METHODS FRAMEWORK · RAPID RESEARCH PRESENTATION

The ART Reporting Completeness (ARC) Framework: an approach for analyzing how international ART outcome registries report and present results, to support rigorous appraisal and valid comparison studies in restorative reproductive medicine

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The problem

Two IVF success rates from two countries can't be compared.

Eleven scoreboards on five continents publish an IVF success rate. Each registry builds that rate on a different base. They differ in who has to report, how many clinics are in, what the rate is counted per, and how they add up a woman's tries.

In the United States, SART and the CDC added a rate that adds up every transfer from one egg retrieval. It still counts retrievals, not women. A woman with two retrievals is two rows.

The rate closest to how RRM counts follows one woman across all her tries. Three of eleven registries publish it. Two of those stop counting after a year.

CROSS-REGISTRY CHECK · LIVE BIRTH ONLY

Same year. Same baby. Three numbers.

SART CORS
United States, 2021

27.5%

per **egg retrieval**, first transfer only

CDC
United States, 2021

33.2%

per **egg retrieval**, every transfer within a year

Computed from CDC's published age bands

HFEA
United Kingdom, 2021

22%

per **fresh embryo transfer**; a retrieval with nothing to transfer never counts

Preliminary

Same endpoint, patient's own eggs, all ages. None of the three is wrong.

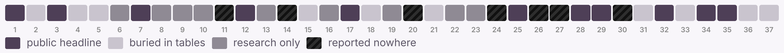
None is the odds one woman has of taking home a baby after all her tries.

What ARC does

ARC is a checklist. It asks seven questions of every registry's published report and writes down the answer in the registry's own words, or marks it absent. It's descriptive: it ranks no registry and doesn't say what a registry should collect. The result is a reading key. Before you set two success rates side by side, it tells you whether they can be compared at all. Registries have been compared on their results before (ICMART yearly; Kushnir 2017; De Geyter 2020). To our knowledge, this is the first framework to grade the completeness of the reporting itself, across all the major registries at once.

QUESTION	IN PLAIN WORDS	WHY IT MATTERS
5. Denominator	What is the rate per? A cycle started, an egg retrieval, or an embryo transfer.	The same clinic, same year, gives a different number on each base.
6. Cumulative rate	Does the registry follow one woman across all her tries, and publish that?	This is the rate closest to how RRM counts. Three of eleven publish it.
7. Child outcomes	Does follow-up continue past the birth: weight, prematurity, defects?	A live birth rate says nothing about how the baby is.
1. Mandate	Who has to report? Required by law, or voluntary.	Voluntary registries can miss the clinics with the worst results.
2. Coverage	How many clinics and cycles are actually in?	A national rate from half the clinics isn't national.
3. Data structure	Is a row a cycle, or a woman followed over time?	Only a woman-linked registry can count her whole journey.
4. Treatment types	Which procedures count? IVF only, or frozen, donor, and IUI too?	Mixing them changes the rate without changing the care.

37 steps to a baby. The public sees 8 to 10.



1	**Cycle started**	14	Embryos discarded after testing	27	Transfer cancelled, thin lining
2	Cancelled before retrieval	15	Assisted hatching used	28	**Embryo transferred**
3	**Eggs retrieved**	16	Hatching outcome	29	**How many embryos transferred**
4	No usable eggs	17	**Frozen or fresh**	30	Why it didn't implant
5	How many eggs	18	Embryos survive thaw	31	Positive blood test
6	Eggs mature	19	Embryos left over	32	**Heartbeat seen**
7	**ICSI or standard**	20	Semen analysis values	33	Miscarriage
8	Eggs fertilized	21	Male factor severity	34	**Baby born**
9	Embryos stop at day 2 to 3	22	Surgical sperm retrieval worked	35	**Twins or more**
10	**Embryos reach day 5**	23	Sperm selection outcome	36	Mother harmed
11	Embryo graded, kept or discarded	24	Why fertilization failed	37	Child followed up
12	**Genetic testing used**	25	**Male factor label**		
13	Embryos pass genetic testing	26	Donor sperm tracked		

Dark = published as a headline somewhere. Grey = buried in clinic tables, research only, or reported nowhere. Row 10, embryos that reach day five: no registry publishes it. Enumeration by the authors; counts are bounded to it.

What we found

No two registries report success on the same terms. Eleven registries use eight different kinds of reporting rules, some required by law, some voluntary. HFEA follows one patient across her linked cycles. Sweden's Q-IVF covers nearly every clinic and links to the country's birth, patient, and cancer registers. ICMART pools other scoreboards, so it inherits their gaps. The rate closest to how RRM counts isn't reported the same way everywhere.

A second gap sits under the headline number. Between the start of a cycle and a live birth there are about 37 steps where something can fail. Only about eight to ten ever reach a public report. The lab, sperm, and transfer steps in the middle are almost all missing.

- **Of about 37 steps, only 8 to 10 reach a public report.**
- **Eleven registries, eight sets of rules, no shared way to count.**
- **Only 3 of 11 publish a per-woman rate. Two stop at one year.**

What each scoreboard actually publishes

	GETTING PREGNANT, LIVE BIRTH PER				EMBRYOS	STAYING PREGNANT			HARM TO HER			AFTER BIRTH		
	Per cycle	Per retrieval	Per transfer	Per woman	Embryos lost	Miscarriage	Loss by week	Stillbirth	OHSS	Complications	Preterm	Baby died	Healthy baby	NICU
SART (US)	●	●	●	◐		●					●			
CDC (US)	●	●	●	◐		●		●			●			
HFEA (UK)			●											
France		◐	●		●	◐	◐	●						
Germany	●	●	●	◐		●		●	●	●	●			
Canada		●	●			●		●			●			●
Australia, NZ	●	●	●	●		●		●			●	●	●	
Japan	●		●			●		◐						
Sweden		◐	●			◐	◐	◐	◐	◐				
Europe (ESHRE)		●	●	◐		●			●	●	●			
Latin America		◐	●		◐	◐		◐			●			
World (ICMART)	?	●	●	◐	?	?	?	?	?	?	◐	?	?	?
REGISTRIES THAT PUBLISH IT	5 of 12	10 of 12	12 of 12	6 of 12	2 of 12	10 of 12	2 of 12	8 of 12	3 of 12	3 of 12	8 of 12	1 of 12	1 of 12	1 of 12

● published as a rate ◐ partly: counts only, one subgroup, freeze-all removed, or capped at one year blank = not published, a blind spot: nobody counts it
? full report not reachable. Most recent report of each registry, read September 2026.

In one example

A woman under 35, United States, 2021, her own eggs. One scoreboard, one year, three answers to "what are my chances?"

39.8%	per cycle started, counting only her first transfer
54.0%	per cycle started, counting every transfer from that retrieval within a year
68.5%	per new patient, counting all her retrievals and transfers that year
?	**Her real number.** One woman, all her tries, a healthy baby home. Not printed by any of the eleven.

All three rates are printed on the same SART page. The closest anyone gets is Australia, which follows each woman for up to four years: 39 in 100 have a baby after their first full cycle, and after six cycles the figure is 60 in 100 if every woman who quit is counted as a failure, or 78 if you assume she'd have done as well as those who stayed. Even there, "healthy baby" is counted per baby born, never per woman.

Registries examined

Eleven registries across three tiers, national, multi-country, and meta-registry, covering all eight mandate architectures. Each contributes its published methodology and most recent annual report at the time of review, in English, French, German, Japanese, Spanish, and Portuguese primary sources.

NASS and SART CORS United States, CDC 2023 report and SART CORS methodology

Agence de la biomédecine France, 2023 report, published 2025

HFEA United Kingdom, Fertility Treatment 2022

DIR Germany, Jahrbuch 2024

CARTR Plus Canada, CFAS annual report 2025, 2024 data

ANZARD Australia and New Zealand, NPESU, 2023 data

JSOG ART registry Japan, 2021 summary (Katagiri 2024)

Q-IVF Sweden, Annual Report 2024, treatment year 2022

ESHRE EIM Europe, ART in Europe 2019 and 2020

REDLARA Latin America, 2019 to 2022 report

ICMART World Report global, 2018 and 2019

What a patient actually wants to know

Will I take home a healthy baby?

She's asking for one number, for one woman, over all her tries, and three of eleven registries publish it, with two of those stopping after a year.

What could it cost me?

Harm to her body, embryos lost, miscarriage, money, time: most scoreboards publish none of it.

So she can't weigh one against the other.

That's what eleven ways of counting does to the person the numbers are about.

Before you compare any two rates, ask what they're counted per and for which women; RRM counts couples over time, so an RRM number should say whether it counts everyone who started or only the couples who stayed.

Limits and next steps

ARC characterizes what an outside reader can see in a registry's published reports, not what a registry collects internally: SART CORS, CDC, and HFEA each hold material beyond the headline metric. The checkpoint enumeration is analyst-constructed, so its counts are bounded to that enumeration. Registry editions differ in reporting year.

The full paper carries an extended axis set and adds candidate procedural-cascade axes, still to be scored against the registry sample. A companion paper takes up what registries should publish. A parallel completeness check of RRM-side reporting, including the iNEST consortium, is a separate exercise.

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Abstract and paper
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