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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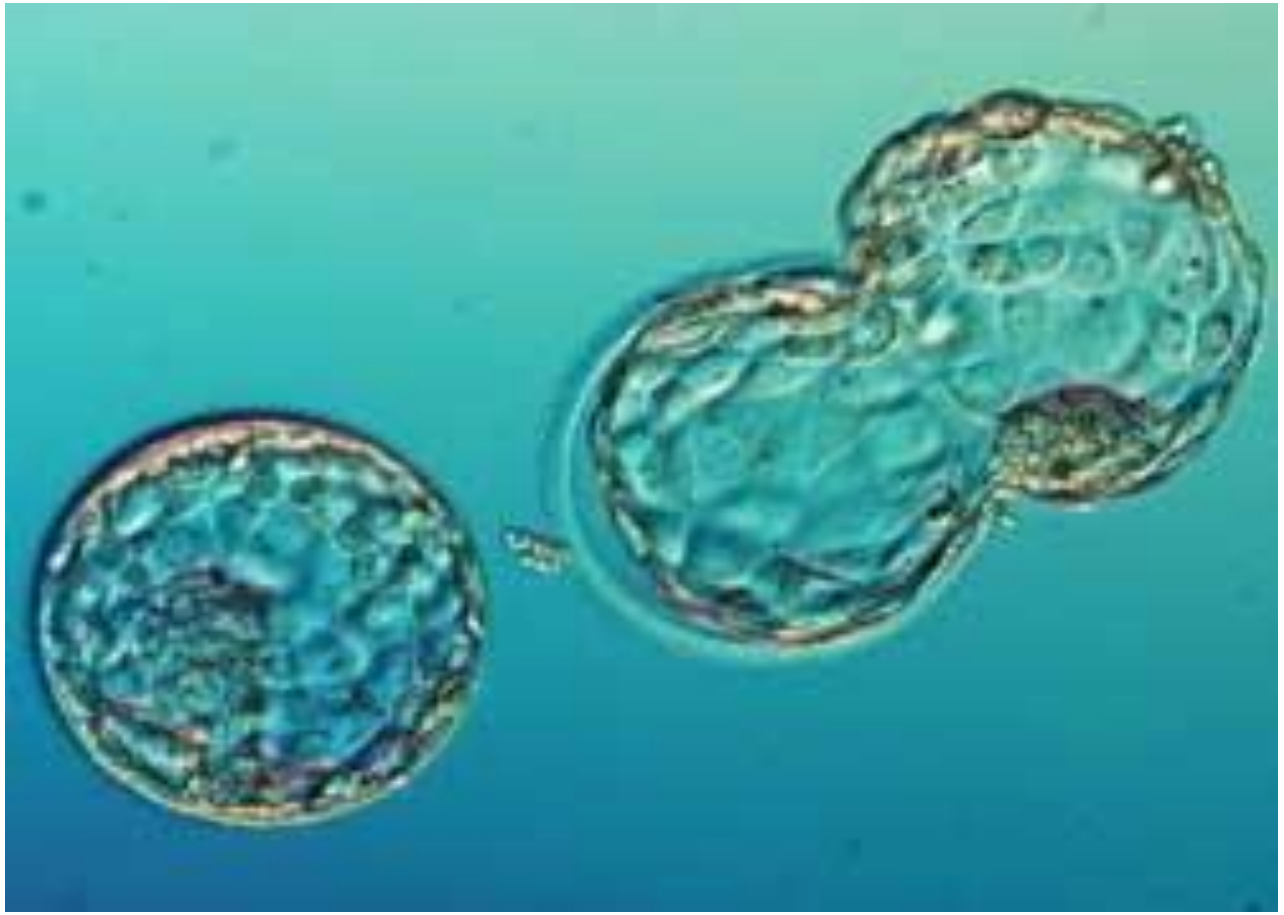
Hatching Blastocysts (on time)



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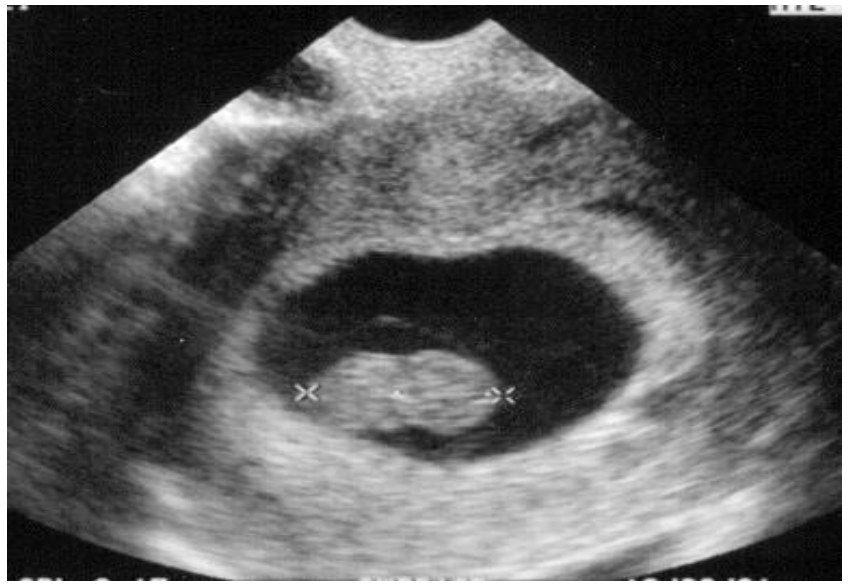
Ultimate (short term) Goal

- 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”

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

Killing a fly with a sledgehammer

- Is there such a thing as overkill
  - Ie 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)

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)

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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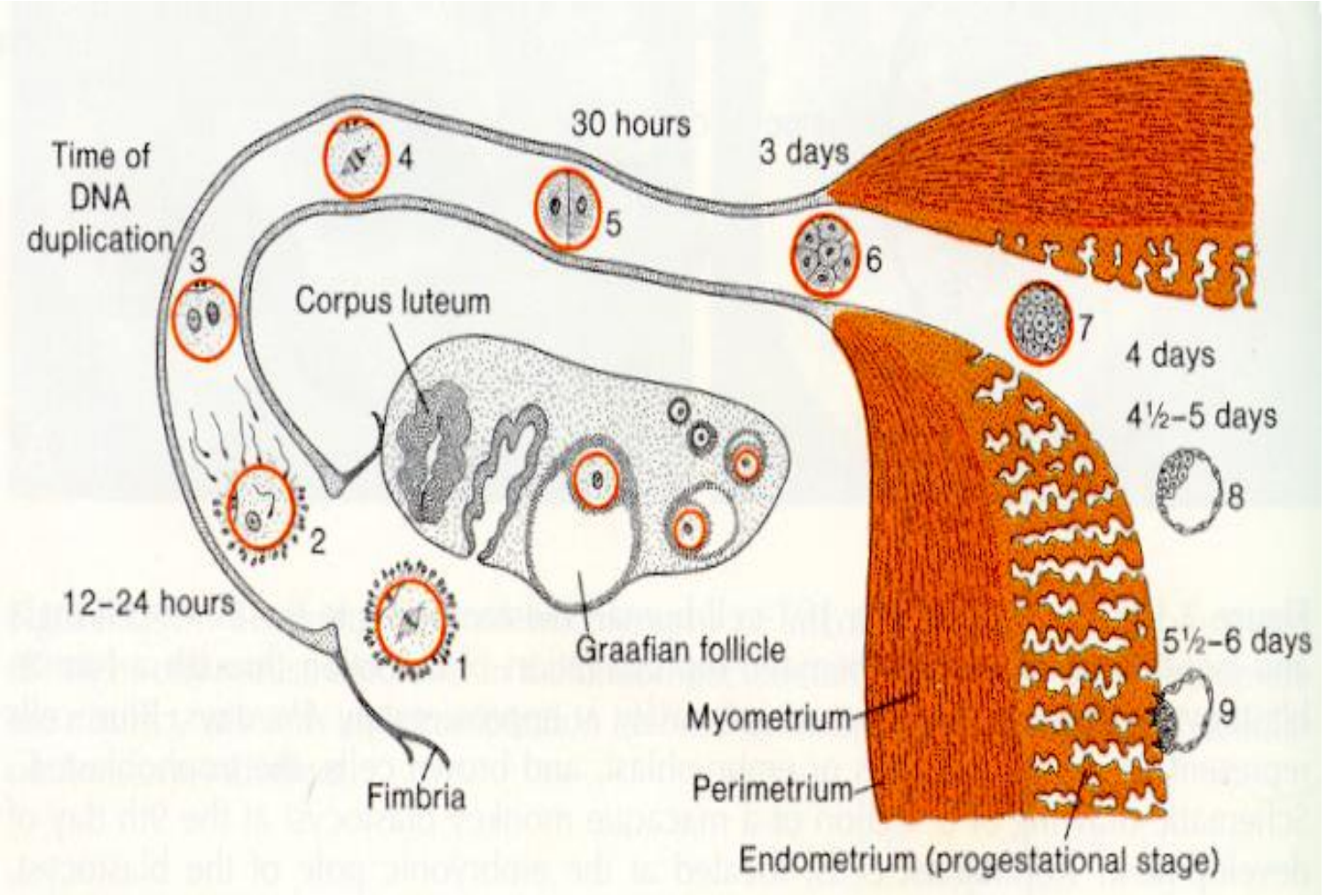
Normal Reproductive Process



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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)

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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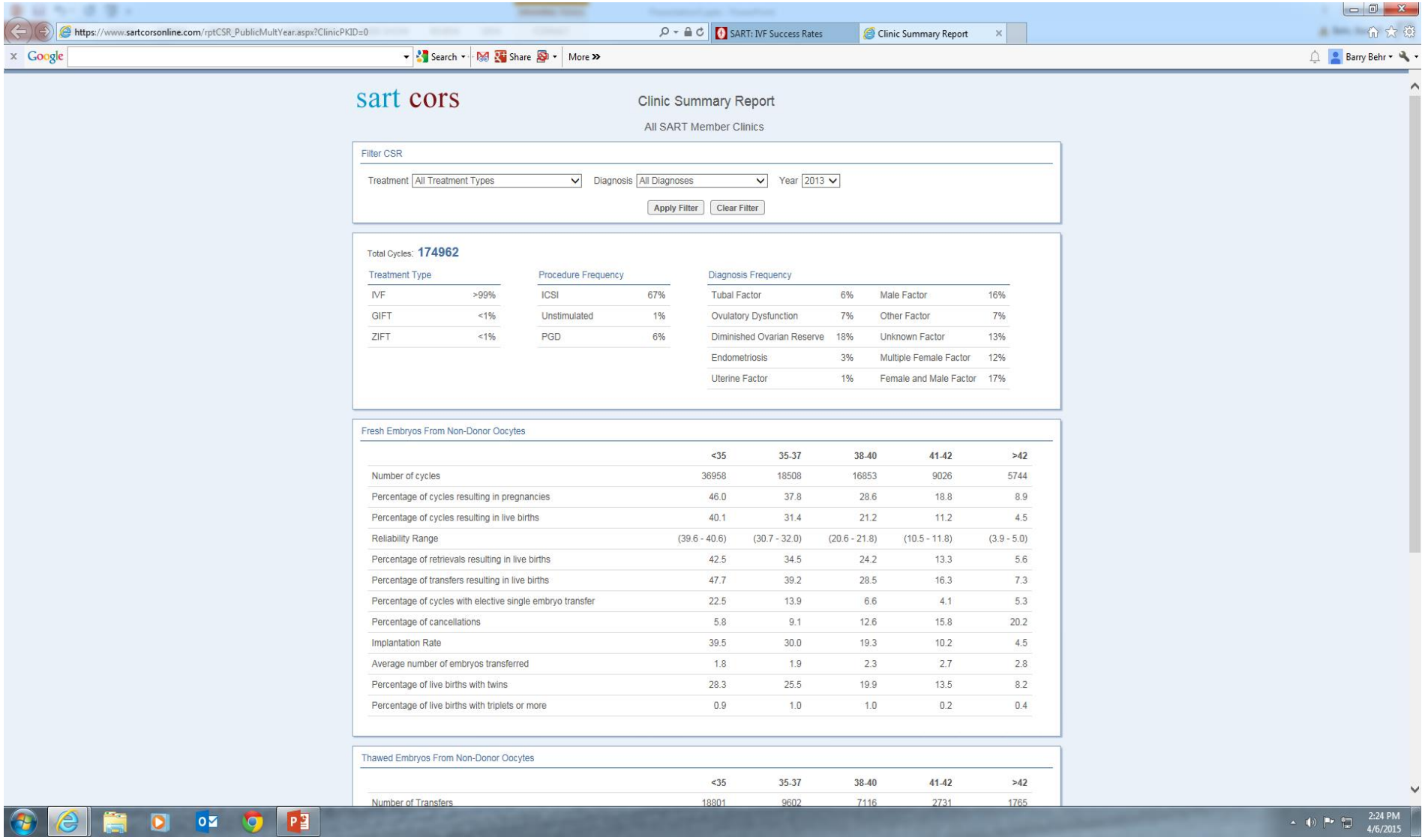
Which Diagnosis has the most influence on "success rate"?



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	
IVF	>99%
GIFT	<1%
ZIFT	<1%

Procedure Frequency	
ICSI	67%
Unstimulated	1%
PGD	6%

Diagnosis Frequency			
Tubal Factor	6%	Male Factor	16%
Ovulatory Dysfunction	7%	Other Factor	7%
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

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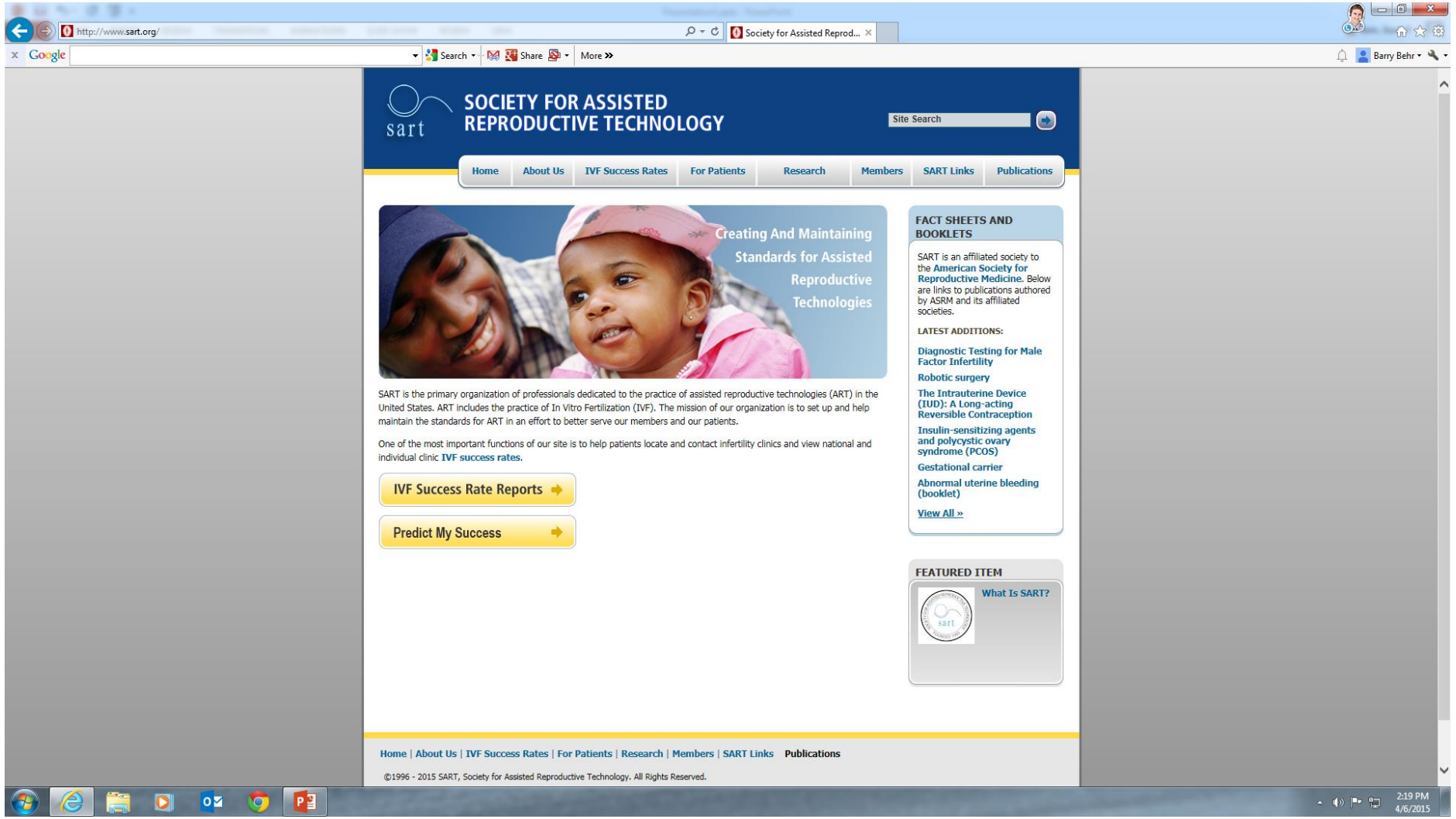
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SART is the primary organization of professionals dedicated to the practice of assisted reproductive technologies (ART) in the United States. ART includes the practice of In Vitro Fertilization (IVF). The mission of our organization is to set up and 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.
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Predict My Success
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Robotic surgery
The Intrauterine Device (IUD): A Long-acting Reversible Contraception
Insulin-sensitizing agents and polycystic ovary syndrome (PCOS)
Gestational carrier
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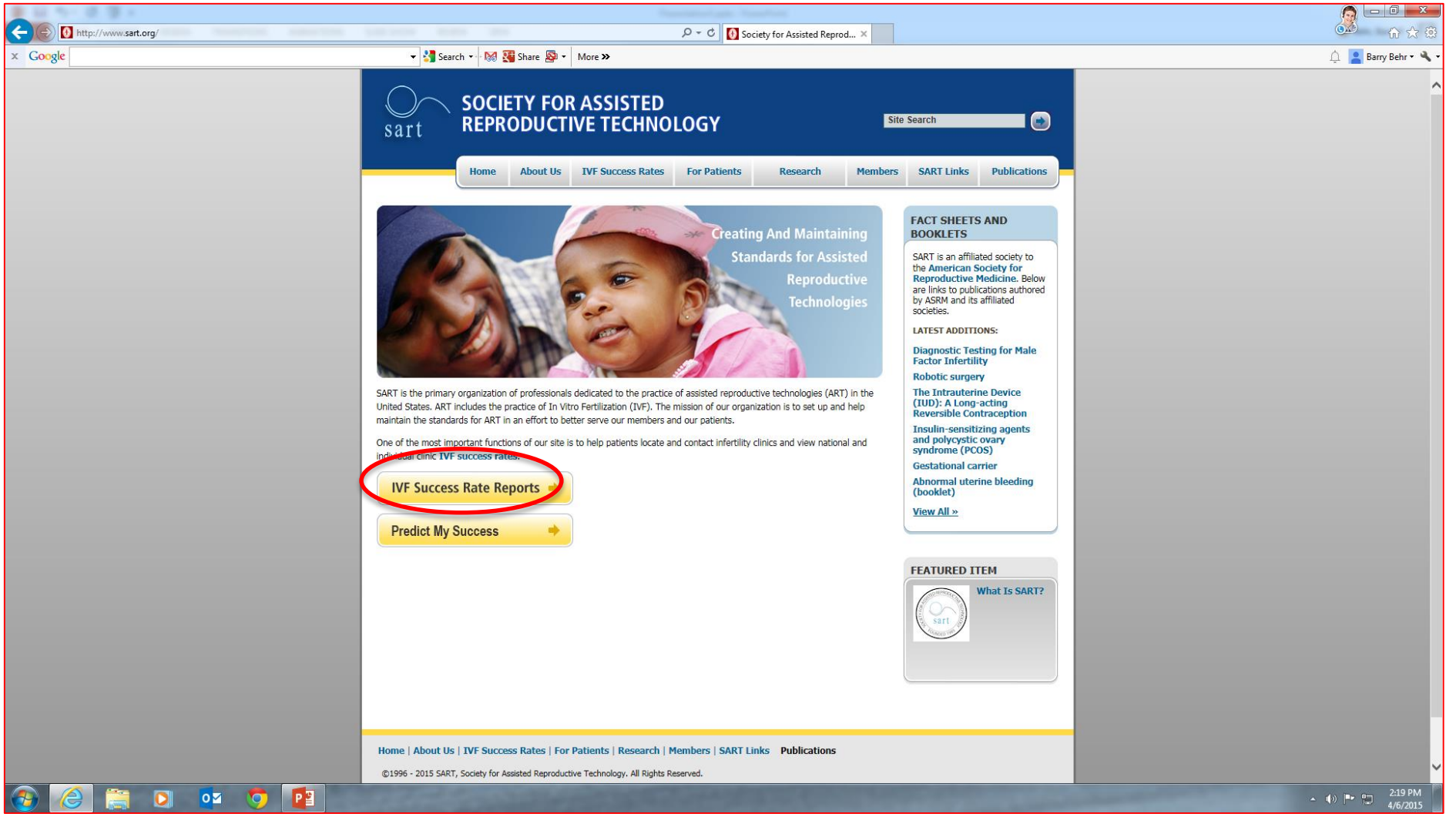
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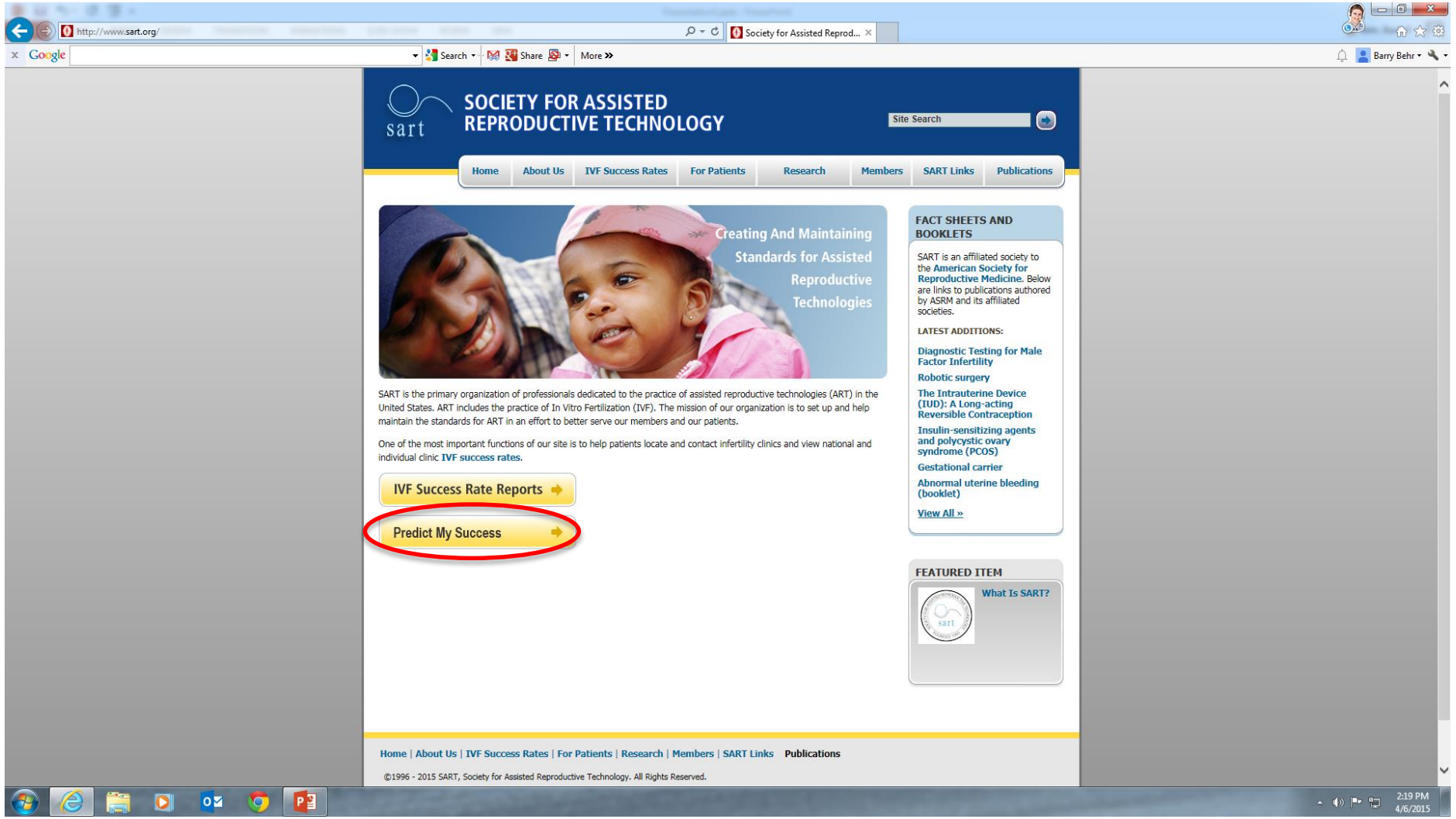
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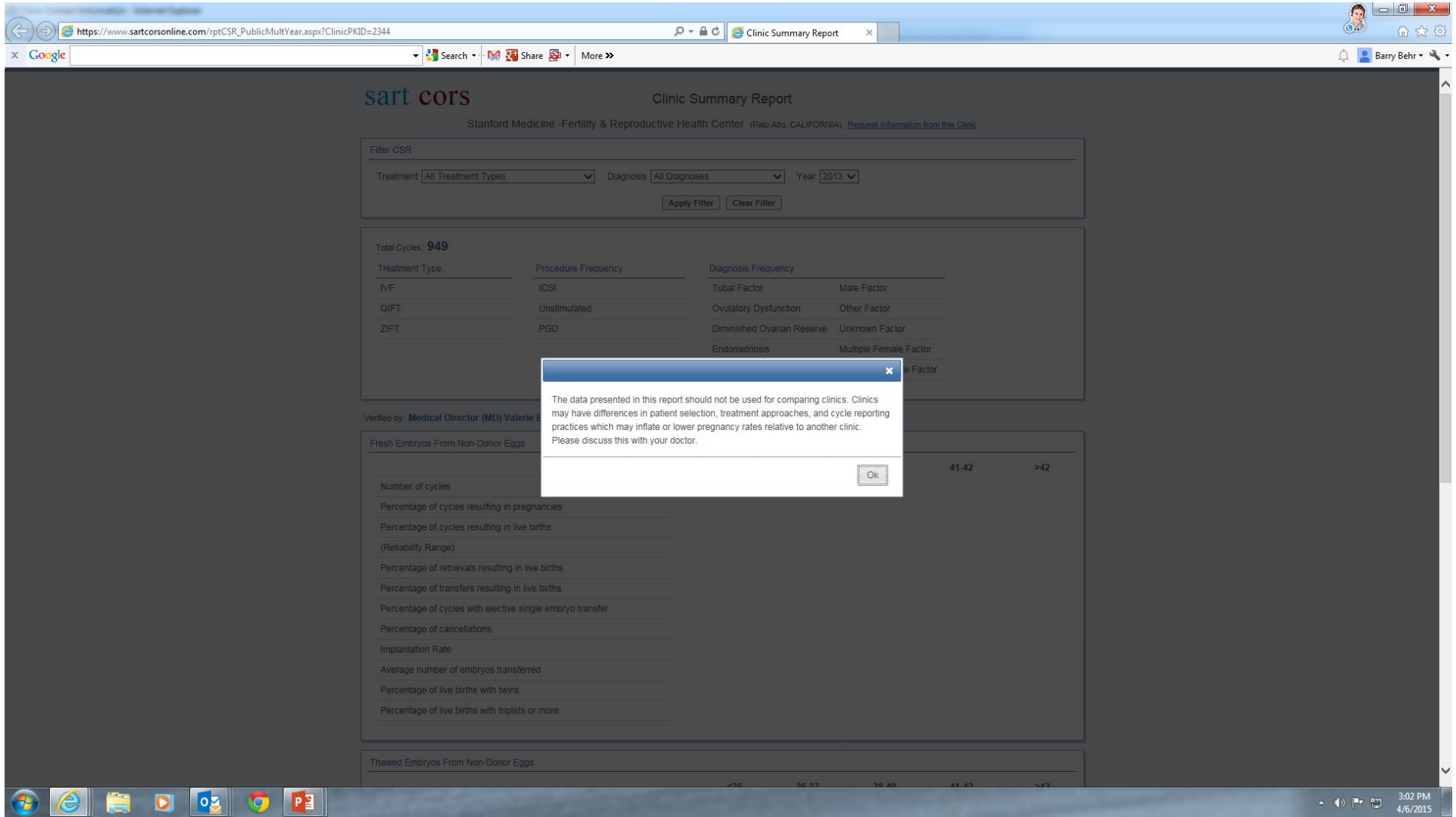
SART not for comparing programs



Why?

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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