THEORETICAL FRAMEWORK · RAPID RESEARCH PRESENTATION

A three-axis framework for reproductive impairment: subfertility, infertility, sterility, and the clinical scope of restorative reproductive medicine

Infertility is one word hiding several problems, and naming and staging each one gives a couple a plan.

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RRM Academy
22nd International Clinical & Scientific Congress for Restorative Reproductive Medicine
Orlando, Florida · October 9 to 10, 2026

The problem

A duration becomes the diagnosis.

Infertility is defined by one number: twelve months without pregnancy, six after age thirty-five.

The 2017 ICMART/WHO glossary keeps the words subfertility, infertility, and sterility, but treats them as synonyms.

The 2023 ASRM definition folds in couples who need donor eggs, sperm, or embryos.

So every couple at twelve months gets the same label, whether the problem can be fixed, partly works, or is gone.

The 3 axes

Today the clock is the diagnosis. In this framework **the disease is the diagnosis**, and the clock is one of three things written down.

AXIS 1	Time	How long the couple has been trying.
AXIS 2	The parts	Is each part of the reproductive system working, blocked, or missing? Working means subfertility. Blocked means infertility. Missing means sterility.
AXIS 3	How severe	How bad that problem is, using the staging systems that already exist, the way cancer is staged.

None of this needs a new test. Every piece comes from the workup a couple already gets. What is new is writing all three down together, so a couple's problem is never reduced to a number of months. Conditions with no staging system yet, such as cervical stenosis or luteal phase deficit, get a place in the framework now and a staging system later, the way cancer staging grew one cancer at a time.

The 3 tiers, defined

Axis 2 sets the tier. The tier says what restoration can reach.

STATE OF THE PARTS → THE TIER · WHAT RESTORATION CAN REACH

Functional — present and working
Subfertility
The parts are present and working. The problem is functional, so it can be corrected.
Restorative medicine covers nearly all of this tier.

Obstructed — present but blocked
Infertility
A part is present but blocked or impaired. Much of it can be repaired or restored.
Restorative medicine repairs much of this tier.

Absent — not present at all
Sterility
A part is absent. Nothing is there to restore.
Nothing left to restore. Substitution is not treatment.

How each axis is measured

AXIS	WHAT IT MEASURES	HOW IT IS SCORED, FIGURE 1
1 **Time to pregnancy** *without intervention*	Duration of non-conception	ASRM time cutoffs, kept exactly, used as one coordinate of three. < 6 mo · 6 to 12 mo · 12 to 24 mo
2 **Biological substrate status**	Whether the substrate is present and working, present but blocked, or absent	One of three states: working, blocked, or absent. Read from semen analysis (WHO 2021), AMH and AFC. Also pelvic imaging, hysterosalpingography, hysteroscopy, and biopsy where indicated. Functional · Obstructed · Absent
3 **Pathology severity** *within tier*	Severity of the pathology inside its tier	Existing condition-specific systems: rASRM, Rotterdam, WHO 2021, March/AAGL, POSEIDON/Bologna, ESHRE/ESGE. her, Stage I to III · him

One couple's diagnostic chart

A couple's diagnoses plotted on the framework: the underlying problems and their severities, for both partners. Time to pregnancy, fourteen months. What each model tells them:

SINGLE-AXIS MODEL

"You have infertility. It has been fourteen months."

INFERTILITY — 1 CODE

THREE-AXIS FRAMEWORK

"You have four findings. Three are yours, one is his. Each has a name, a stage, and its own treatment plan."

4 COORDINATES

HER

1. **Subclinical hypothyroidism** — subfertility · functional · Stage I
2. **Cervical mucus deficit** — subfertility · functional · Stage II
3. **PCOS Phenotype A (polycystic ovary syndrome, also termed polyendocrine metabolic ovarian syndrome, PMOS)** — infertility · obstructed · Stage II

HIM

4. **Mild oligospermia** — infertility · obstructed · Stage I

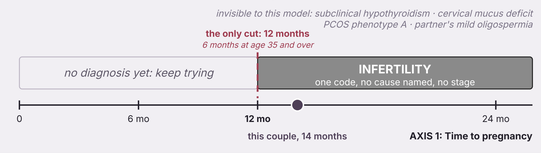
One couple, four coordinates on one card. The same card can go home with the patient or on to the next clinician. The numbers match the bars in Figure 1.

Four diagnoses, two tiers, both partners. Each is independently addressable and each carries its own prognosis. Clinical action attaches to the pathology, not to the fourteen months.

One couple, two models

The same four problems, recorded two ways. Read the grey line first, then the chart.

SINGLE-AXIS MODEL · ONE LINE, ONE CUT



versus

THREE-AXIS FRAMEWORK · FOUR COORDINATES

WHERE = time and part · HEIGHT = how severe · COLOR = her or him · NUMBER = the diagnosis, listed at left

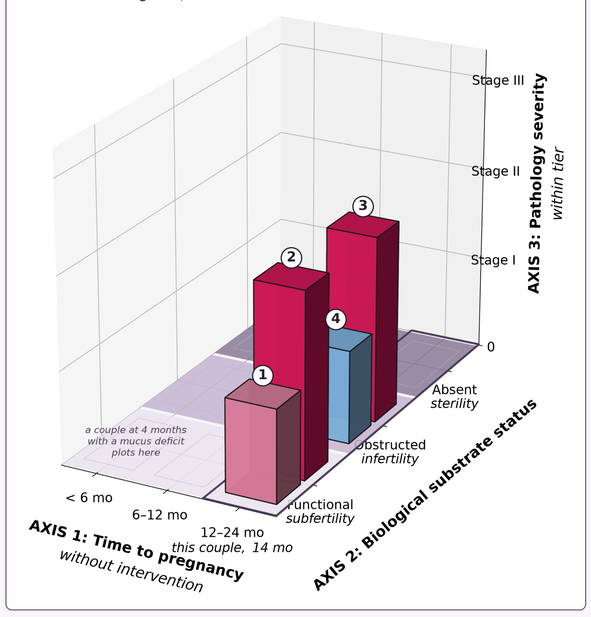


Figure 1. The same couple at fourteen months on both models. Top, the single-axis model has one line and one cut: before twelve months there is no diagnosis, after it there is one word with no cause named and no stage. Below, the three-axis framework: bar position gives time to pregnancy and substrate state, height and shade give severity stage, color shows which partner carries the diagnosis, and each bar is numbered to match the diagnostic chart in the middle column. The floor of each row carries its tier color: light for subfertility, plum for infertility, dark for sterility. All four bars sit in the 12 to 24 month column because this is one couple at fourteen months; the empty columns show where shorter durations would plot. Staging did this for cancer and for endometriosis: Stage I is not Stage IV, and a named, staged diagnosis carries a plan and a reason for hope where a single word carries a verdict.

What the framework changes

Scope becomes statable. The tier says what restoration can and cannot reach.



Two ways to picture fertility. Left, the switch model: one toggle, fertile or infertile, suppress or allow. Right, the system model: read the cycle by its signs, mark each part working, blocked, or absent, and grade how bad each problem is.

Family planning runs on the same switch, where suppression turns fertility off. This framework, and a companion poster at this congress on the words used for family planning methods, both trade that switch for a system you can read, and repair where it's broken.

SUBFERTILITY AND INFERTILITY
Restorable
Endometriosis excision · PCOS management · varicocele repair · hormonal restoration · surgical reconstruction
Covered near-completely at the subfertility tier; broadly capable at the infertility tier.

STERILITY
Not restorable
Non-obstructive azoospermia · Müllerian agenesis · fully depleted ovarian reserve · complete tubal destruction
Outside any restorative pathway. Claims of universal scope here rest on substitution, not treatment.

In the clinic.

For the clinician: one glance at the chart gives tier, stage, and what restoration can reach, so the prognosis follows the pathology, not the calendar.

For the patient: a map of their own case, complex enough to be true and clear enough to carry, so "just do IVF" stops being the only sentence they hear.

For research: cohorts sorted by substrate and severity rather than pooled at a duration threshold.

Attribution and limits

The framework is the authors' own work. It was not recovered from prior literature. The framework belongs to no one school. Any approach to fertility care plots on the same three axes and must say what it can reach. Limits: this is a narrative review and a conceptual analysis, with no prospective validation. Staging exists for some conditions, not all. Tier coverage is qualitative. Numbers are given only for the sterility tier.

References

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Next steps

A full paper is in preparation: Stage I to III definitions with tier-transition criteria, transient subfertility windows, diagnostic thresholds for each sterility-tier condition, and a word-for-word re-check of the 2023 ASRM text. Clinician comment on the axis definitions is invited at this congress.

Disclosure. The authors declare no competing financial interest. Speaker honorarium and travel support for this congress were provided by IIRRM. A generative AI language model assisted with structural drafting and prose editing; all conceptual claims, citations, and quantitative data were generated and verified by the authors.

Abstract and paper
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