovarian response prediction in GnRH antagonist treatment for IVF using anti-Mullerian hormone. Human reproduction (Oxford, England) 30(1): 170-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Hamdine, Ouijdane, Eijkemans, Marinus J C, Lentjes, Eef G W et al. (2015) Antimullerian hormone: prediction of cumulative live birth in gonadotropin-releasing hormone antagonist treatment for in vitro fertilization. Fertility and sterility 104(4): 891-898e2	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Harris, Benjamin S, Acharya, Kelly S, Weber, Jeremy M et al. (2021) Can high antimullerian hormone mitigate some of the age-related decline in live birth rates? The association between antimullerian hormone and live birth among women over 40 undergoing in vitro fertilization. F&S reports 2(4): 440-447	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Haswell, C., Strawn, E., Szabo, A. et al. (2018) The significance of low anti-mullerian hormone levels in young women undergoing in vitro fertilization. Journal of Reproductive Medicine 63(2): 97-103	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Hattori, Yukio, Sato, Takeshi, Okada, Hideki et al. (2013) Comparison of follicular fluid and serum anti-Mullerian hormone levels as predictors of the outcome of assisted reproductive treatment. European journal of obstetrics, gynecology, and reproductive biology 169(2): 252-6	- Number of participants <100
Hazout, Andre, Bouchard, Philippe, Seifer, David B et al. (2004) Serum antimullerian hormone/mullerian-inhibiting substance appears to be a more discriminatory marker of assisted reproductive technology outcome than follicle-stimulating hormone, inhibin B, or estradiol. Fertility and sterility 82(5): 1323-9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Heidar, Z, Bakhtiyari, M, Foroozanfard, F et al. (2018) Age-specific reference values and cut-off points for anti-mullerian hormone in infertile women following a long agonist treatment protocol for IVF. Journal of endocrinological investigation 41(7): 773-780	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Hendriks D, J, Mol B, W, Bancsi L, F et al. (2006) Antral follicle count in the prediction of poor ovarian response and pregnancy after in vitro fertilization: a meta-analysis and comparison with basal follicle-stimulating hormone level. Database of Abstracts of Reviews of Effects (DARE)	- Systematic review - included studies checked for relevance
Hendriks, D J, Broekmans, F J M, Bancsi, L F J M M et al. (2005) Repeated clomiphene citrate challenge testing in the prediction of outcome in IVF: a comparison with basal markers for ovarian reserve. Human reproduction (Oxford, England) 20(1): 163-9	- Number of participants <100
Hendriks, D J, Broekmans, F J, Bancsi, L F J M M et al. (2005) Single and repeated GnRH agonist stimulation tests compared with basal markers of ovarian reserve in the prediction of outcome in IVF. Journal of assisted reproduction and genetics 22(2): 65-73	- Number of participants <100
Hendriks, Dave J, Kwee, Janet, Mol, Ben W J et al. (2007) Ultrasonography as a tool for the prediction of outcome in IVF patients: a comparative meta-analysis of ovarian volume	- Systematic review - included studies checked for relevance

Study	Code [Reason]
and antral follicle count. Fertility and sterility 87(4): 764-75	
Hendriks, Dave J, Mol, Ben-Willem J, Bancsi, Laszlo F J M M et al. (2005) Antral follicle count in the prediction of poor ovarian response and pregnancy after in vitro fertilization: a meta-analysis and comparison with basal follicle-stimulating hormone level. Fertility and sterility 83(2): 291-301	- Systematic review - included studies checked for relevance
Himabindu, Y, Gopinathan, K K, Pandey, Anil Kumar et al. (2013) Correlation of age and antimullerian hormone in assisted reproductive technology program outcome. Indian journal of physiology and pharmacology 57(1): 9-15	- Study type does not match protocol criteria *Cross-sectional study*
Ho, Jason Yen-Ping, Guu, Hwa-Fen, Yi, Yu-Chiao et al. (2005) The serum follicle-stimulating hormone-to-luteinizing hormone ratio at the start of stimulation with gonadotropins after pituitary down-regulation is inversely correlated with a mature oocyte yield and can predict "low responders". Fertility and sterility 83(4): 883-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Homburg, R, Rao, U, Malamas, F et al. (2021) Automated anti-Mullerian hormone measurement: data review to provide insights and interpretation. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 37(6): 511-514	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Honnma, Hiroyuki, Baba, Tsuyoshi, Sasaki, Masahiro et al. (2013) Serum anti-Mullerian hormone levels affect the rate of ongoing pregnancy after in vitro fertilization. Reproductive sciences (Thousand Oaks, Calif.) 20(1): 51-9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Hosseini, M.A., Aleyasin, A., Mahdavi, A. et al. (2010) Relationship between anti-mullerian hormone and assisted reproductive technique outcome in patients with polycystic ovary syndrome. Iranian Journal of Reproductive Medicine 8(4): 161-166	- Number of participants <100 - Study type does not match protocol criteria *Case-control*
Hou, Yanru, Wang, Lu, Li, Yian et al. (2023) Serum levels of anti-Mullerian hormone influence pregnancy outcomes associated with gonadotropin-releasing hormone antagonist treatment: a retrospective cohort study. Scientific reports 13(1): 2127	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Hsu, Albert, Arny, Margaret, Knee, Alexander B et al. (2011) Antral follicle count in clinical	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
practice: analyzing clinical relevance. Fertility and sterility 95(2): 474-9	
Hu, Kai-Lun, Liu, Fen-Ting, Xu, Huiyu et al. (2020) Association of serum anti-Mullerian hormone and other factors with cumulative live birth rate following IVF. Reproductive biomedicine online 40(5): 675-683	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Huang, Donghui, Hu, Lian, Song, Su et al. (2015) Basal Follicle-Stimulating Hormone or Inhibin B Combined with Age as Predictors of Pregnancy After Treatment by Donor Sperm Insemination. The Journal of reproductive medicine 60(910): 397-403	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Huang, F J, Chang, S Y, Tsai, M Y et al. (2001) Determination of the efficiency of controlled ovarian hyperstimulation in the gonadotropin-releasing hormone agonist-suppression cycle using the initial follicle count during gonadotropin stimulation. Journal of assisted reproduction and genetics 18(2): 91-6	- ORT conducted after beginning ART
Huang, Jialyu, Lin, Jiaying, Gao, Hongyuan et al. (2019) Anti-mullerian Hormone for the Prediction of Ovarian Response in Progestin-Primed Ovarian Stimulation Protocol for IVF. Frontiers in endocrinology 10: 325	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Huang, Qiaoyao, Niu, Yanru, Xu, Lihua et al. (2018) Relationship between a low ratio of serum estradiol to follicle number and fertility treatment outcomes: A retrospective cohort study of 516 cases. Medicine 97(34): e12017	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Huyser, C, Fourie, F L, Pentz, J et al. (1995) The predictive value of basal follicle stimulating and growth hormone levels as determined by immunofluorometry during assisted reproduction. Journal of assisted reproduction and genetics 12(4): 244-51	- Study conducted pre-2000
Iliodromiti, Stamatina, Kelsey, Thomas W, Wu, Olivia et al. (2014) The predictive accuracy of anti-Mullerian hormone for live birth after assisted conception: a systematic review and meta-analysis of the literature. Human reproduction update 20(4): 560-70	- Systematic review - included studies checked for relevance
Ismail Abd-El-Maeboud, K.H. (1999) Basal estradiol:follicle-stimulating hormone ratio predicts ovarian response to gonadotropic stimulation in patients with normal ovulation. Advances in Therapy 16(4): 164-174	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Iwase, Akira, Nakamura, Tomoko, Kato, Nao et al. (2016) Anti-Mullerian hormone levels after laparoscopic cystectomy for endometriomas as a possible predictor for pregnancy in infertility treatments. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 32(4): 293-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Number of participants <100
Izhar, Rubina, Husain, Samia, Tahir, Muhammad Ahmad et al. (2021) Antral follicle count and anti-Mullerian hormone level as predictors of ovarian hyperstimulation syndrome in women with polycystic ovarian syndrome undergoing controlled ovarian stimulation. Journal of ultrasonography 21(86): e200-e205	- Study type does not match protocol criteria *Case-control study*
Jain, T., Soules, M.R., Collins, J.A. et al. (2005) Basal FSH and clomiphene citrate challenge test have similar accuracy for predicting pregnancy failure in infertile couples meta-analysis. Evidence-based Obstetrics and Gynecology 7(1): 33-34	- Systematic review - included studies checked for relevance
Jain, Tarun; Soules, Michael R; Collins, John A (2004) Comparison of basal follicle-stimulating hormone versus the clomiphene citrate challenge test for ovarian reserve screening. Fertility and sterility 82(1): 180-5	- Systematic review - included studies checked for relevance
Jawad, H.H.; Al-Anbari, L.; Abbood, M. (2020) Assessment of the relationship of basal serum anti mullerian hormone levels and maternal age with pregnancy out come in patients undergoing icsi. Annals of Tropical Medicine and Public Health 23(4): 479	- Paper not available *British Library unable to supply; cannot be found online*
Jayaprakasan, K, Jayaprakasan, R, Al-Hasie, H A et al. (2009) Can quantitative three-dimensional power Doppler angiography be used to predict ovarian hyperstimulation syndrome?. Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology 33(5): 583-91	- Study type does not match protocol criteria *Case-control study*
Jayaprakasan, Kannamannadiar, Campbell, Bruce, Hopkisson, James et al. (2010) A prospective, comparative analysis of anti-Mullerian hormone, inhibin-B, and three-dimensional ultrasound determinants of ovarian reserve in the prediction of poor response to controlled ovarian stimulation. Fertility and sterility 93(3): 855-64	- Insufficient presentation of results *ORs are reported for the prediction of 'poor response', but this is a composite outcome which is defined as 'the retrieval of three or less oocytes or cycle cancellation', including cancellation both for poor response and risk of OHSS. Age and duration of infertility are not controlled for in the analysis. Continuous data reported (basal FSH/AMH as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*

Study	Code [Reason]
Jiang, Wenwen, Zheng, Beihong, Liao, Xiuhua et al. (2022) Analysis of relative factors and prediction model for optimal ovarian response with gonadotropin-releasing hormone antagonist protocol. Frontiers in endocrinology 13: 1030201	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Joiner, Laura Lee Rihl, Robinson, Randal D, Bates, Wright et al. (2007) Establishing institutional critical values of follicle-stimulating hormone levels to predict in vitro fertilization success. Military medicine 172(2): 202-4	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Jurema, Marcus W; Bracero, Nabal J; Garcia, Jairo E (2003) Fine tuning cycle day 3 hormonal assessment of ovarian reserve improves in vitro fertilization outcome in gonadotropin-releasing hormone antagonist cycles. Fertility and sterility 80(5): 1156-61	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kaleli, Semih, Kervancioglu, Mehmet E, Erol, Naciye et al. (2023) Evaluating the efficacy of ovulation stimulation with intrauterine insemination in women with diminished ovarian reserve compared to women with normal ovarian reserve. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 160(2): 620-627	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kamel, Hanan Mostafa; Amin, Abdel-Halim El Sayed; Al-Adawy, Ahmed Reda (2014) Basal serum anti-Mullerian hormone (AMH) is a promising test in prediction of occurrence of pregnancy rate in infertile women undergoing ICSI cycles. Clinical laboratory 60(10): 1717-23	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Kassab, Ahmed, Sabatini, Luca, Tozer, Amanda et al. (2009) The correlation between basal serum follicle-stimulating hormone levels before embryo cryopreservation and the clinical outcome of frozen embryo transfers. Fertility and sterility 92(4): 1269-1275	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kastora, Stavroula Lila, Triantafyllidou, Olga, Kolovos, Georgios et al. (2020) Combinational approach of retrospective clinical evidence and transcriptomics highlight AMH superiority to FSH, as successful ICSI outcome predictor. Journal of assisted reproduction and genetics 37(7): 1623-1635	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kato, Nao, Iwase, Akira, Sugita, Atsuko et al. (2015) Anti-Mullerian hormone as a possible predictor of fecundability in subfertile women over 38 years: a retrospective cohort study. Gynecological endocrinology : the official journal	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
of the International Society of Gynecological Endocrinology 31(1): 22-5	
Kavoussi, Shahryar K, Chen, Shu-Hung, Hunn, Caitlin L et al. (2019) Serum Antimullerian hormone does not predict elevated progesterone levels among women who undergo controlled ovarian hyperstimulation for in vitro fertilization. Reproductive biology and endocrinology : RB&E 17(1): 35	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kavoussi, Shahryar K, Odenwald, Kate C, Boehnlein, Lynn M et al. (2015) Antimullerian hormone as a predictor of good-quality supernumerary blastocyst cryopreservation among women with levels <1 ng/mL versus 1-4 ng/mL. Fertility and sterility 104(3): 633-6	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kawwass, Jennifer Fay, Hipp, Heather S, Session, Donna R et al. (2017) Severity of Diminished Ovarian Reserve and Chance of Success with Assisted Reproductive Technology. The Journal of reproductive medicine 62(34): 153-60	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kaya, Cemil; Pabuccu, Recai; Satiroglu, Hakan (2010) Serum antimullerian hormone concentrations on day 3 of the in vitro fertilization stimulation cycle are predictive of the fertilization, implantation, and pregnancy in polycystic ovary syndrome patients undergoing assisted reproduction. Fertility and sterility 94(6): 2202-7	- Number of participants <100
Kdous, Moez, Braham, Marouene, Merdassi, Ghaya et al. (2015) Failure of in vitro fertilization: prognosis criteriae. La Tunisie medicale 93(11): 702-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kdous, Moez, Merdassi, Ghaya, Zhioua, Fethi et al. (2016) Basal follicle stimulating hormone level correlated to age is a good prognostic criterion for the outcome of intracytoplasmic sperm microinjection. La Tunisie medicale 94(3): 181-5	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Keane, Kevin, Cruzat, Vincius Fernandes, Wagle, Susbin et al. (2017) Specific ranges of anti-Mullerian hormone and antral follicle count correlate to provide a prognostic indicator for IVF outcome. Reproductive biology 17(1): 51-59	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kedem, Alon, Haas, Jigal, Geva, Liat Lerner et al. (2013) Ongoing pregnancy rates in women with low and extremely low AMH levels. A	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
multivariate analysis of 769 cycles. PloS one 8(12): e81629	
Kedem, Alon, Yerushalmi, Gil M, Maman, Ettie et al. (2013) What is the optimal threshold of serum Anti-Mullerian hormone (AMH) necessary for IVM treatments?. Journal of assisted reproduction and genetics 30(6): 745-51	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Khalil, M R, Rasmussen, P E, Erb, K et al. (2001) Homologous intrauterine insemination. An evaluation of prognostic factors based on a review of 2473 cycles. Acta obstetricia et gynecologica Scandinavica 80(1): 74-81	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kien Nguyen, Dang, O'Leary, Sean, Abdelhafez Gadalla, Moustafa et al. (2022) Anti-Mullerian hormone is a predictor of medium-term cumulative live birth following in vitro fertilization/intracytoplasmic sperm injection: A retrospective study. European journal of obstetrics, gynecology, and reproductive biology 272: 220-225	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kim, Hye Ok; Sung, Nayoung; Song, In Ok (2017) Predictors of live birth and pregnancy success after in vitro fertilization in infertile women aged 40 and over. Clinical and experimental reproductive medicine 44(2): 111-117	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kim, Min Kyoon and Shin, Hee-Chul (2020) Risk Factors for Tamoxifen-Induced Ovarian Hyperstimulation in Breast Cancer Patients. Clinical breast cancer 20(5): 408-412	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kim, Sung Woo, Kim, Yong Jin, Shin, Jung Ho et al. (2019) Correlation between Ovarian Reserve and Incidence of Ectopic Pregnancy after In Vitro Fertilization and Embryo Transfer. Yonsei medical journal 60(3): 285-290	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kini, Suresh, Li, H W Raymond, Morrell, Dave et al. (2010) Anti-mullerian hormone and cumulative pregnancy outcome in in-vitro fertilization. Journal of assisted reproduction and genetics 27(8): 449-56	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kligman, I and Rosenwaks, Z (2001) Differentiating clinical profiles: predicting good responders, poor responders, and hyperresponders. Fertility and sterility 76(6): 1185-90	- Study type does not match protocol criteria *Commentary*

Study	Code [Reason]
Klinkert, Ellen R, Broekmans, Frank J M, Looman, Caspar W N et al. (2005) The antral follicle count is a better marker than basal follicle-stimulating hormone for the selection of older patients with acceptable pregnancy prospects after in vitro fertilization. Fertility and sterility 83(3): 811-4	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Knez, Jure, Kovacic, Borut, Medved, Maruska et al. (2015) What is the value of anti-Mullerian hormone in predicting the response to ovarian stimulation with GnRH agonist and antagonist protocols?. Reproductive biology and endocrinology : RB&E 13: 58	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Koo, Hwa Seon, Song, In Ok, Cha, Sun Hwa et al. (2018) The likelihood of achieving pregnancy through timed coitus in young infertile women with decreased ovarian reserve. Clinical and experimental reproductive medicine 45(1): 31-37	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Koshy, Aby Kottal, Gudi, Anil, Shah, Amit et al. (2013) Pregnancy prognosis in women with anti-Mullerian hormone below the tenth percentile. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 29(7): 662-5	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kotanidis, L, Nikolettos, K, Petousis, S et al. (2016) The use of serum anti-Mullerian hormone (AMH) levels and antral follicle count (AFC) to predict the number of oocytes collected and availability of embryos for cryopreservation in IVF. Journal of endocrinological investigation 39(12): 1459-1464	- Outcomes do not match protocol criteria *No outcomes of interest reported*
Kozlowski, Isadora Ferreira, Carneiro, Matheus Campos, Rosa, Vinicius Bonato da et al. (2022) Correlation between anti-Mullerian hormone, age, and number of oocytes: A retrospective study in a Brazilian in vitro fertilization center. JBRA assisted reproduction 26(2): 214-221	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kugu, K, Momoeda, M, Sharma, S S et al. (2001) Is an elevation in basal follicle-stimulating hormone levels in unexplained infertility predictive of fecundity regardless of age?. Endocrine journal 48(6): 711-5	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Kumbak, Banu, Oral, Engin, Kahraman, Semra et al. (2005) Young patients with diminished ovarian reserve undergoing assisted reproductive treatments: a preliminary report. Reproductive biomedicine online 11(3): 294-9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Kunt, Cigdem, Ozaksit, Gulnur, Keskin Kurt, Raziye et al. (2011) Anti-Mullerian hormone is a better marker than inhibin B, follicle stimulating hormone, estradiol or antral follicle count in predicting the outcome of in vitro fertilization. Archives of gynecology and obstetrics 283(6): 1415-21	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH/AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Kupesic, S and Kurjak, A (2002) Predictors of IVF outcome by three-dimensional ultrasound. Human reproduction (Oxford, England) 17(4): 950-5	- Number of participants <100
Kushnir, Vitaly A, Safdie, Maxie, Darmon, Sarah K et al. (2018) Age-Specific IVF Outcomes in Infertile Women With Baseline FSH Levels >=20 mIU/mL. Reproductive sciences (Thousand Oaks, Calif.) 25(6): 893-898	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
La Marca, A, Giulini, S, Tirelli, A et al. (2007) Anti-Mullerian hormone measurement on any day of the menstrual cycle strongly predicts ovarian response in assisted reproductive technology. Human reproduction (Oxford, England) 22(3): 766-71	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Number of participants <100
La Marca, A, Nelson, S M, Sighinolfi, G et al. (2011) Anti-Mullerian hormone-based prediction model for a live birth in assisted reproduction. Reproductive biomedicine online 22(4): 341-9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
La Marca, A, Sighinolfi, G, Radi, D et al. (2010) Anti-Mullerian hormone (AMH) as a predictive marker in assisted reproductive technology (ART). Human reproduction update 16(2): 113-30	- Systematic review - included studies checked for relevance
La Marca, Antonio, Minasi, Maria Giulia, Sighinolfi, Giovanna et al. (2017) Female age, serum antimullerian hormone level, and number of oocytes affect the rate and number of euploid blastocysts in in vitro fertilization/intracytoplasmic sperm injection cycles. Fertility and sterility 108(5): 777-783e2	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Laqqan, M.M. and Yassin, M.M. (2021) Predictive factors of ovarian response to GnRH antagonist stimulation protocol: AMH and age are potential candidates. Middle East Fertility Society Journal 26(1): 16	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Laqqan, M.M. and Yassin, M.M. (2022) Anti-Mullerian hormone and antral follicle count predict ovarian response in women less than 45 years following GnRH antagonist multiple-dose	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH/AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*

Study	Code [Reason]
protocol. Asian Pacific Journal of Reproduction 11(5): 208-216	
Lashen, H, Afnan, M, McDougall, L et al. (1999) Prediction of over-response to ovarian stimulation in an intrauterine insemination programme. Human reproduction (Oxford, England) 14(11): 2751-4	- Study conducted pre-2000
Lass, A, Gerrard, A, Abusheikha, N et al. (2000) IVF performance of women who have fluctuating early follicular FSH levels. Journal of assisted reproduction and genetics 17(10): 566-73	- Study conducted pre-2000
Lawson, R, El-Toukhy, T, Kassab, A et al. (2003) Poor response to ovulation induction is a stronger predictor of early menopause than elevated basal FSH: a life table analysis. Human reproduction (Oxford, England) 18(3): 527-33	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Lee, J.R., Kim, S.H., Jee, B.C. et al. (2011) Antimullerian hormone as a predictor of controlled ovarian hyperstimulation outcome: Comparison of two commercial immunoassay kits. Fertility and Sterility 95(8): 2602-2604	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Lee, Jae Eun, Lee, Jung Ryeol, Jee, Byung Chul et al. (2012) Clinical application of anti-Mullerian hormone as a predictor of controlled ovarian hyperstimulation outcome. Clinical and experimental reproductive medicine 39(4): 176-81	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Lee, Jung Ryeol, Kim, Seok Hyun, Kim, Sun Mie et al. (2010) Anti-Mullerian hormone dynamics during controlled ovarian hyperstimulation and optimal timing of measurement for outcome prediction. Human reproduction (Oxford, England) 25(10): 2597-604	- Number of participants <100
Lee, Robert K K, Wu, Frank S Y, Lin, Ming-Huei et al. (2011) The predictability of serum anti-Mullerian level in IVF/ICSI outcomes for patients of advanced reproductive age. Reproductive biology and endocrinology : RB&E 9: 115	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Lee, Ryan Wai Kheong, Khin, Lay Wai, Hendricks, Marianne Sybille et al. (2020) Ovarian biomarkers predict controlled ovarian stimulation for in vitro fertilisation treatment in Singapore. Singapore medical journal 61(9): 463-468	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*

Study	Code [Reason]
Lee, Sanghoon, Ozkavukcu, Sinan, Heytens, Elke et al. (2011) Anti-Mullerian hormone and antral follicle count as predictors for embryo/oocyte cryopreservation cycle outcomes in breast cancer patients stimulated with letrozole and follicle stimulating hormone. Journal of assisted reproduction and genetics 28(7): 651-6	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Lee, Tsung-Hsien, Liu, Chung-Hsien, Huang, Chuin-Chia et al. (2008) Serum anti-Mullerian hormone and estradiol levels as predictors of ovarian hyperstimulation syndrome in assisted reproduction technology cycles. Human reproduction (Oxford, England) 23(1): 160-7	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Lee, Yubin, Kim, Tae Hyung, Park, Jae Kyun et al. (2018) Predictive value of antral follicle count and serum anti-Mullerian hormone: Which is better for live birth prediction in patients aged over 40 with their first IVF treatment?. European journal of obstetrics, gynecology, and reproductive biology 221: 151-155	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Lefebvre, Tiphaine, Mirallie, Sophie, Leperlier, Florence et al. (2018) Ovarian reserve and response to stimulation in women undergoing fertility preservation according to malignancy type. Reproductive biomedicine online 37(2): 201-207	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Lehmann, Pierre, Velez, Maria P, Saumet, Julio et al. (2014) Anti-Mullerian hormone (AMH): a reliable biomarker of oocyte quality in IVF. Journal of assisted reproduction and genetics 31(4): 493-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Lekamge, Dharmawijaya N, Barry, Michael, Kolo, Michele et al. (2007) Anti-Mullerian hormone as a predictor of IVF outcome. Reproductive biomedicine online 14(5): 602-10	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Levi, A J, Raynault, M F, Bergh, P A et al. (2001) Reproductive outcome in patients with diminished ovarian reserve. Fertility and sterility 76(4): 666-9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Levin, Dan; Jun, Sunny H; Dahan, Michael H (2015) Predicting pregnancy in women undergoing in-vitro fertilization with basal serum follicle stimulating hormone levels between 10.0 and 11.9 IU/L. Journal of the Turkish German Gynecological Association 16(1): 5-10	- Number of participants <100

Study	Code [Reason]
Li, Fei, Chen, Ying, Niu, Aiqin et al. (2021) Nomogram Model to Predict the Probability of Ovarian Hyperstimulation Syndrome in the Treatment of Patients With Polycystic Ovary Syndrome. Frontiers in endocrinology 12: 619059	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Li, Fei, Ye, Tian, Kong, Huijuan et al. (2021) Predictive Factors for Live Birth in Fresh In Vitro Fertilization/Intracytoplasmic Sperm Injection Treatment in Poor Ovarian Reserve Patients Classified by the POSEIDON Criteria. Frontiers in endocrinology 12: 630832	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Li, H W Raymond, Lee, Vivian C Y, Lau, Estella Y L et al. (2014) Role of baseline antral follicle count and anti-Mullerian hormone in the index stimulation cycle of IVF treatment in predicting outcome of subsequent frozen-thawed embryo transfers. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 30(7): 490-3	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Li, Hang Wun Raymond, Lee, Vivian Chi Yan, Lau, Estella Yee Lan et al. (2014) Ovarian response and cumulative live birth rate of women undergoing in-vitro fertilisation who had discordant anti-Mullerian hormone and antral follicle count measurements: a retrospective study. PloS one 9(10): e108493	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Li, Hang Wun Raymond, Lee, Vivian Chi Yan, Lau, Estella Yee Lan et al. (2013) Role of baseline antral follicle count and anti-Mullerian hormone in prediction of cumulative live birth in the first in vitro fertilisation cycle: a retrospective cohort analysis. PloS one 8(4): e61095	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Li, Hang Wun Raymond, Yeung, William Shu Biu, Lau, Estella Yee Lan et al. (2010) Evaluating the performance of serum antimullerian hormone concentration in predicting the live birth rate of controlled ovarian stimulation and intrauterine insemination. Fertility and sterility 94(6): 2177-81	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Li, Lu, Sun, Bo, Wang, Fang et al. (2022) Which Factors Are Associated With Reproductive Outcomes of DOR Patients in ART Cycles: An Eight-Year Retrospective Study. Frontiers in endocrinology 13: 796199	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Li, Ni-Jie, Yao, Qing-Yun, Yuan, Xiao-Qiong et al. (2023) Anti-mullerian hormone as a predictor for live birth among women undergoing IVF/ICSI in different age groups: an update of systematic	- Systematic review - included studies checked for relevance

Study	Code [Reason]
review and meta-analysis. Archives of gynecology and obstetrics 308(1): 43-61	
Li, Rong, Gong, Fei, Zhu, Yimin et al. (2016) Anti-Mullerian hormone for prediction of ovarian response in Chinese infertile women undergoing IVF/ICSI cycles: a prospective, multi-centre, observational study. Reproductive biomedicine online 33(4): 506-512	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Li, Xiao-Lan, Huang, Rui, Fang, Cong et al. (2018) Basal Serum Anti-Mullerian Hormone Level as a Predictor of Clinical Outcomes in Freezing-all Embryo Transfer Program. Current medical science 38(5): 861-867	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Li, Ying, Nie, Mingyue, Liu, Ying et al. (2015) The dynamic changes of anti-Mullerian hormone and inhibin B during controlled ovarian hyperstimulation in decreased ovarian reserve women and the effect on clinical outcome. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 31(6): 450-3	- Prognostic factors do not match protocol criteria *Outcomes are presented for participants with 'diminished ovarian reserve' versus 'normal ovarian reserve'. Both AMH and inhibin B levels are used to determine normal/ diminished ovarian reserve. Results are not presented sufficiently to extract results just for the low/normal AMH groups.*
Li, Zhen, Jia, Ruolin, Wang, Kexin et al. (2022) Analysis of cumulative live birth rate and perinatal outcomes in young patients with low anti-mullerian hormone levels using two ovulation promotion protocols: A cohort study. Frontiers in endocrinology 13: 938500	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Liang, L. and Zhao, X.X. (2021) The effect of follicular fluid-related hormones and vascular endothelial factor levels on the formation of high-quality embryos. Clinical and Experimental Obstetrics and Gynecology 48(5): 1107-1110	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Ligon, Sarah, Lustik, Michael, Levy, Gary et al. (2019) Low antimullerian hormone (AMH) is associated with decreased live birth after in vitro fertilization when follicle-stimulating hormone and AMH are discordant. Fertility and sterility 112(1): 73-81e1	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Lin, Chenxi, Jing, Miaomiao, Zhu, Wenjun et al. (2021) The Value of Anti-Mullerian Hormone in the Prediction of Spontaneous Pregnancy: A Systematic Review and Meta-Analysis. Frontiers in endocrinology 12: 695157	- Systematic review - included studies checked for relevance
Lin, Pin-Yao, Huang, Fu-Jen, Kung, Fu-Tsai et al. (2014) Evaluation of serum anti-Mullerian hormone as a biomarker of early ovarian aging in young women undergoing IVF/ICSI cycle.	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
International journal of clinical and experimental pathology 7(9): 6245-53	
Lin, Wen-Qin, Yao, Ling-Nv, Zhang, Dong-Xue et al. (2013) The predictive value of anti-Mullerian hormone on embryo quality, blastocyst development, and pregnancy rate following in vitro fertilization-embryo transfer (IVF-ET). Journal of assisted reproduction and genetics 30(5): 649-55	- Number of participants <100
Liss, Joanna, Kunicki, Michal, Czyzyk, Adam et al. (2017) Clinical utility of different anti-Mullerian hormone - AMH assays for the purpose of pregnancy prediction. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 33(10): 791-796	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Liu, Ling, Sun, Xing-Yu, Yang, Huan et al. (2022) Predictive value of anti-Mullerian hormone for pregnancy outcomes following assisted reproductive techniques (ART) in Southwest China. Reproductive health 19(1): 224	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Liu, Luxin and Zhou, Canquan (2020) Anti-Mullerian hormone and antral follicle count differ in their ability to predict cumulative treatment outcomes of the first complete ovarian stimulation cycle in patients from POSEIDON groups 3 and 4. The journal of obstetrics and gynaecology research 46(9): 1801-1808	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Liu, Su, Hong, Ling, Mo, Meilan et al. (2022) Association of antimullerian hormone with polycystic ovarian syndrome phenotypes and pregnancy outcomes of in vitro fertilization cycles with fresh embryo transfer. BMC pregnancy and childbirth 22(1): 171	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Loh, S.; Wang, J.X.; Matthews, C.D. (2002) The influence of body mass index, basal FSH and age on the response to gonadotrophin stimulation in non-polycystic ovarian syndrome patients. Human Reproduction 17(5): 1207-1211	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Lorusso, Filomenamila, Vicino, Mario, Lamanna, Giuseppina et al. (2007) Performance of different ovarian reserve markers for predicting the numbers of oocytes retrieved and mature oocytes. Maturitas 56(4): 429-35	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Loverro, G, Nappi, L, Mei, L et al. (2003) Evaluation of functional ovarian reserve in 60	- Number of participants <100

Study	Code [Reason]
patients. Reproductive biomedicine online 7(2): 200-4	
Lukaszuk, Krzysztof, Kunicki, Michal, Liss, Joanna et al. (2013) Use of ovarian reserve parameters for predicting live births in women undergoing in vitro fertilization. European journal of obstetrics, gynecology, and reproductive biology 168(2): 173-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Lukaszuk, Krzysztof, Liss, Joanna, Kunicki, Michal et al. (2014) Anti-Mullerian hormone (AMH) is a strong predictor of live birth in women undergoing assisted reproductive technology. Reproductive biology 14(3): 176-81	- Insufficient presentation of results *Only unadjusted ORs reported for FSH and AFC, results of multivariate logistic regression analysis reported for AMH but analysis does not adjust for duration of infertility. Insufficient data reported to extract live birth rate (only percentages reported without numbers of participants)*
Luna, Martha, Grunfeld, Lawrence, Mukherjee, Tanmoy et al. (2007) Moderately elevated levels of basal follicle-stimulating hormone in young patients predict low ovarian response, but should not be used to disqualify patients from attempting in vitro fertilization. Fertility and sterility 87(4): 782-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Ma, C., Xu, H., Wang, H. et al. (2023) An online tool for predicting ovarian responses in unselected patients using dynamic inhibin B and basal antimullerian hormone levels. Frontiers in Endocrinology 14: 1074347	- ORT conducted after beginning ART
Madrazo, Ivan, Velez, Monserrat Fabiola, Hidalgo, Josue Jonathan et al. (2020) Prediction of severe ovarian hyperstimulation syndrome in women undergoing in vitro fertilization using estradiol levels, collected ova, and number of follicles. The Journal of international medical research 48(8): 300060520945551	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Magarelli, P C; Pearlstone, A C; Buyalos, R P (1996) Discrimination between chronological and ovarian age in infertile women aged 35 years and older: predicting pregnancy using basal follicle stimulating hormone, age and number of ovulation induction/intra-uterine insemination cycles. Human reproduction (Oxford, England) 11(6): 1214-9	- Study conducted pre-2000
Mahran, Ahmad, Abdelmeged, Ayman, El-Adawy, Ahmad Reda et al. (2013) The predictive value of circulating anti-Mullerian hormone in women with polycystic ovarian syndrome receiving clomiphene citrate: a prospective observational study. The Journal of	- Number of participants <100

Study	Code [Reason]
clinical endocrinology and metabolism 98(10): 4170-5	
Maignien, Chloe, Santulli, Pietro, Gayet, Vanessa et al. (2017) Prognostic factors for assisted reproductive technology in women with endometriosis-related infertility. American journal of obstetrics and gynecology 216(3): 280e1-280e9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Majumder, Kingshuk, Gelbaya, Tarek A, Laing, Ian et al. (2010) The use of anti-Mullerian hormone and antral follicle count to predict the potential of oocytes and embryos. European journal of obstetrics, gynecology, and reproductive biology 150(2): 166-70	- Number of participants <100
Maman, Ettie, Baum, Micha, Machtinger, Ronit et al. (2010) IVF treatment should not be postponed for patients with high basal FSH concentrations. Reproductive biomedicine online 21(5): 631-5	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Number of participants <100
Mantzavinos, Spyridon D, Vlahos, Nikolaos P, Rizos, Demetrios et al. (2017) Correlation of serum anti-Mullerian hormone levels with positive in vitro fertilization outcome using a short agonist protocol. Hormones (Athens, Greece) 16(2): 161-170	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Martin, J S, Nisker, J A, Tummon, I S et al. (1996) Future in vitro fertilization pregnancy potential of women with variably elevated day 3 follicle-stimulating hormone levels. Fertility and sterility 65(6): 1238-40	- Study conducted pre-2000
Marzuki, V.A., Faizah, Z., Haryanto Aswin, R. et al. (2021) Predictive factors associated with ovarian hyperstimulation syndrome in Indonesian women undergoing ivf. Indian Journal of Public Health Research and Development 12(2): 432-437	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Study type does not match protocol criteria *Case-control* - Number of participants <100
Maseelall, Priya B, Hernandez-Rey, Armando E, Oh, Cheongeun et al. (2009) Antral follicle count is a significant predictor of livebirth in in vitro fertilization cycles. Fertility and sterility 91(4suppl): 1595-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
McIlveen, M; Skull, J D; Ledger, W L (2007) Evaluation of the utility of multiple endocrine and ultrasound measures of ovarian reserve in the prediction of cycle cancellation in a high-risk IVF	- Number of participants <100

Study	Code [Reason]
population. Human reproduction (Oxford, England) 22(3): 778-85	
Mehrafza, M., Yousefi, T.Z., Jalali, S.S. et al. (2020) Live birth rate following intrauterine insemination in women with low or very low level of serum anti-mullerian hormone. Journal of Kerman University of Medical Sciences 27(4): 356-361	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Mehta, Bindu N, Chimote, Meena N, Chimote, Nishad N et al. (2013) Follicular-fluid anti-Mullerian hormone (FF AMH) is a plausible biochemical indicator of functional viability of oocyte in conventional in vitro fertilization (IVF) cycles. Journal of human reproductive sciences 6(2): 99-105	- ORT conducted after beginning ART
Melado Vidales, Laura, Fernandez-Nistal, Alonso, Martinez Fernandez, Vicente et al. (2017) Anti-Mullerian hormone levels to predict oocyte maturity and embryo quality during controlled ovarian hyperstimulation. Minerva ginecologica 69(3): 225-232	- Number of participants <100
Melado Vidales, Laura, Fernandez-Nistal, Alonso, Martinez Fernandez, Vicente et al. (2017) Anti-Mullerian hormone dynamics during GNRH-antagonist short protocol for IVF/ICSI in women with varying ovarian reserve levels. Minerva ginecologica 69(2): 128-134	- Number of participants <100
Metello, Jose Luis; Tomas, Claudia; Ferreira, Pedro (2019) Can we predict the IVF/ICSI live birth rate?. JBRA assisted reproduction 23(4): 402-407	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Mikkelsen, A L, Andersson, A M, Skakkebaek, N E et al. (2001) Basal concentrations of oestradiol may predict the outcome of in-vitro maturation in regularly menstruating women. Human reproduction (Oxford, England) 16(5): 862-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Miyagi, Maho, Mekaru, Keiko, Nakamura, Rie et al. (2021) Live birth outcomes from IVF treatments in younger patients with low AMH. JBRA assisted reproduction 25(3): 417-421	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Mohamed, Ahmed Aboelfadle, Al-Hussaini, Tarek K, Hussein, Reda S et al. (2022) The Impact of High Circulating Anti-Mullerian Hormone on Endometrial Thickness and Outcome of Assisted Reproductive Technology in Women with Polycystic Ovarian Syndrome: A	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Cohort Study. Journal of human reproductive sciences 15(4): 370-376	
Mohammed Yassin, Maged; Akram Sharif, Fadel; Marwan Laqqan, Mohammed (2013) Anti-mullerian hormone as a predictor of ovarian reserve and ovarian response in IVF women from Gaza strip. Iranian journal of reproductive medicine 11(4): 261-6	- Number of participants <100
Morales, H.S.G., Ulloa-Aguirre, A., Martinez, J.C.F. et al. (2012) AMH as a marker of ovarian response in IVF. Ginecologia y Obstetricia de Mexico 80(1): 1-7	- Paper not available *Paper not available in English*
Morales, Hector Salvador Godoy, Lopez, German Gabriel Palacios, Cortes, Daniel Vieyra et al. (2022) Evaluation of the Anti-Mullerian Hormone and its Association with Embryo Quality in Advanced Reproductive Treatments in a Latin American Population. JBRA assisted reproduction 26(1): 50-52	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Moreau, Jessika, Gatimel, Nicolas, Simon, Cynthia et al. (2019) Age-specific anti-Mullerian hormone (AMH) levels poorly affects cumulative live birth rate after intra-uterine insemination. European journal of obstetrics & gynecology and reproductive biology: X 3: 100043	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Morin, S J, Patounakis, G, Juneau, C R et al. (2018) Diminished ovarian reserve and poor response to stimulation in patients <38 years old: a quantitative but not qualitative reduction in performance. Human reproduction (Oxford, England) 33(8): 1489-1498	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Moro, Francesca, Tropea, Anna, Scarinci, Elisa et al. (2016) Anti-Mullerian hormone concentrations and antral follicle counts for the prediction of pregnancy outcomes after intrauterine insemination. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 133(1): 64-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Motawi, Tarek M K, Rizk, Sherine M, Maurice, Nadine W et al. (2017) The role of gene polymorphisms and AMH level in prediction of poor ovarian response in Egyptian women undergoing IVF procedure. Journal of assisted reproduction and genetics 34(12): 1659-1666	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Muasher, S J, Oehninger, S, Simonetti, S et al. (1988) The value of basal and/or stimulated serum gonadotropin levels in prediction of	- Study conducted pre-2000

Study	Code [Reason]
stimulation response and in vitro fertilization outcome. Fertility and sterility 50(2): 298-307	
Mukheef, M.A.; Ali, R.A.; Majeed, H.H. (2021) How can the maternal age and the basal level of serum fsh predict the icsi outcome?. Indian Journal of Forensic Medicine and Toxicology 15(4): 1694-1700	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Number of participants <100
Mustafa, Kamarul B, Keane, Kevin N, Walz, Nikita L et al. (2017) Live birth rates are satisfactory following multiple IVF treatment cycles in poor prognosis patients. Reproductive biology 17(1): 34-41	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Mutlu, Mehmet Firat, Erdem, Mehmet, Erdem, Ahmet et al. (2013) Antral follicle count determines poor ovarian response better than anti-Mullerian hormone but age is the only predictor for live birth in in vitro fertilization cycles. Journal of assisted reproduction and genetics 30(5): 657-65	- Insufficient presentation of results *Multiple logistic regression analysis does not adjust for duration of infertility. Continuous data are reported but basal FSH/AMH are reported as means and SDs in relation to outcomes, without a threshold for low/high/normal levels*
Muttukrishna, S, McGarrigle, H, Wakim, R et al. (2005) Antral follicle count, anti-mullerian hormone and inhibin B: predictors of ovarian response in assisted reproductive technology?. BJOG : an international journal of obstetrics and gynaecology 112(10): 1384-90	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Muttukrishna, Shanthi, Suharjono, Harris, McGarrigle, Hugh et al. (2004) Inhibin B and anti-Mullerian hormone: markers of ovarian response in IVF/ICSI patients?. BJOG : an international journal of obstetrics and gynaecology 111(11): 1248-53	- Number of participants <100
Nahum, R, Shifren, J L, Chang, Y et al. (2001) Antral follicle assessment as a tool for predicting outcome in IVF--is it a better predictor than age and FSH?. Journal of assisted reproduction and genetics 18(3): 151-5	- Study conducted pre-2000
Narayan, S., Pachori, P., Choudhry, S. et al. (2022) Testing AMH as an indicator of ovarian response in assisted reproductive technologies. NeuroQuantology 20(7): 2727-2732	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Nardo, Luciano G, Gelbaya, Tarek A, Wilkinson, Hannah et al. (2009) Circulating basal anti-Mullerian hormone levels as predictor of ovarian response in women undergoing ovarian stimulation for in vitro fertilization. Fertility and sterility 92(5): 1586-93	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*

Study	Code [Reason]
Negm, S.M.M., Kamel, R.A., Magdi, A.M. et al. (2012) Serum anti-Mullerian hormone and basal serum FSH as predictors of poor ovarian response in assisted conception cycles. Middle East Fertility Society Journal 17(4): 283-289	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Nelson, Scott M; Yates, Robin W; Fleming, Richard (2007) Serum anti-Mullerian hormone and FSH: prediction of live birth and extremes of response in stimulated cycles--implications for individualization of therapy. Human reproduction (Oxford, England) 22(9): 2414-21	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Neves, Ana Raquel, Blockeel, Christophe, Griesinger, Georg et al. (2020) The performance of the Elecsys R anti-Mullerian hormone assay in predicting extremes of ovarian response to corifollitropin alfa. Reproductive biomedicine online 41(1): 29-36	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH/AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Ng, E H; Tang, O S; Ho, P C (2000) The significance of the number of antral follicles prior to stimulation in predicting ovarian responses in an IVF programme. Human reproduction (Oxford, England) 15(9): 1937-42	- Study conducted pre-2000
Ng, Ernest Hung Yu, Chan, Carina Chi Wai, Tang, Oi Shan et al. (2005) Antral follicle count and FSH concentration after clomiphene citrate challenge test in the prediction of ovarian response during IVF treatment. Human reproduction (Oxford, England) 20(6): 1647-54	- Prognostic factors do not match protocol criteria *Study reports multiple regression analysis in predicting the number of oocytes obtained, however this includes the CCCT*
Ng, Ernest Hung Yu; Yeung, William Shu Biu; Ho, Pak Chung (2005) The significance of antral follicle count in controlled ovarian stimulation and intrauterine insemination. Journal of assisted reproduction and genetics 22(910): 323-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Nyboe Andersen, A, Balen, A H, Platteau, P et al. (2010) Prestimulation parameters predicting live birth in anovulatory WHO Group II patients undergoing ovulation induction with gonadotrophins. Human reproduction (Oxford, England) 25(8): 1988-95	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
O'Brien, Yvonne; Wingfield, Mary; O'Shea, Lynne C (2019) Anti-Mullerian hormone and progesterone levels in human follicular fluid are predictors of embryonic development. Reproductive biology and endocrinology : RB&E 17(1): 47	- ORT conducted after beginning ART
Onagawa, T, Shibahara, H, Ayustawati et al. (2004) Prediction of ovarian reserve based on	- Number of participants <100

Study	Code [Reason]
day-3 serum follicle stimulating hormone concentrations during the pituitary suppression cycle using a gonadotropin releasing hormone agonist in patients undergoing in vitro fertilization-embryo transfer. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 18(6): 335-40	
Ozcan, Pinar and Takmaz, Taha (2021) Identification of predictive factors for the probability of pregnancy following ovulation stimulation-intra-uterine insemination cycles in terms of female and male. The journal of obstetrics and gynaecology research 47(3): 893-899	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Pabuccu, Recai, Kaya, Cemil, Caglar, Gamze Sinem et al. (2009) Follicular-fluid anti-Mullerian hormone concentrations are predictive of assisted reproduction outcome in PCOS patients. Reproductive biomedicine online 19(5): 631-7	- Number of participants <100
Pacchiarotti, A, Iaconianni, P, Caporali, S et al. (2020) Severe endometriosis: low value of AMH did not affect oocyte quality and pregnancy outcome in IVF patients. European review for medical and pharmacological sciences 24(22): 11488-11495	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Pacheco, Alberto, Cruz, Maria, Iglesias, Carlos et al. (2018) Very low anti-mullerian hormone concentrations are not an independent predictor of embryo quality and pregnancy rate. Reproductive biomedicine online 37(1): 113-119	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Palhares, M.B., Martins, W.P., Romao, G.S. et al. (2018) Combining age, antral follicle count, anti-Mullerian hormone, and follicle-stimulating hormone is more accurate than individual markers in predicting poor ovarian response. Journal of Reproductive Medicine 63(5): 461-466	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Pannu, N.S., Samsudin, N., Ye, L.J. et al. (2022) Evaluation of assisted reproductive technology treatment outcomes based on stimulation dosages and anti-Mullerian hormone levels. F1000Research 11: 1035	- ORT conducted after beginning ART
Papanikolaou, Evangelos G, Pozzobon, Cristina, Kolibianakis, Efstratios M et al. (2006) Incidence and prediction of ovarian hyperstimulation syndrome in women undergoing gonadotropin-releasing hormone	- ORT conducted after beginning ART - Number of participants <100

Study	Code [Reason]
antagonist in vitro fertilization cycles. Fertility and sterility 85(1): 112-20	
Papathanasiou, Athanasios and Mawal, Nausheen (2021) The risk of poor ovarian response during repeat IVF. Reproductive biomedicine online 42(4): 742-747	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Park, Hyun Jong, Lyu, Sang Woo, Seok, Hyun Ha et al. (2015) Anti-Mullerian hormone levels as a predictor of clinical pregnancy in in vitro fertilization/intracytoplasmic sperm injection-embryo transfer cycles in patients over 40 years of age. Clinical and experimental reproductive medicine 42(4): 143-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Patrelli, Tito Silvio, Gizzo, Salvatore, Sianesi, Nicoletta et al. (2012) Anti-Mullerian hormone serum values and ovarian reserve: can it predict a decrease in fertility after ovarian stimulation by ART cycles?. PloS one 7(9): e44571	- Number of participants <100
Pearlstone, A C, Fournet, N, Gambone, J C et al. (1992) Ovulation induction in women age 40 and older: the importance of basal follicle-stimulating hormone level and chronological age. Fertility and sterility 58(4): 674-9	- Study conducted pre-2000 - Number of participants <100
Penarrubia, Joana, Fabregues, Francisco, Manau, Dolors et al. (2005) Basal and stimulation day 5 anti-Mullerian hormone serum concentrations as predictors of ovarian response and pregnancy in assisted reproductive technology cycles stimulated with gonadotropin-releasing hormone agonist--gonadotropin treatment. Human reproduction (Oxford, England) 20(4): 915-22	- Study type does not match protocol criteria *Case-control study*
Penarrubia, Joana, Peralta, Sara, Fabregues, Francisco et al. (2010) Day-5 inhibin B serum concentrations and antral follicle count as predictors of ovarian response and live birth in assisted reproduction cycles stimulated with gonadotropin after pituitary suppression. Fertility and sterility 94(7): 2590-5	- Number of participants <100
Pereira, Nigel, Setton, Robert, Petrini, Allison C et al. (2016) Is anti-Mullerian hormone associated with IVF outcomes in young patients with diminished ovarian reserve?. Women's health (London, England) 12(2): 185-92	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Permadi, Wiryawan, Wahyu Ferdian, Mohammad, Tjahyadi, Dian et al. (2021) Correlation of Anti-Mullerian Hormone Level and Antral Follicle Count with Oocyte Number in A	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Fixed-Dose Controlled Ovarian Hyperstimulation of Patients of In Vitro Fertilization Program. International journal of fertility & sterility 15(1): 40-43	
Polyzos, Nikolaos P, Tournaye, Herman, Guzman, Luis et al. (2013) Predictors of ovarian response in women treated with corifollitropin alfa for in vitro fertilization/intracytoplasmic sperm injection. Fertility and sterility 100(2): 430-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Popovic-Todorovic, B, Loft, A, Lindhard, A et al. (2003) A prospective study of predictive factors of ovarian response in 'standard' IVF/ICSI patients treated with recombinant FSH. A suggestion for a recombinant FSH dosage normogram. Human reproduction (Oxford, England) 18(4): 781-7	- Outcomes do not match protocol criteria *No relevant outcomes reported*
Preaubert, Lise, Shaulov, Talya, Phillips, Simon et al. (2019) Live birth rates remain stable in modified natural IVF despite low anti-Mullerian hormone: analysis of 638 cycles. Reproductive biomedicine online 39(3): 461-466	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Pruksananonda, K; Boonkasemsanti, W; Virutamasen, P (1996) Basal follicle--stimulating hormone levels on day 3 of previous cycle are predictive of in vitro fertilization outcome. Journal of the Medical Association of Thailand = Chotmaihet thangphaet 79(6): 365-9	- Study conducted pre-2000 - Number of participants <100
Razafintsalama-Bourdet, M, Bah, M, Amand, G et al. (2022) Random antral follicle count performed on any day of the menstrual cycle has the same predictive value as AMH for good ovarian response in IVF cycles. Journal of gynecology obstetrics and human reproduction 51(1): 102233	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Reichman, David E; Goldschlag, Dan; Rosenwaks, Zev (2014) Value of antimullerian hormone as a prognostic indicator of in vitro fertilization outcome. Fertility and sterility 101(4): 1012-8e1	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Reijnders, Igna F, Nelen, Willianne L D M, IntHout, Joanna et al. (2016) The value of Anti-Mullerian hormone in low and extremely low ovarian reserve in relation to live birth after in vitro fertilization. European journal of obstetrics, gynecology, and reproductive biology 200: 45-50	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Revelli, Alberto, Biasoni, Valentina, Gennarelli, Gianluca et al. (2016) IVF results in patients with very low serum AMH are significantly affected by chronological age. Journal of assisted reproduction and genetics 33(5): 603-609	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Rezende, Carolina P, Rocha, Ana L, Dela Cruz, Cynthia et al. (2014) Serum antimullerian hormone measurements with second generation assay at two distinct menstrual cycle phases for prediction of cycle cancellation, pregnancy and live birth after in vitro fertilization. Journal of assisted reproduction and genetics 31(10): 1303-10	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Riggs, Ryan M, Duran, E Hakan, Baker, Margaret W et al. (2008) Assessment of ovarian reserve with anti-Mullerian hormone: a comparison of the predictive value of anti-Mullerian hormone, follicle-stimulating hormone, inhibin B, and age. American journal of obstetrics and gynecology 199(2): 202e1-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Ripley, Mike, Lanes, Andrea, Leveille, Marie-Claude et al. (2015) Does ovarian reserve predict egg quality in unstimulated therapeutic donor insemination cycles?. Fertility and sterility 103(5): 1170-5e2	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Roberts, Jeffrey E, Spandorfer, Steven, Fasouliotis, Sozos J et al. (2005) Taking a basal follicle-stimulating hormone history is essential before initiating in vitro fertilization. Fertility and sterility 83(1): 37-41	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Romao, G.S., Navarro, P.A.A.S., Ferriani, R.A. et al. (2012) Serum anti-Mullerian hormone to predict ovarian response in assisted reproduction cycles. Revista Brasileira de Ginecologia e Obstetricia 34(12): 575-581	- Paper not available *Study not available in English*
Rombauts, Luk, Onwude, Joseph L, Chew, Hong W et al. (2011) The predictive value of antral follicle count remains unchanged across the menstrual cycle. Fertility and sterility 96(6): 1514-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Rosen, Mitchell P, Zamah, A Musa, Shen, Shehua et al. (2009) The effect of follicular fluid hormones on oocyte recovery after ovarian stimulation: FSH level predicts oocyte recovery. Reproductive biology and endocrinology : RB&E 7: 35	- Number of participants <100

Study	Code [Reason]
Royland Marpaung, Ferdy, Surya Priyanto, Amang, Ayu Kusumawati, Fitri et al. (2023) Determination of serum anti-Mullerian hormone levels in a low-prognosis women treated in-vitro fertilization/intracytoplasmic sperm injection: A cohort study. International journal of reproductive biomedicine 21(3): 255-262	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Sabatini, L, Zosmer, A, Hennessy, E M et al. (2008) Relevance of basal serum FSH to IVF outcome varies with patient age. Reproductive biomedicine online 17(1): 10-9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Study conducted pre-2000 *Study conducted 1998-2004*
Sacha, Caitlin R, Chavarro, Jorge E, Williams, Paige L et al. (2020) Follicular fluid anti-Mullerian hormone (AMH) concentrations and outcomes of in vitro fertilization cycles with fresh embryo transfer among women at a fertility center. Journal of assisted reproduction and genetics 37(11): 2757-2766	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Sadruddin, Sheela, Barnett, Brian, Ku, Lowell et al. (2020) Maternal serum concentration of anti-Mullerian hormone is a better predictor than basal follicle stimulating hormone of successful blastocysts development during IVF treatment. PloS one 15(10): e0239779	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Safdarian, Leili, Khayatzadeh, Zahra, Djavadi, Ebrahim et al. (2012) Prediction of assisted reproductive technique outcome in elevated early follicular phase follicle stimulating hormone with Mullerian inhibiting substance level. Iranian journal of reproductive medicine 10(3): 201-8	- Number of participants <100
Sahin, Gulnaz, Akdogan, Aysin, Aydin, Murat Hakan et al. (2021) In-Vitro Fertilization Outcome Predictors in Women With High Baseline Follicle-Stimulating Hormone Levels: Analysis of Over 1000 Cycles From A Tertiary Center. JBRA assisted reproduction 25(2): 235-241	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Sahmay, S., Cetin, M., Ocal, P. et al. (2011) Serum anti-Mullerian hormone level as a predictor of poor ovarian response in in vitro fertilization patients. Reproductive Medicine and Biology 10(1): 9-14	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH/AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Sahmay, Sezai, Oncul, Mahmut, Tuten, Abdullah et al. (2014) Anti-mullerian hormone levels as a predictor of the pregnancy rate in women of advanced reproductive age. Journal	- Study type does not match protocol criteria *Cross-sectional study*

Study	Code [Reason]
of assisted reproduction and genetics 31(11): 1469-74	
Saleh, H., Moiety, F., Agameya, A.F. et al. (2020) Comparison between antral follicle count and anti-Mollerian hormonal level in the prediction of ovarian response and pregnancy outcome in intracytoplasmic sperm injection patients: Implications in personalizing ovarian stimulation. Clinical and Experimental Obstetrics and Gynecology 47(2): 166-173	- Insufficient presentation of results *Continuous data reported (basal AMH/AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Salmassi, Ali, Mettler, Liselotte, Hedderich, Jurgen et al. (2015) Cut-Off Levels of Anti-Mullerian Hormone for The Prediction of Ovarian Response, In Vitro Fertilization Outcome and Ovarian Hyperstimulation Syndrome. International journal of fertility & sterility 9(2): 157-67	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Satwik, Ruma, Kochhar, Mohinder, Gupta, Shweta M et al. (2012) Anti-mullerian hormone cut-off values for predicting poor ovarian response to exogenous ovarian stimulation in in-vitro fertilization. Journal of human reproductive sciences 5(2): 206-12	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Scantamburlo, Viviane Margareth, Linsingen, Renate von, Centa, Lidio Jair Ribas et al. (2021) Association between decreased ovarian reserve and poor oocyte quality. Obstetrics & gynecology science 64(6): 532-539	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Scheffer, Juliano Augusto Brum, Scheffer, Bruno, Scheffer, Rafaela et al. (2018) Are age and anti-Mullerian hormone good predictors of ovarian reserve and response in women undergoing IVF?. JBRA assisted reproduction 22(3): 215-220	- Insufficient presentation of results *Continuous data reported (basal AFC as medians and IQRs in relation to outcomes, without a threshold for low/high/normal levels)*
Scheffer, Juliano B, Scheffer, Bruno B, Carvalho, Rafaela F de et al. (2014) Anti-Mullerian as predictor of reproductive outcome in infertile women: follow up. JBRA assisted reproduction 18(3): 80-84	- Insufficient presentation of results *Continuous data reported (basal AFC as medians and IQRs in relation to outcomes, without a threshold for low/high/normal levels)*
Scott, R T, Toner, J P, Muasher, S J et al. (1989) Follicle-stimulating hormone levels on cycle day 3 are predictive of in vitro fertilization outcome. Fertility and sterility 51(4): 651-4	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Study conducted pre-2000
Scott, Richard T Jr, Elkind-Hirsch, Karen E, Styne-Gross, Allison et al. (2008) The predictive value for in vitro fertility delivery rates is greatly impacted by the method used to select the	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
threshold between normal and elevated basal follicle-stimulating hormone. Fertility and sterility 89(4): 868-78	
Seckin, Berna; Tokmak, Aytekin; Yumusak, Omer Hamid (2019) The role of anti-Mullerian hormone in prediction of pregnancy in young and older women with unexplained infertility undergoing intrauterine insemination. Journal of the Chinese Medical Association : JCMA 82(4): 300-304	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Sefrioui, Omar, Madkour, Aicha, Aboulmaouahib, Smahane et al. (2019) Women with extreme low AMH values could have in vitro fertilization success. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 35(2): 170-173	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Seibel, M M; Kearnan, M; Kiessling, A (1995) Parameters that predict success for natural cycle in vitro fertilization-embryo transfer. Fertility and sterility 63(6): 1251-4	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Seifer, David B, MacLaughlin, David T, Christian, Benjamin P et al. (2002) Early follicular serum mullerian-inhibiting substance levels are associated with ovarian response during assisted reproductive technology cycles. Fertility and sterility 77(3): 468-71	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Seifer, David B, Tal, Oded, Wantman, Ethan et al. (2016) Prognostic indicators of assisted reproduction technology outcomes of cycles with ultralow serum antimullerian hormone: a multivariate analysis of over 5,000 autologous cycles from the Society for Assisted Reproductive Technology Clinic Outcome Reporting System database for 2012-2013. Fertility and sterility 105(2): 385-93e3	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Shaban, Mona Mohamed and Abdel Moety, Ghada Abdel Fattah (2014) Role of ultrasonographic markers of ovarian reserve in prediction of IVF and ICSI outcome. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 30(4): 290-3	- Insufficient presentation of results *Continuous data reported (basal FSH/AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Sharif, K, Elgendy, M, Lashen, H et al. (1998) Age and basal follicle stimulating hormone as predictors of in vitro fertilisation outcome. British journal of obstetrics and gynaecology 105(1): 107-12	- Study conducted pre-2000

Study	Code [Reason]
Shi, Wenhao, Zhou, Hanying, Tian, Li et al. (2019) Cumulative Live Birth Rates of Good and Low Prognosis Patients According to POSEIDON Criteria: A Single Center Analysis of 18,455 Treatment Cycles. Frontiers in endocrinology 10: 409	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Shrim, A, Elizur, S E, Seidman, D S et al. (2006) Elevated day 3 FSH/LH ratio due to low LH concentrations predicts reduced ovarian response. Reproductive biomedicine online 12(4): 418-22	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Siegel, Dana R, Grau, Laura, Sammel, Mary et al. (2023) Anti-Mullerian Hormone and Follicle-Stimulating Hormone Are Poor Independent Predictors of Live Birth After Assisted Reproductive Technology. Reproductive sciences (Thousand Oaks, Calif.) 30(4): 1316-1323	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Silberstein, T, MacLaughlin, D T, Shai, I et al. (2006) Mullerian inhibiting substance levels at the time of HCG administration in IVF cycles predict both ovarian reserve and embryo morphology. Human reproduction (Oxford, England) 21(1): 159-63	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Sills, E Scott, Collins, Gary S, Brady, Adam C et al. (2011) Bivariate analysis of basal serum anti-Mullerian hormone measurements and human blastocyst development after IVF. Reproductive biology and endocrinology : RB&E 9: 153	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Silveira, Camila Filardi, Coutinho, Lara Meireles de Azeredo, Amaral, Waldemar Naves do et al. (2013) Antral follicle count in the prediction of in vitro fertilization cycles results: A systematic review. Reprod. clim 28(2): 68-73	- Systematic review - included studies checked for relevance
Singh, Neeta, Bahadur, Anupama, Malhotra, Neena et al. (2013) Prospective analysis of ovarian reserve markers as determinant in response to controlled ovarian stimulation in women undergoing IVF cycles in low resource setting in India. Archives of gynecology and obstetrics 288(3): 697-703	- Insufficient presentation of results *Diagnostic outcomes with insufficient data to convert to the relevant outcomes of this review*
Singh, Neeta, Malik, Ekta, Banerjee, Ayan et al. (2013) "Anti-Mullerian Hormone: Marker for Ovarian Response in Controlled Ovarian Stimulation for IVF Patients": A First Pilot Study in the Indian Population. Journal of obstetrics and gynaecology of India 63(4): 268-72	- Number of participants <100

Study	Code [Reason]
Smeenk, Jesper M J, Sweep, Fred C G J, Zielhuis, Gerhard A et al. (2007) Antimullerian hormone predicts ovarian responsiveness, but not embryo quality or pregnancy, after in vitro fertilization or intracyoplasmic sperm injection. Fertility and sterility 87(1): 223-6	- Number of participants <100 *112 participants recruited but only 80 compared in analysis*
Soldevila, Pedro N Barri, Carreras, Olga, Tur, Rosa et al. (2007) Sonographic assessment of ovarian reserve. Its correlation with outcome of in vitro fertilization cycles. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 23(4): 206-12	- Outcomes do not match protocol criteria *No outcomes of interest reported; poor response is defined as ≤5 antral follicles on the day of hCG administration*
Sonigo, C, Simon, C, Boubaya, M et al. (2016) What threshold values of antral follicle count and serum AMH levels should be considered for oocyte cryopreservation after in vitro maturation?. Human reproduction (Oxford, England) 31(7): 1493-500	- Outcomes do not match protocol criteria *Study investigated the correlation between AMH/AFC levels and the number of IVM oocytes cryopreserved*
Sood, Akanksha, Goel, Akhil, Boda, Shivani et al. (2022) Prediction of significant OHSS by ovarian reserve and ovarian response - implications for elective freeze-all strategy. Human fertility (Cambridge, England) 25(2): 390-396	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Soria, Macizo, Pradillo, Galvez, Garcia, Jorquera et al. (2012) Pregnancy predictors after intrauterine insemination: analysis of 3012 cycles in 1201 couples. Journal of reproduction & infertility 13(3): 158-66	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Souter, Irene, Dimitriadis, Irene, Baltagi, Lina M et al. (2014) Elevated day 3 follicle-stimulating hormone in younger women: is gonadotropin stimulation/intrauterine insemination a good option?. American journal of obstetrics and gynecology 211(1): 62e1-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Spressao, Meire; Oliani, Antonio Helio; Oliani, Denise Cristina Mos Vaz (2016) Value of the Ultrasound in the Study of Ovarian Reserve for Prediction of Oocyte Recovery. Revista brasileira de ginecologia e obstetricia : revista da Federacao Brasileira das Sociedades de Ginecologia e Obstetricia 38(10): 499-505	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Srouji, Serene S, Mark, Alice, Levine, Zalman et al. (2005) Predicting in vitro fertilization live birth using stimulation day 6 estradiol, age, and follicle-stimulating hormone. Fertility and sterility 84(3): 795-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Sun, Bo, Ma, Yujia, Li, Lu et al. (2020) Factors Associated with Ovarian Hyperstimulation Syndrome (OHSS) Severity in Women With Polycystic Ovary Syndrome Undergoing IVF/ICSI. Frontiers in endocrinology 11: 615957	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Sun, Tie-Cheng, Zhou, Shan-Jie, Song, Ling-Li et al. (2021) High anti-Mullerian hormone levels might not reflect the likelihood of clinical pregnancy rate in IVF/ICSI treatment. JBRA assisted reproduction 25(2): 266-271	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Sun, Xing Yu, Lan, Yun Zhu, Liu, Shuang et al. (2020) Relationship Between Anti-Mullerian Hormone and In Vitro Fertilization-Embryo Transfer in Clinical Pregnancy. Frontiers in endocrinology 11: 595448	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Sun, Xingyu, Xiong, Wang, Liu, Liting et al. (2022) Comparison of the predictive capability of antral follicle count vs. the anti-Mullerian hormone for ovarian response in infertile women. Frontiers in endocrinology 13: 862733	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Syrop, C H, Dawson, J D, Husman, K J et al. (1999) Ovarian volume may predict assisted reproductive outcomes better than follicle stimulating hormone concentration on day 3. Human reproduction (Oxford, England) 14(7): 1752-6	- Study conducted pre-2000
Szafarowska, Monika; Molinska-Glura, Marta; Jerzak, Malgorzata M (2014) Anti-Mullerian hormone concentration as a biomarker of pregnancy success or failure. Neuro endocrinology letters 35(4): 322-6	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Number of participants <100
Tal, Reshef, Seifer, Charles M, Khanimov, Moisey et al. (2020) High serum Antimullerian hormone levels are associated with lower live birth rates in women with polycystic ovarian syndrome undergoing assisted reproductive technology. Reproductive biology and endocrinology : RB&E 18(1): 20	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Tal, Reshef, Seifer, David B, Khanimov, Moisey et al. (2014) Characterization of women with elevated antimullerian hormone levels (AMH): correlation of AMH with polycystic ovarian syndrome phenotypes and assisted reproductive technology outcomes. American journal of obstetrics and gynecology 211(1): 59e1-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Tal, Reshef, Seifer, David B, Tal, Renana et al. (2021) AMH Highly Correlates With Cumulative Live Birth Rate in Women with Diminished Ovarian Reserve Independent of Age. The Journal of clinical endocrinology and metabolism 106(9): 2754-2766	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Tal, Reshef, Seifer, David B, Wantman, Ethan et al. (2018) Antimullerian hormone as a predictor of live birth following assisted reproduction: an analysis of 85,062 fresh and thawed cycles from the Society for Assisted Reproductive Technology Clinic Outcome Reporting System database for 2012-2013. Fertility and sterility 109(2): 258-265	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Tal, Reshef, Tal, Oded, Seifer, Benjamin J et al. (2015) Antimullerian hormone as predictor of implantation and clinical pregnancy after assisted conception: a systematic review and meta-analysis. Fertility and sterility 103(1): 119-30e3	- Systematic review - included studies checked for relevance
Tan, Rongrong, Pu, Danhua, Liu, Lipeng et al. (2011) Comparisons of inhibin B versus antimullerian hormone in poor ovarian responders undergoing in vitro fertilization. Fertility and sterility 96(4): 905-11	- Systematic review - included studies checked for relevance
Tanbo, T, Dale, P O, Abyholm, T et al. (1989) Follicle-stimulating hormone as a prognostic indicator in clomiphene citrate/human menopausal gonadotrophin-stimulated cycles for in-vitro fertilization. Human reproduction (Oxford, England) 4(6): 647-50	- Study conducted pre-2000 - Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Tarlatzi, T.B., Venetis, C.A., Devreker, F. et al. (2017) What is the best predictor of severe ovarian hyperstimulation syndrome in IVF? A cohort study. Journal of Assisted Reproduction and Genetics 34(10): 1341-1351	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Tiegs, Ashley W, Sun, Li, Scott, Richard T Jr et al. (2020) Comparison of pregnancy outcomes following intrauterine insemination in young women with decreased versus normal ovarian reserve. Fertility and sterility 113(4): 788-796e4	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Tinkanen, H, Blauer, M, Laippala, P et al. (1999) Prognostic factors in controlled ovarian hyperstimulation. Fertility and sterility 72(5): 932-6	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Tolikas, A, Tsakos, E, Gerou, S et al. (2011) Anti-Mullerian Hormone (AMH) levels in serum and follicular fluid as predictors of ovarian	- Number of participants <100

Study	Code [Reason]
response in stimulated (IVF and ICSI) cycles. Human fertility (Cambridge, England) 14(4): 246-53	
Toner, J P, Philput, C B, Jones, G S et al. (1991) Basal follicle-stimulating hormone level is a better predictor of in vitro fertilization performance than age. Fertility and sterility 55(4): 784-91	- Study conducted pre-2000
Tremellen, Kelton P, Kolo, Michele, Gilmore, Alan et al. (2005) Anti-mullerian hormone as a marker of ovarian reserve. The Australian & New Zealand journal of obstetrics & gynaecology 45(1): 20-4	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Tremellen, Kelton and Kolo, Michelle (2010) Serum anti-Mullerian hormone is a useful measure of quantitative ovarian reserve but does not predict the chances of live-birth pregnancy. The Australian & New Zealand journal of obstetrics & gynaecology 50(6): 568-72	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Tremellen, Kelton and Zander-Fox, Deidre (2015) Serum anti-Mullerian hormone assessment of ovarian reserve and polycystic ovary syndrome status over the reproductive lifespan. The Australian & New Zealand journal of obstetrics & gynaecology 55(4): 384-9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Tsakos, E, Tolikas, A, Daniilidis, Angelos et al. (2014) Predictive value of anti-mullerian hormone, follicle-stimulating hormone and antral follicle count on the outcome of ovarian stimulation in women following GnRH-antagonist protocol for IVF/ET. Archives of gynecology and obstetrics 290(6): 1249-53	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH/AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Tulic, L, Tulic, I, Bila, J et al. (2020) Correlation of progesterone levels on the day of oocyte retrieval with basal hormonal status and the outcome of ART. Scientific reports 10(1): 22291	- Insufficient presentation of results *Participants are grouped according to basal levels of progesterone, and outcomes are reported according to those groups. Data are not sufficiently presented to analyse ORT results as a prognostic factor*
Umarsingh, Shalini; Adam, Jamila Khatoon; Krishna, Suresh Babu Naidu (2020) The relationship between anti-Mullerian hormone (AMH) levels and pregnancy outcomes in patients undergoing assisted reproductive techniques (ART). PeerJ 8: e10390	- Number of participants <100
Vagios, Stylianos, Hsu, Jennifer Y, Sacha, Caitlin R et al. (2021) Pretreatment antimullerian hormone levels and outcomes of ovarian	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
stimulation with gonadotropins/intrauterine insemination cycles. Fertility and sterility 116(2): 422-430	
Vale-Fernandes, E.; Barreiro, M.; Monteiro, M.P. (2023) Candidates selection for oocyte donation in a public gamete bank - Predictive value of the anti-Mullerian hormone. Porto Biomedical Journal 8(1): e199	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
van der Steeg, Jan W, Steures, Pieternel, Eijkemans, Marinus J C et al. (2007) Predictive value and clinical impact of Basal follicle-stimulating hormone in subfertile, ovulatory women. The Journal of clinical endocrinology and metabolism 92(6): 2163-8	- Outcomes do not match protocol criteria *Study only reports HRs*
van der Stege, J G and van der Linden, P J (2001) Useful predictors of ovarian stimulation response in women undergoing in vitro fertilization. Gynecologic and obstetric investigation 52(1): 43-6	- Number of participants <100
van Loendersloot, L L, van Wely, M, Limpens, J et al. (2010) Predictive factors in in vitro fertilization (IVF): a systematic review and meta-analysis. Human reproduction update 16(6): 577-89	- Systematic review - included studies checked for relevance
van Rooij, I A J, Broekmans, F J M, te Velde, E R et al. (2002) Serum anti-Mullerian hormone levels: a novel measure of ovarian reserve. Human reproduction (Oxford, England) 17(12): 3065-71	- Insufficient presentation of results *Multiple logistic regression analysis does not adjust for age or duration of infertility. Continuous data are reported but basal FSH/AMH/AFC are reported as medians and ranges in relation to outcomes, without a threshold for low/high/normal levels*
van Rooij, Ilse A J, Broekmans, Frank J M, Hunault, Claudine C et al. (2006) Use of ovarian reserve tests for the prediction of ongoing pregnancy in couples with unexplained or mild male infertility. Reproductive biomedicine online 12(2): 182-90	- Study conducted pre-2000
van Rooij, Ilse A J, de Jong, Evelyn, Broekmans, Frank J M et al. (2004) High follicle-stimulating hormone levels should not necessarily lead to the exclusion of subfertile patients from treatment. Fertility and sterility 81(6): 1478-85	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Vijay, Asha Srinivasan, Gopireddy, Murali Mohan Reddy, Fyzullah, Syed et al. (2022) Association Between AMH Levels and Fertility/Reproductive Outcomes Among Women	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Undergoing IVF: A Retrospective Study. Journal of reproduction & infertility 23(1): 54-60	
Vitek, Wendy, Sun, Fangbai, Baker, Valerie L et al. (2020) Lower antimullerian hormone is associated with lower oocyte yield but not live-birth rate among women with obesity. American journal of obstetrics and gynecology 222(4): 363e1-363e7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Vladimirov, Iavor K, Tacheva, Desislava M, Kalinov, Krassimir B et al. (2005) Prognostic value of some ovarian reserve tests in poor responders. Archives of gynecology and obstetrics 272(1): 74-9	- Number of participants <100
von Wolff, Michael, Schwartz, Alexandra Kohl, Bitterlich, Norman et al. (2019) Only women's age and the duration of infertility are the prognostic factors for the success rate of natural cycle IVF. Archives of gynecology and obstetrics 299(3): 883-889	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Wahd, Safiya A, Alalaf, Shahla K, Al-Shawaf, Talha et al. (2014) Ovarian reserve markers and assisted reproductive technique (ART) outcomes in women with advanced endometriosis. Reproductive biology and endocrinology : RB&E 12: 120	- Study type does not match protocol criteria *Cross-sectional study*
Wang, Ange, Lathi, Ruth, Kort, Jonathan et al. (2019) Anti-Mullerian hormone in association with euploid embryo transfer outcomes. Reproductive biomedicine online 39(4): 609-616	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Wang, Jeff G, Douglas, Nataki C, Nakhuda, Gary S et al. (2010) The association between anti-Mullerian hormone and IVF pregnancy outcomes is influenced by age. Reproductive biomedicine online 21(6): 757-61	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Wang, Jingjing, Lv, Yuzhen, Wang, XingLing et al. (2023) Retrospective study of ovarian reaction and fertility in women with discordant antimullerian hormone and follicle-stimulating hormone/luteinizing hormone ratios during in vitro fertilization. The journal of obstetrics and gynaecology research 49(3): 966-972	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Wang, Kexin, Guan, Yichun, Zhang, Yuchao et al. (2023) Analysis of cumulative outcomes and influencing factors of patients with discrepancies between age and AMH levels in the early follicular phase prolonged protocol. Frontiers in endocrinology 14: 1098131	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Study	Code [Reason]
Wang, Qiumin, Qi, Dan, Zhang, Lixia et al. (2023) Association of the Cumulative Live Birth Rate with the Factors in Assisted Reproductive Technology: A Retrospective Study of 16,583 Women. Journal of clinical medicine 12(2)	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Wang, Shunping, Zhang, Yi, Mensah, Virginia et al. (2018) Discordant anti-mullerian hormone (AMH) and follicle stimulating hormone (FSH) among women undergoing in vitro fertilization (IVF): which one is the better predictor for live birth?. Journal of ovarian research 11(1): 60	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Wang, X., Jin, L., Mao, Y.-D. et al. (2021) Evaluation of Ovarian Reserve Tests and Age in the Prediction of Poor Ovarian Response to Controlled Ovarian Stimulation-A Real-World Data Analysis of 89,002 Patients. Frontiers in Endocrinology 12: 702061	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Wang, Zeng-Yan, Huang, Sun-Xing, Yang, Jing-Di et al. (2023) Subfertile Chinese patients with diminished ovarian reserve: An analysis of pregnancy outcomes of ART cycles. Pakistan journal of medical sciences 39(2): 338-343	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Watt, A H, Legedza, A T, Ginsburg, E S et al. (2000) The prognostic value of age and follicle-stimulating hormone levels in women over forty years of age undergoing in vitro fertilization. Journal of assisted reproduction and genetics 17(5): 264-8	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Weghofer, A, Barad, D H, Darmon, S K et al. (2020) The ovarian sensitivity index is predictive of live birth chances after IVF in infertile patients. Human reproduction open 2020(4): hoaa049	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Witt, B R, Barad, D H, Barg, P et al. (1995) Basal serum follicle stimulating hormone (FSH) and estradiol levels as predictors of pregnancy in unstimulated donor insemination cycles. Journal of assisted reproduction and genetics 12(3): 157-60	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Wu, Cheng-Hsuan, Chen, Yu-Ching, Wu, Hsin-Hung et al. (2009) Serum anti-Mullerian hormone predicts ovarian response and cycle outcome in IVF patients. Journal of assisted reproduction and genetics 26(7): 383-9	- Number of participants <100
Wunder, Dorothea M, Guibourdenche, Jean, Birkhauser, Martin H et al. (2008) Anti-Mullerian hormone and inhibin B as predictors of pregnancy after treatment by in vitro	- Insufficient presentation of results *Continuous data reported (basal FSH/AMH as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*

Study	Code [Reason]
fertilization/intracytoplasmic sperm injection. Fertility and sterility 90(6): 2203-10	
Xu, Huiyu, Zeng, Lin, Yang, Rui et al. (2017) Retrospective cohort study: AMH is the best ovarian reserve markers in predicting ovarian response but has unfavorable value in predicting clinical pregnancy in GnRH antagonist protocol. Archives of gynecology and obstetrics 295(3): 763-770	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Yamashita, T, Ishimaru, T, Fujishita, A et al. (1996) Influence of serum follicle stimulating hormone to luteinizing hormone ratio during buserelin acetate-induced pituitary desensitization on ovarian response to exogenous gonadotrophins in an in-vitro fertilization and embryo transfer programme. Human reproduction (Oxford, England) 11(8): 1615-9	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Yanushpolsky, Elena H, Hurwitz, Shelley, Tikh, Eugene et al. (2003) Predictive usefulness of cycle day 10 follicle-stimulating hormone level in a clomiphene citrate challenge test for in vitro fertilization outcome in women younger than 40 years of age. Fertility and sterility 80(1): 111-5	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Yao, Lingnv, Zhang, Wei, Li, Hong et al. (2015) The role of serum AMH and FF AMH in predicting pregnancy outcome in the fresh cycle of IVF/ICSI: a meta-analysis. International journal of clinical and experimental medicine 8(2): 1755-67	- Systematic review - included studies checked for relevance
Yarde, Felicia, Voorhuis, Marlies, Dolleman, Madeleine et al. (2013) Antimullerian hormone as predictor of reproductive outcome in subfertile women with elevated basal follicle-stimulating hormone levels: a follow-up study. Fertility and sterility 100(3): 831-8	- Number of participants <100
Yavuz, Arzu, Demirci, Oya, Sozen, Hamdullah et al. (2013) Predictive factors influencing pregnancy rates after intrauterine insemination. Iranian journal of reproductive medicine 11(3): 227-34	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Yilmaz, Nafiye, Uygur, Dilek, Dogan, Muammer et al. (2012) The effect of follicular antimullerian hormone levels of non-obese, non-hyperandrogenemic polycystic ovary syndrome patients on assisted reproduction outcome. Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology 28(3): 162-5	- Study type does not match protocol criteria *Cross-sectional study*

Study	Code [Reason]
Yilmaz, T., Tavukcuoglu, S., Tasdemir, S. et al. (2018) Can follicular fluid anti-mullerian hormone level be a determinant of pregnancy in women under 35 years of age?. International Journal of Women's Health and Reproduction Sciences 6(1): 6-10	- Number of participants <100
Yoo, Ji Hee, Cha, Sun Hwa, Park, Chan Woo et al. (2011) Serum anti-Mullerian hormone is a better predictor of ovarian response than FSH and age in IVF patients with endometriosis. Clinical and experimental reproductive medicine 38(4): 222-7	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion - Number of participants <100
Younis, J S, Matilsky, M, Radin, O et al. (2001) Increased progesterone/estradiol ratio in the late follicular phase could be related to low ovarian reserve in in vitro fertilization-embryo transfer cycles with a long gonadotropin-releasing hormone agonist. Fertility and sterility 76(2): 294-9	- Insufficient presentation of results *Participants are grouped into those with and without premature luteinisation, and outcomes are reported according to those groups. Data are not sufficiently presented to analyse ORT results as a prognostic factor*
Younis, Johnny S, Yakovi, Shiran, Perlitz, Yuri et al. (2021) Proof of concept use of progesterone/estradiol ratio to investigate late follicular progesterone in women with low number of pre-ovulatory follicles. Minerva endocrinology	- Number of participants <100
Yun, Bo Hyon, Kim, Gieun, Park, Seon Hee et al. (2017) In vitro fertilization outcome in women with diminished ovarian reserve. Obstetrics & gynecology science 60(1): 46-52	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Zakhari, Andrew, Ates, Senem, Shaulov, Talya et al. (2018) Does ovarian reserve affect outcomes in single ideal blastocyst transfers in women less than 40 years of age?. Archives of gynecology and obstetrics 297(1): 233-239	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Zhang, Bingqian, Meng, Yueru, Jiang, Xiao et al. (2019) IVF outcomes of women with discrepancies between age and serum anti-Mullerian hormone levels. Reproductive biology and endocrinology : RB&E 17(1): 58	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Zhang, X., Gao, X., Cui, L. et al. (2018) Anti-Mullerian hormone cannot predict oocyte quality and pregnancy outcome in women with diminished ovarian reserve. Journal of Reproductive Medicine 63(5): 442-448	- Number of participants <100 *Study groups participants according to diminished ovarian reserve (<40 years, FSH >10IU/L), normal ovarian reserve (<40 years, FSH <10IU/L), and "advanced age" (>40 years). There are no baseline ovarian reserve criteria for the third group, and without this group there are data for <100 participants*

Study	Code [Reason]
Zhang, Yujing, Wang, Liling, Zhao, Sijia et al. (2021) Predictive value of anti-Mullerian hormone on pregnancy outcomes in in-vitro fertilization/intracytoplasmic single sperm injection patients at different ages. Archives of gynecology and obstetrics 304(6): 1611-1620	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Zhao, Depeng, Fan, Jing, Wang, Ping et al. (2021) Age-specific definition of low anti-Mullerian hormone and associated pregnancy outcome in women undergoing IVF treatment. BMC pregnancy and childbirth 21(1): 186	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Zhao, M, Chang, C, Liu, Z et al. (2010) The level of vascular endothelial cell growth factor, nitric oxide, and endothelin-1 was correlated with ovarian volume or antral follicle counts: a potential predictor of pregnancy outcome in IVF. Growth factors (Chur, Switzerland) 28(5): 299-305	- Insufficient presentation of results *Continuous data reported (basal AFC as means and SDs in relation to outcomes, without a threshold for low/high/normal levels)*
Zheng, Haiyan, Chen, Shiping, Du, Hongzi et al. (2017) Ovarian response prediction in controlled ovarian stimulation for IVF using anti-Mullerian hormone in Chinese women: A retrospective cohort study. Medicine 96(13): e6495	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Zhou, Y., Chen, C., Hu, C. et al. (2019) Predictive value of the serum anti-Mullerian level for spontaneous pregnancy in women after endometriosis surgery. Journal of International Medical Research 47(11): 5643-5649	- Prognostic factors do not match protocol criteria *Study investigates AMH levels pre-endometriosis surgery as a risk factor for spontaneous pregnancy post-surgery*
ZHU, J.-R., OU, J.-P., XING, W.-J. et al. (2016) Anti-Mullerian hormone, antral follicle count and follicle-stimulating hormone for predicting the number of oocytes retrieved in IVF/ICSI cycles. Journal of Reproduction and Contraception 27(2): 89-93	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion
Zippl, Anna Lena, Wachter, Alfons, Rockenschaub, Patrick et al. (2022) Predicting success of intrauterine insemination using a clinically based scoring system. Archives of gynecology and obstetrics 306(5): 1777-1786	- Retrospective study - Sufficient prospective cohort studies were found and were therefore prioritised for inclusion

Excluded economic studies

No economic evidence was identified for this review.

Appendix K Research recommendations – full details

Research recommendations for review question: What is the association between markers of ovarian reserve and: the likelihood of spontaneous conception; the response to fertility treatment; the outcome of fertility treatment?

No research recommendations were made for this review question.