

Myths About Success Rates – Do they truly reflect quality of care

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Disclosures

- Founder of Auxogyn (Progyny)
- Founder of Ivigen



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Dr Look Good vs. Dr Treat All

Is this what it is all about?



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What does success mean?

Depends on your perspective



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Good fert: Perfect 2PN !



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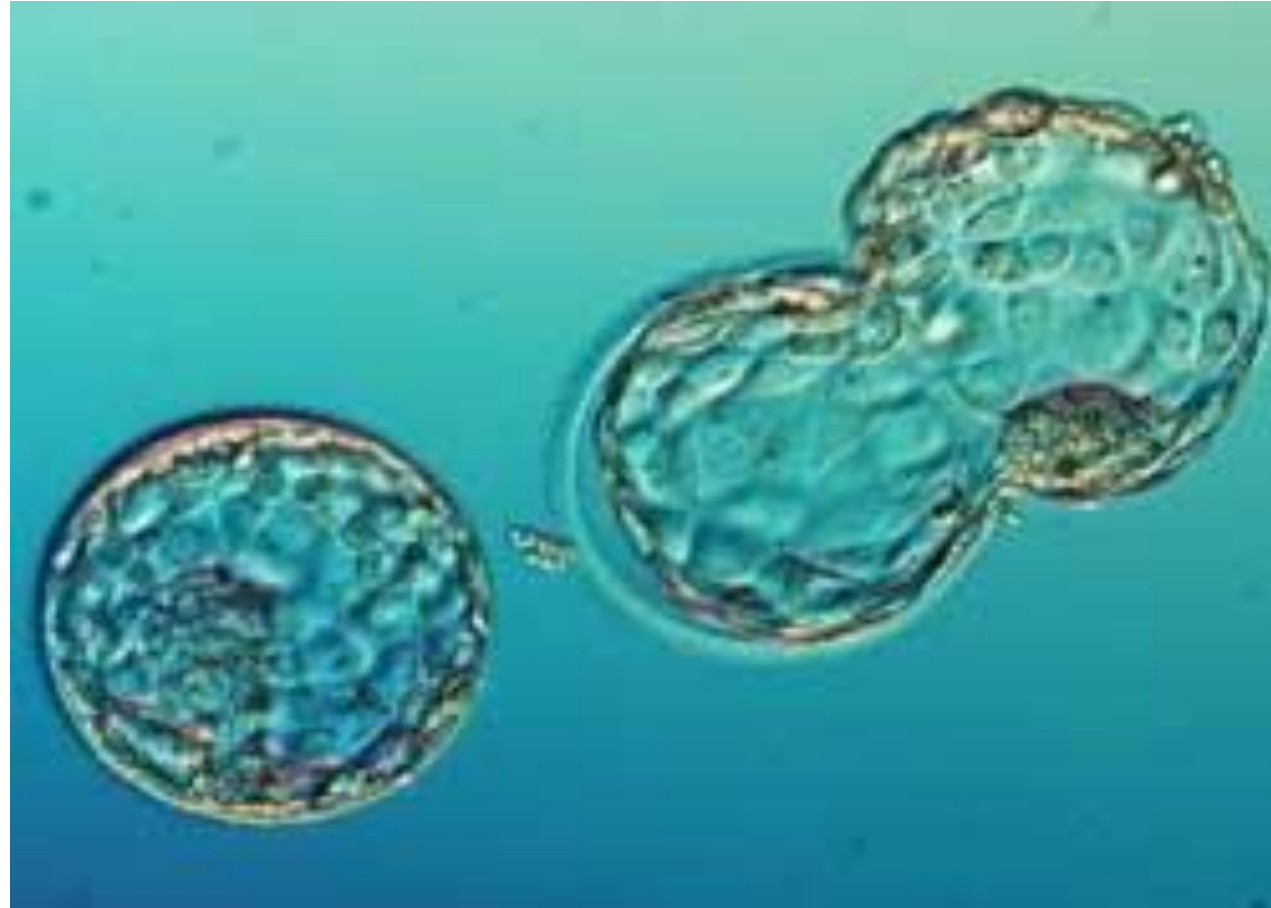
Good Looking Day 3 Embryos



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Hatching Blastocysts (on time)



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Ultimate (short term) Goal

- Achieve a healthy singleton pregnancy
- Transfer fewer embryos (1 or 2)



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IVF lab cant change the “raw materials”

- Have to consider the “front end” of the process
- The patient never dies in the OR
 - Always the labs “fault”



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The Perspective

- The Patient's
- The IVF Program
- The “Agency”
- What about the child



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Technology

- High vs low complex
 - The ICSI phone call.....
- Does achieving a positive outcome with a lower tech more “successful” than overkill (ie 100% ICSI or PGS)
- Now adding TLM, PGS, freeze all, ERA



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Killing a fly with a sledgehammer

- Is there such a thing as overkill
 - Is it “better” or is one more “successful” if you do more with less?
- How do we interpret success when unnecessary technology is applied?



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Success vs Success Rate



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Pregnancy Rate

- Per cycle start
- Per egg retrieval
- Per embryo transfer

Confounders:

- Freeze all/PGS
- Banking/batching
- Cycle conversions (to/from IUI)



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Implantation Rate

- Sac
- Heartbeat
- Location: Uterus vs Ectopic



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Outcome Reporting

- SART
 - disclaimer
- CDC
- Non Reporters
- Consequences (lack thereof) of non- compliance (fraud)



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What is the background (natural) “success rate”?



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Approximate pregnancy rates per cycle in “fertile couples”

- At peak fertility (20s): 20-25%
- Mid 30s: 15%
- Age 40: 5%
- Mid 40s: 1%

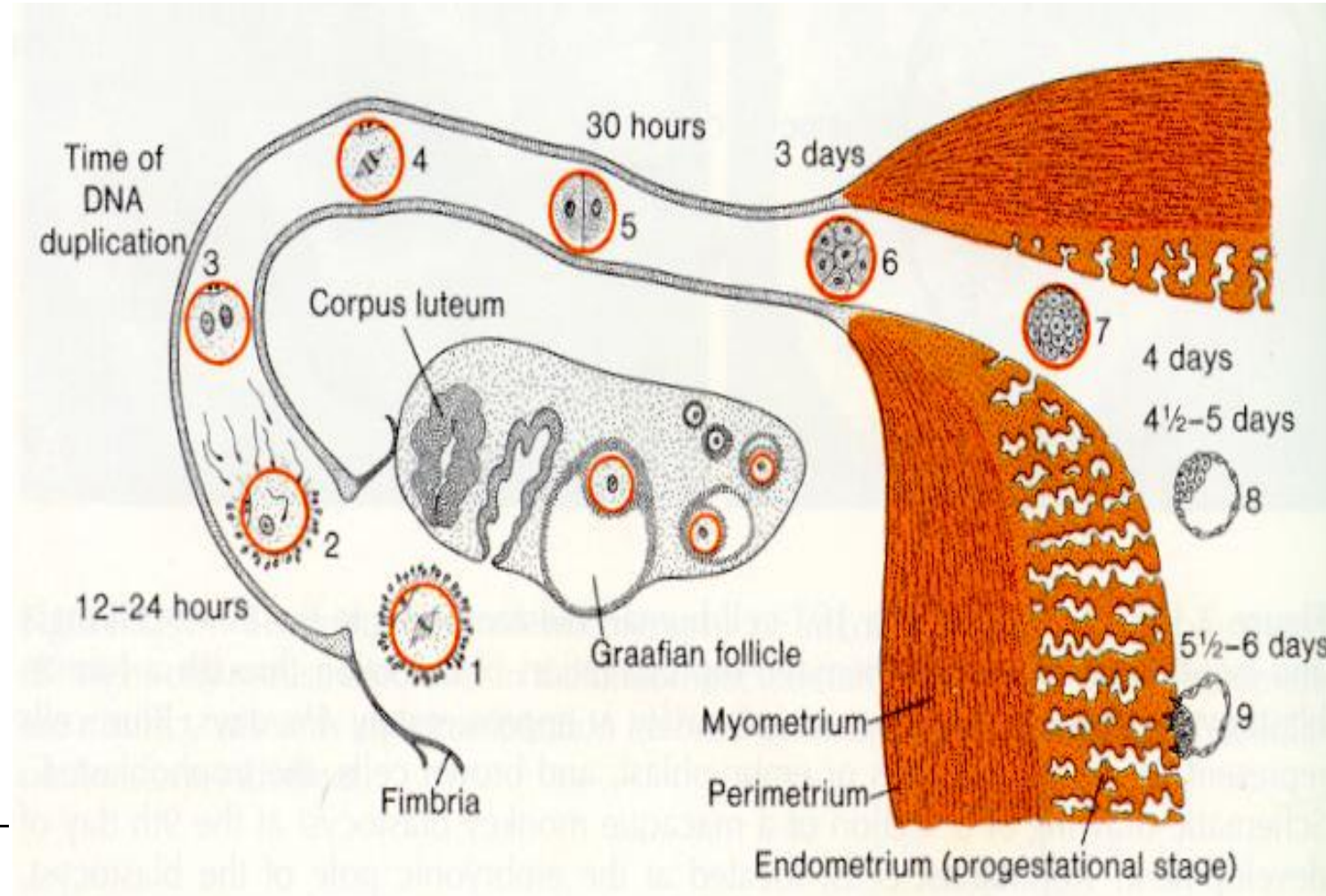
The most fertile couples will become pregnant quickly, rates drop the longer a couple has been trying



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Normal Reproductive Process



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Pregnancy rates for “sub-fertile couples” with no treatment

- Overall 2-3%, lower for older couples
- Depends on
 - Reason for lack of successful pregnancy
 - Age
 - Length of attempting (in general, lower rate if longer)



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Why do people consider In Vitro Fertilization (IVF)?

- Simpler treatment is not successful
- The reason for infertility cannot be treated using a simpler treatment (e.g. tubal disease, very poor sperm quality)
- A man and/or woman carriers serious genetic disease that they wish to avoid passing on to children
- Time to pregnancy



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No Risk Adjusters for IVF Reporting

- (other than age)
- Other areas of Medicine use modifiers



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Does success rate depend on Diagnosis?

- Problem with combined male and female diagnosis in SART



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Which Diagnosis has the most influence on “success rate”?

https://www.sartcorsonline.com/rptCSR_PublicMultYear.aspx?ClinicPKID=0
SART: IVF Success Rates
Clinic Summary Report

sart cors
Clinic Summary Report
 All SART Member Clinics

Filter CSR
 Treatment: All Treatment Types
 Diagnosis: All Diagnoses
 Year: 2013
Apply Filter Clear Filter

Total Cycles: **174962**

Treatment Type	Procedure Frequency	Diagnosis Frequency	
IVF >99%	ICSI 67%	Tubal Factor 6%	Male Factor 16%
GIFT <1%	Unstimulated 1%	Ovulatory Dysfunction 7%	Other Factor 7%
ZIFT <1%	PGD 6%	Diminished Ovarian Reserve 18%	Unknown Factor 13%
		Endometriosis 3%	Multiple Female Factor 12%
		Uterine Factor 1%	Female and Male Factor 17%

Fresh Embryos From Non-Donor Oocytes

	<35	35-37	38-40	41-42	>42
Number of cycles	36958	18508	16853	9026	5744
Percentage of cycles resulting in pregnancies	46.0	37.8	28.6	18.8	8.9
Percentage of cycles resulting in live births	40.1	31.4	21.2	11.2	4.5
Reliability Range	(39.6 - 40.6)	(30.7 - 32.0)	(20.6 - 21.8)	(10.5 - 11.8)	(3.9 - 5.0)
Percentage of retrievals resulting in live births	42.5	34.5	24.2	13.3	5.6
Percentage of transfers resulting in live births	47.7	39.2	28.5	16.3	7.3
Percentage of cycles with elective single embryo transfer	22.5	13.9	6.6	4.1	5.3
Percentage of cancellations	5.8	9.1	12.6	15.8	20.2
Implantation Rate	39.5	30.0	19.3	10.2	4.5
Average number of embryos transferred	1.8	1.9	2.3	2.7	2.8
Percentage of live births with twins	28.3	25.5	19.9	13.5	8.2
Percentage of live births with triplets or more	0.9	1.0	1.0	0.2	0.4

Thawed Embryos From Non-Donor Oocytes

	<35	35-37	38-40	41-42	>42
Number of Transfers	18801	9602	7116	2731	1765

2:24 PM
 4/6/2015



SART is the primary organization of professionals dedicated to the practice of assisted reproductive technologies (ART) in the United States. ART includes the practice of In Vitro Fertilization (IVF). The mission of our organization is to set up and help maintain the standards for ART in an effort to better serve our members and our patients.

One of the most important functions of our site is to help patients locate and contact infertility clinics and view national and individual clinic **IVF success rates**.

- [IVF Success Rate Reports](#) →
- [Predict My Success](#) →

FACT SHEETS AND BOOKLETS

SART is an affiliated society to the **American Society for Reproductive Medicine**. Below are links to publications authored by ASRM and its affiliated societies.

- LATEST ADDITIONS:**
- [Diagnostic Testing for Male Factor Infertility](#)
 - [Robotic surgery](#)
 - [The Intrauterine Device \(IUD\): A Long-acting Reversible Contraception](#)
 - [Insulin-sensitizing agents and polycystic ovary syndrome \(PCOS\)](#)
 - [Gestational carrier](#)
 - [Abnormal uterine bleeding \(booklet\)](#)
- [View All >>](#)

FEATURED ITEM



Browser window showing the website for the Society for Assisted Reproductive Technology (SART). The address bar displays <http://www.sart.org/>. The page features a navigation menu with links: Home, About Us, IVF Success Rates, For Patients, Research, Members, SART Links, and Publications. A search bar is located in the top right corner.

The main content area includes a header image with the text "Creating And Maintaining Standards for Assisted Reproductive Technologies". Below this, a paragraph states: "SART is the primary organization of professionals dedicated to the practice of assisted reproductive technologies (ART) in the United States. ART includes the practice of In Vitro Fertilization (IVF). The mission of our organization is to set up and help maintain the standards for ART in an effort to better serve our members and our patients." A subsequent sentence reads: "One of the most important functions of our site is to help patients locate and contact infertility clinics and view national and individual clinic **IVF success rates**."

Two prominent buttons are visible: "IVF Success Rate Reports" (circled in red) and "Predict My Success".

A sidebar on the right contains a section titled "FACT SHEETS AND BOOKLETS" with the following text: "SART is an affiliated society to the American Society for Reproductive Medicine. Below are links to publications authored by ASRM and its affiliated societies." Under "LATEST ADDITIONS:", the following items are listed: "Diagnostic Testing for Male Factor Infertility", "Robotic surgery", "The Intrauterine Device (IUD): A Long-acting Reversible Contraception", "Insulin-sensitizing agents and polycystic ovary syndrome (PCOS)", "Gestational carrier", and "Abnormal uterine bleeding (booklet)". A "View All >" link is provided at the bottom of this list.

Below the sidebar is a "FEATURED ITEM" section titled "What Is SART?" with a small SART logo.

The footer of the page contains the text: "©1996 - 2015 SART, Society for Assisted Reproductive Technology. All Rights Reserved." The system tray at the bottom right shows the time as 2:19 PM on 4/6/2015.



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- [View All >>](#)

FEATURED ITEM



SART not for comparing programs

The screenshot shows a web browser window displaying a SART clinic summary report. The browser's address bar shows the URL: https://www.sartcorsonline.com/rptCSR_PublicMultYear.aspx?ClinicPKID=2344. The page title is "Clinic Summary Report".

The report header includes the SART logo and the clinic name: "Stanford Medicine -Fertility & Reproductive Health Center (Palo Alto, CALIFORNIA)". Below the header is a "Filter CSR" section with dropdown menus for "Treatment" (set to "All Treatment Types"), "Diagnosis" (set to "All Diagnoses"), and "Year" (set to "2013"). There are "Apply Filter" and "Clear Filter" buttons.

The main content area shows "Total Cycles: 949" and a table of procedure and diagnosis frequencies. A pop-up window is overlaid on the table, containing the following text:

The data presented in this report should not be used for comparing clinics. Clinics may have differences in patient selection, treatment approaches, and cycle reporting practices which may inflate or lower pregnancy rates relative to another clinic. Please discuss this with your doctor.

Below the pop-up, the table lists various metrics under the heading "Fresh Embryos From Non-Donor Eggs". The table has columns for "Number of cycles", "Percentage of cycles resulting in pregnancies", "Percentage of cycles resulting in live births (Reliability Range)", "Percentage of retrievals resulting in live births", "Percentage of transfers resulting in live births", "Percentage of cycles with elective single embryo transfer", "Percentage of cancellations", "Implantation Rate", "Average number of embryos transferred", "Percentage of live births with twins", and "Percentage of live births with triplets or more".

The browser's taskbar at the bottom shows the Windows Start button, Internet Explorer, File Explorer, and other applications. The system tray in the bottom right corner shows the time as 3:02 PM on 4/6/2015.

Why?



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Effects of PGD/S on outcomes

Sex selection

Mutation avoidance

Real aneuploidy risk (age)



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Does Euploidy level the playing field?(across the ages)

So again, how to interpret success: is it only the pregnancy rate?



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Advances in PGD

- Embryo biopsy techniques
 - Move from Day 3 to Day 5 biopsy
- Single cell genetics
 - FISH
 - Snps
 - Arrays
 - Sequencing
- Cryopreservation
- Higher implantation rates



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What a difference a decade makes

	2000*	2015*
Implantation Rate (live birth per embryo transferred)	10-20%	30-50+%
Number of embryos transferred	2-4	1-2
Error rates	2-11%	1-2%
Miscarriage rate	20+%	5-10%



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Conclusions regarding statistics

- Statistics provide an estimate, but outcome for individuals can't be precisely predicted based on statistics for a group
- We want to provide as accurate an estimate as possible to help patients make informed decisions
- At Stanford, for example, we have no “cut-offs” for treatment based on success, regardless of what the statistics may predict



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Conclusions

- IVF Reporting is unique for Medicine
- National Data Summaries show trends
- Patients are the primary dictators of success
- PGS utility has and impact
- Preg per ER vs ET vs Total cycle potential



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