

Polyendocrine Metabolic Ovarian Syndrome (PMOS)

Formerly Known as PCOS

Assessment, Management & Fertility

Polyendocrine Metabolic Ovarian Syndrome (PMOS) is a hormonal disorder and the most common hormone condition in reproductive women, prevalent in about 12% of adult women¹.

Polyendocrine Metabolic Ovarian Syndrome (PMOS) is a common endocrine and metabolic condition with varied clinical presentations. Not all symptoms are required for diagnosis. While the exact cause is unknown, genetic factors, insulin resistance and a family history of diabetes are thought to contribute to its development.

How common is Polyendocrine Metabolic Ovarian Syndrome (PMOS)?

Global prevalence:

- ~ 12% of adult women¹.
- > 170 million women worldwide¹.

Immediate relatives (for example sisters or daughters) of females with PMOS are 50% more likely to have the condition themselves.

Symptoms

Not all symptoms of PMOS need to be present for diagnosis. These can include:

- Oligomenorrhoea or amenorrhoea
- Clinical hyperandrogenism, including hirsutism
- Acne, androgenic alopecia and/or seborrhoea
- Weight gain or difficulty maintaining a healthy weight

PMOS is also associated with increased long-term health risks, including insulin resistance, type 2 diabetes mellitus, cardiovascular disease and metabolic syndrome.

References 1. Helena J Teede, Mahnaz Bahri Khomami, Rachel Morman, Joop S E Laven, Anju E Joham, Michael F Costello, Madhuri Patil, D. Aled Rees, Lorna Berry, Melanie G Cree, Han Zhao, Robert J Norman, Anuja Dokras, Terhi Piltonen, et al., Polyendocrine metabolic ovarian syndrome, the new name for polycystic ovary syndrome: a multistep global consensus process, The Lancet, 2026, [https://doi.org/10.1016/S0140-6736\(26\)00717-8](https://doi.org/10.1016/S0140-6736(26)00717-8). (orca.cardiff.ac.uk)

Diagnosis

In adults, PMOS is diagnosed when two of the following three criteria are present, after exclusion of other causes:

1. Clinical/biochemical hyperandrogenism

Hirsutism, acne, androgenic alopecia, and/or elevated androgen levels.

2. Ovulatory dysfunction, oligomenorrhoea or amenorrhoea

- >1 to <3 years post-menarche: cycles <21 or >45 days
- >3 years post-menarche to perimenopause: cycles <21 or >35 days or <8 cycles/year

Secondary amenorrhoea

- >90 days for any one cycle is secondary amenorrhoea
- Primary amenorrhoea: no menarche by 15 or >3 years post-thelarche

3. Polycystic ovaries on ultrasound.

≥20 follicles in one or both ovaries and/or ovarian volume >10 mL on ultrasound, or elevated AMH levels

Where ovulatory dysfunction and hyperandrogenism are present, ultrasound and AMH testing are not required for diagnosis.

In adolescents, both features are required, with ultrasound and AMH not recommended.

Alternative endocrine causes should be excluded before diagnosing PMOS.



Algorithm 4: Pharmacological treatment for non-fertility indications^{II}

Off-label prescribing: COCPs, metformin and other pharmacological treatments are generally off-label in PMOS, as pharmaceutical companies have not applied for approval in PMOS. However, off-label use is predominantly evidence-based and is allowed in many countries. Where it is allowed, health professionals should inform women and discuss the evidence, possible concerns and side-effects of treatment.

In those with a clear PMOS diagnosis or in adolescents at risk of PMOS (with symptoms)

Education + lifestyle + first-line pharmacological therapy for hyperandrogenism and irregular cycles

COCP First-line

Note: No COCP preparation is superior in PMOS. Progestin only oral contraceptives may be considered for endometrial protection, (based on general population guidelines, with limited evidence in PMOS)

Use lowest effective oestrogen dose (20-30 micrograms ethinyloestradiol or equivalent)

Consider natural oestrogen preparations balancing efficacy, metabolic risk profile, side-effects, cost and availability

Follow WHO COCP general population guidelines for relative and absolute contraindications and risks

35 micrograms ethinyloestradiol plus cyproterone acetate not first-line in PMOS due to increased adverse effects

Hirsutism requires COCP and additional cosmetic therapy for at least 6 months

Consider additional PMOS related risk factors such as high BMI, hyperlipidemia and hypertension

Second-line Pharmacological Therapies

COCP + Lifestyle + Metformin

The combination of COCP and metformin appears to offer little additional benefit over COCP or metformin alone, in adults with PCOS with a BMI ≤ 30 kg/m². COCP – first-line for management of hirsutism and irregular menstrual cycles. Metformin – metabolic. Most beneficial in high metabolic risk groups including those with diabetes risk factors, impaired glucose tolerance or high-risk ethnic groups.

COCP + Anti-Androgens

Anti-androgens could be considered to treat hirsutism in women with PMOS, if there is a suboptimal response after a minimum of six months of COCP and/or cosmetic therapy. Whenever pregnancy is possible, women must be used strongly counselled regarding the use of concurrent effective contraception to prevent male fetal virilisation. Combination therapy can be tried in androgenic alopecia.

Metformin + Lifestyle

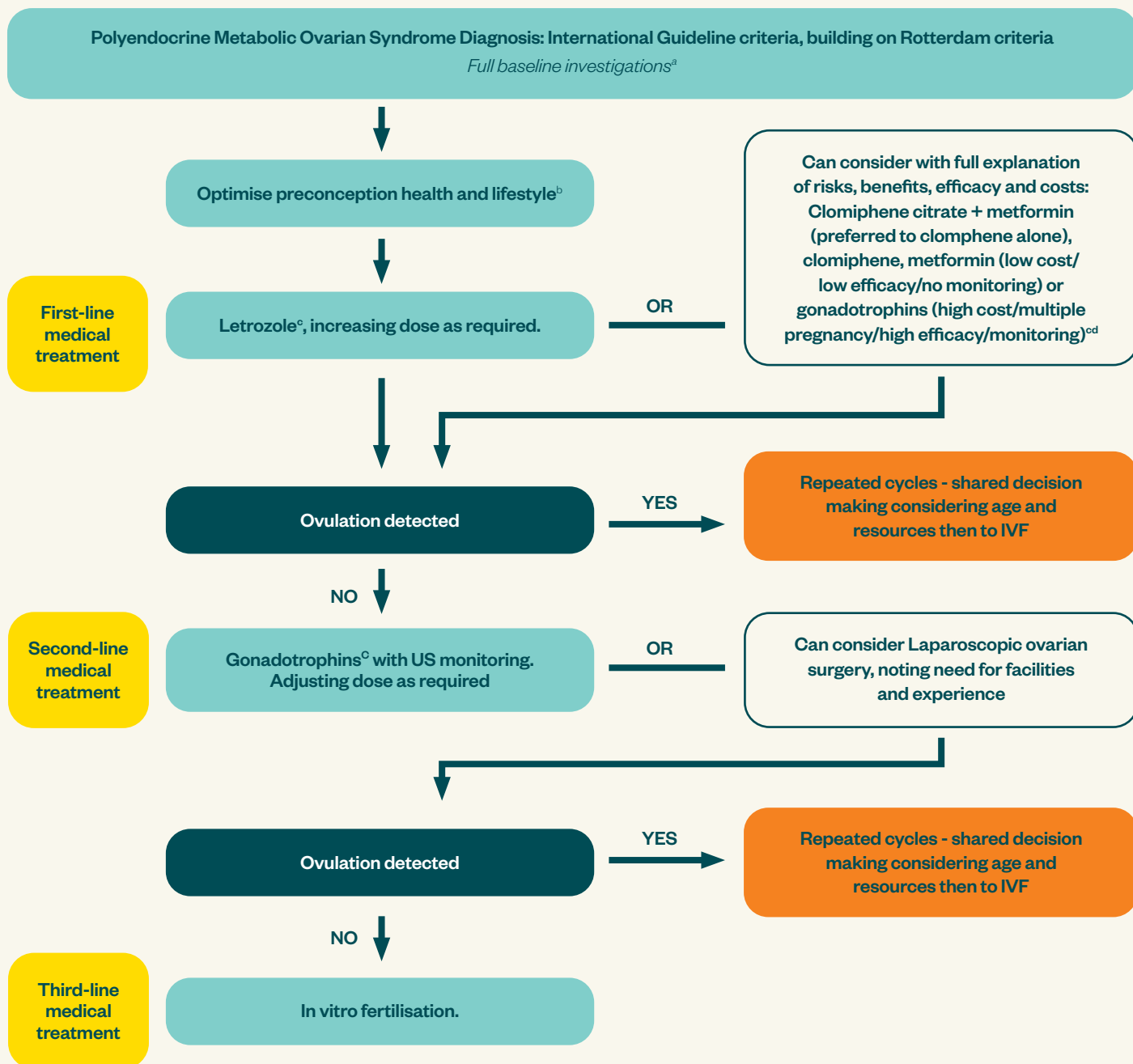
With lifestyle, in adults should be considered for weight, hormonal and metabolic outcomes and could be considered in adolescents. Most useful with BMI ≥ 25 kg/m² and in high risk ethnic groups. Side-effects, including GI effects, are dose related and self-limiting. Consider starting low dose, with 500 mg increments 1-2 weekly. Suggested maximum daily dose: 2.5 g in adults, 2 g in adolescents. Metformin appears safe long-term. Ongoing monitoring required and has been associated with low vitamin B12.

Anti-obesity medications could be considered, in addition to active lifestyle intervention, for the management of higher weight in adult women with PCOS, considering cost, contraindications, side-effects, availability and regulatory status and avoiding pregnancy when on therapy. Inositol (in any form) may be considered in women with PCOS based on individual preferences and values, given limited harm, potential for reduced biochemical hyperandrogenism and metabolic measures, with limited clinical benefits for ovulation, hirsutism or weight. Mechanical laser and light therapies should be considered for reducing facial hirsutism. Wavelength and delivery of laser treatment should be recommended taking into account skin colour. Laser is relatively ineffective in women with blond, grey or white hair. The addition of COCP, with or without anti-androgens, to laser treatment may provide greater hair reduction and maintenance compared to laser alone.

Monash Centre for Health Research and Implementation (MCHRI), Algorithms for the Assessment and Management of Polycystic Ovary Syndrome (PCOS), Monash University, Monash Health, October 2023, <https://mchri.org.au/wp-content/uploads/2023/10/Algorithms.pdf>

Algorithm 5: Management of Infertility in Polyendocrine Metabolic Ovarian Syndromeⁱⁱ

The Central Pathway follows best practice evidence and is the preferred treatment approach



a. Baseline investigations (see narrative):

i. Diagnosis of PMOS — Endocrine profile and pelvic ultrasound scan

ii. Assessment of BMI, BP and glycemic status (OGTT/HbA1c)

iii. Routine preconception assessments (Rubella immunity, infection screen etc.), advice and supplementation. iv. Additional investigations: semen analysis and consider tubal patency assessment

b. Healthy lifestyle encompassing healthy eating and regular physical activity should be recommended in all those with PMOS to limit adverse impacts on fertility and fertility treatment outcomes and to optimise health during pregnancy

c. Off-label prescribing: letrozole, metformin and other pharmacological treatments are generally off-label in PMOS, as pharmaceutical companies have not applied for approval in this condition. However, recommended off-label use is evidence-based and allowed in many countries. Where it is allowed, health professionals should inform women and discuss the evidence, possible concerns and side-effects of treatment.

d. Compared to letrozole, metformin has lower efficacy, cost and multiple pregnancy rate and gonadotrophins have higher efficacy, cost and multiple pregnancy rate. Both may be an alternative first-line choice for informed women.

e. In vitro fertilisation (IVF) — Third-line unless other infertility factors (e.g. male, tubal). PMOS specific protocols to minimise risk of ovarian hyperstimulation syndrome, consider in vitro maturation if available.

Polyendocrine Metabolic Ovarian Syndrome (PMOS)

How does Polyendocrine Metabolic Ovarian Syndrome (PMOS) affect fertility?

Up to 70% of women with PMOS experience subfertility.

Ovulatory dysfunction is the primary cause, with hyperandrogenism, insulin resistance, obesity and metabolic dysfunction also contributing to reduced fertility.

Hormonal and metabolic irregularity associated with PMOS can disrupt follicular development and ovulation, reducing the likelihood of spontaneous conception.

There is no cure for PMOS; However, lifestyle modification and evidence-based treatments can improve reproductive outcomes and help manage symptoms.

Investigations

- TSH, free T4 – Thyroid function tests
- Prolactin
- FSH, LH, E2, P4 – Reproductive hormone panel
- Free androgen index
- 17 OH P – 17-Hydroxyprogesterone
- DHEAS – Dehydroepiandrosterone sulfate
- Fasting insulin, glucose
- Fasting lipids
- AMH – Not recommended for adolescents
- Ultrasound – Not recommended for adolescents

When to refer

- Fertility
- Diagnostic doubt
- Complications
- Failed first line interventions

How to refer

Direct referral: You can refer to a Repromed Specialist via letter, fax, email or Best Practice.

If you are referring a couple, please include both patients' names on the referral letter for Medicare rebates.

Management and treatment

A multidisciplinary approach is best practice for patient care.

*See Algorithm 5 for management of infertility in PMOS which includes lifestyle to optimise preconception health followed by first line pharmacotherapy such as letrozole ovulation induction.

A healthy lifestyle focusing on:

- diet and regular physical activity
- optimisation of body weight (5-10% loss of initial body weight can help restore regular ovulation and increase chances of pregnancy)
- limiting unhealthy habits (smoking and vaping, excessive drinking, inactivity).

Algorithms for health practitionersⁱⁱ



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Diagnosis & Management
Algorithms

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Monash Centre for Health Research and Implementation (MOHRI), Algorithms for the Assessment and Management of Polycystic Ovary Syndrome (PCOS), Monash University, Monash Health, October 2023, <https://mohri.org.au/wp-content/uploads/2023/10/Algorithms.pdf>

For more information or to make a referral

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