2026 PCRS ANNUAL MEETING

REPRODUCTIVE FRONTIERS: BRIDGING BIOLOGY, PRACTICE, AND POSSIBILITY

MARCH 18-22 | RANCHO MIRAGE, CA

PACIFIC COAST REPRODUCTIVE SOCIETY

Geographic variations in the clinical practice of reproductive medicine- within the United States and internationally

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REPRODUCTIVE FRONTIERS:
BRIDGING BIOLOGY, PRACTICE, AND POSSIBILITY
MARCH 18-22 | RANCHO MIRAGE, CA

Alex Quaas MD PhD

Medical Director, Shady Grove Fertility Solana Beach

March 20, 2026

Disclosures

- Neither I nor members of my immediate family have any actual or potential financial interests to disclose relating to the content of this presentation.
- (Unrelated) Disclosure: Ferring pharmaceuticals- consultant

Learning objectives

1) To recognize and describe **geographic variations** in the clinical practice of reproductive medicine
2) To demonstrate how **ethical and legal aspects** of reproductive medicine (for example embryo protection laws and personhood amendments) influence the state-of-the-art delivery of fertility care based on real world examples in other countries
3) To integrate knowledge of geographic variations in clinical practice patterns to identify **truly relevant elements** of what we do
4) To summarize **best practices in state-of-the-art fertility care** according to personal experiences and judgement

Structure

- Personal background → working hypothesis
- Examples of variations: US and International
- What can we learn from other countries? (especially those with “embryo protection laws”)
- Impact of variations in insurance coverage
- Reproductive tourism
- Differences in ovarian stimulation protocols / IVF protocols
- Best practices in state-of-the-art fertility care according to personal experiences and judgement

Journal of Assisted Reproduction and Genetics (2018) 35:1559–1563
https://doi.org/10.1007/s10815-018-1249-7

COMMENTARY

CrossMark

Local privileges not universal rights: geographic variations in the science and clinical practice of reproductive medicine

Alexander M. Quaas [1,2,3,4]

Received: 16 May 2018 / Accepted: 21 June 2018 / Published online: 4 July 2018

Abstract
Based on personal experience in the science and clinical practice of reproductive medicine in different settings, enormous variations are highlighted, demonstrating that freedom of research and clinical practice in reproductive medicine is a local privilege, not a universal right.

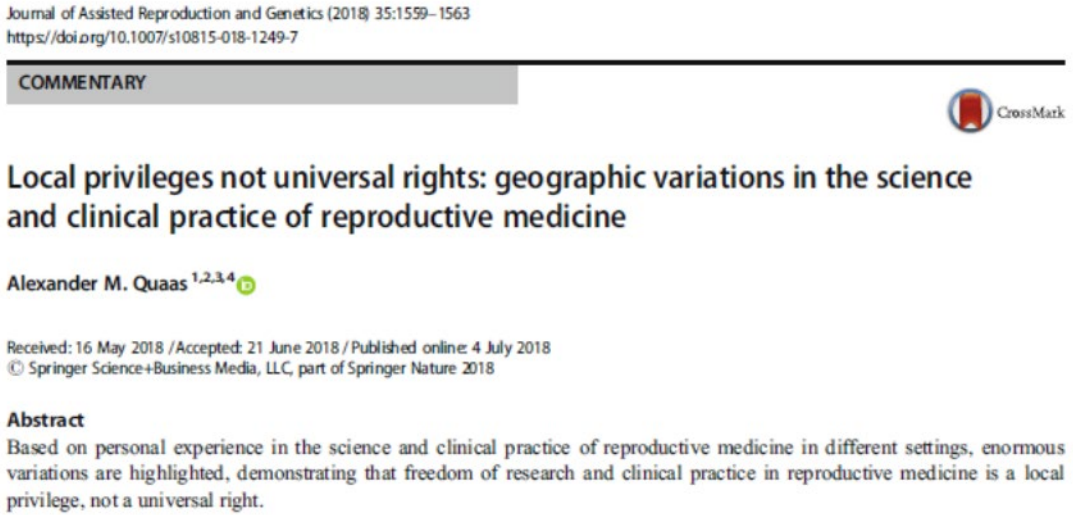
Hypothesis

- The field of reproductive medicine is the field with the highest regional variation of any field in medicine

➢ providing and receiving excellent reproductive services are ***regional privileges*** rather than a ***universal right***

Examples - within the United States

1) Management of ectopic pregnancy
2) Treatment of tubal factor infertility
3) FSH+ IUI in mandated states
4) Egg retrieval technique



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COMMENTARY

Local privileges not universal rights: geographic variations in the science and clinical practice of reproductive medicine

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Based on personal experience in the science and clinical practice of reproductive medicine in different settings, enormous variations are highlighted, demonstrating that freedom of research and clinical practice in reproductive medicine is a local privilege, not a universal right.

Example: Ectopic pregnancy

FERTILITY AND STERILITY

Editor's Corner

Vol. 38, No. 4, October 1982
Printed in U.S.A.

Robert Israel, M.D.

Associate Professor, Department of Gynecology and Obstetrics
University of Southern California School of Medicine, Los Angeles, California

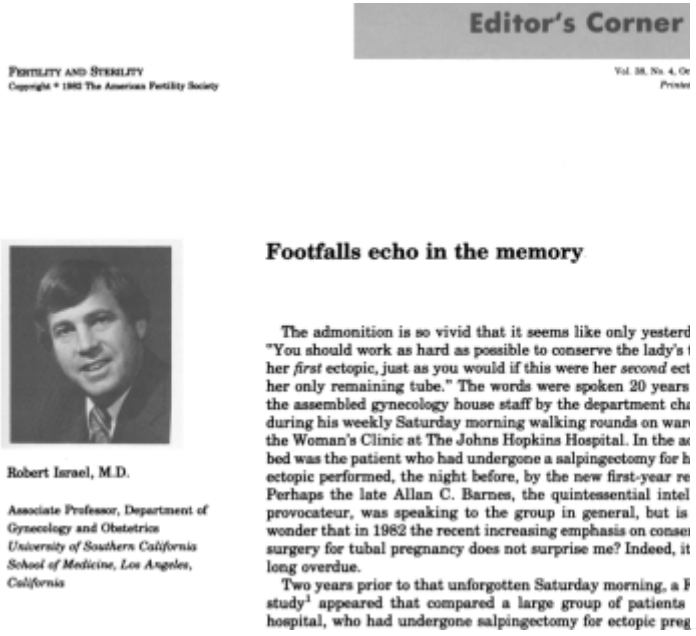
Footfalls echo in the memory

The admonition is so vivid that it seems like only yesterday . . . "You should work as hard as possible to conserve the lady's tube in her *first* ectopic, just as you would if this were her *second* ectopic in her only remaining tube." The words were spoken 20 years ago to the assembled gynecology house staff by the department chairman during his weekly Saturday morning walking rounds on ward A2 of the Woman's Clinic at The Johns Hopkins Hospital. In the adjacent bed was the patient who had undergone a salpingectomy for her first ectopic performed, the night before, by the new first-year resident. Perhaps the late Allan C. Barnes, the quintessential intellectual provocateur, was speaking to the group in general, but is it any wonder that in 1982 the recent increasing emphasis on conservative surgery for tubal pregnancy does not surprise me? Indeed, it seems long overdue.

Two years prior to that unforgotten Saturday morning, a Finnish study[1] appeared that compared a large group of patients in one hospital, who had undergone salpingectomy for ectopic pregnancy,

USC: Salpingostomy for everyone..

«…. With improved early diagnosis and, as a consequence, earlier therapy, there is mounting evidence that conservation at the time of ectopic pregnancy preserves and prolongs reproductive potential without increasing risk.» (R. Israel, 1982)



Editor's Corner

FERTILITY AND STERILITY
Copyright © 1982 The American Fertility Society

Robert Israel, M.D.

Associate Professor, Department of Gynecology and Obstetrics
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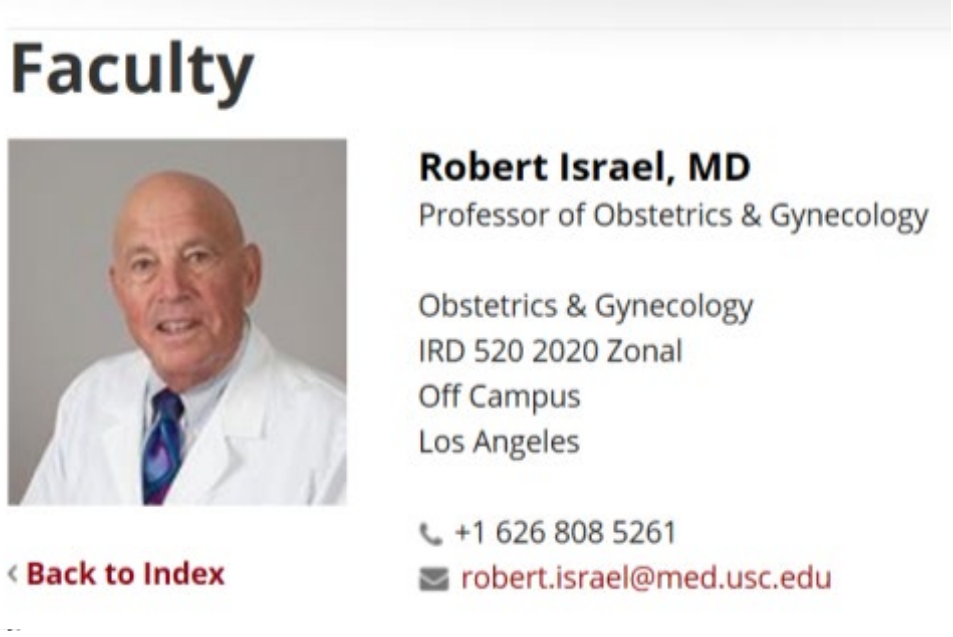

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‹ Back to Index

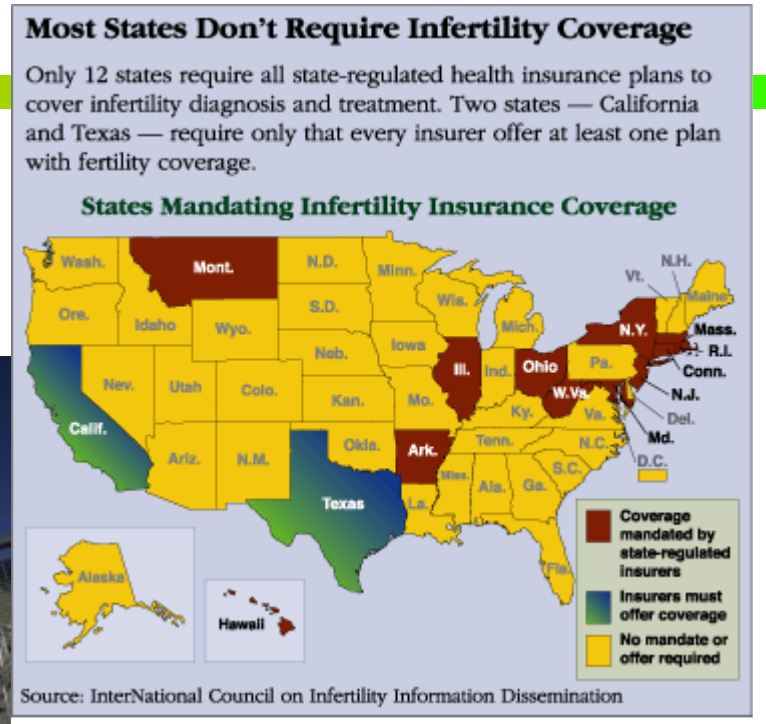
MA / UK vs California

- Medical school / early training in the UK: per Royal College of Ob/Gyn salpingectomy standard of care
  - *"In the presence of a healthy contralateral tube, salpingectomy should be performed in preference to salpingotomy"*
- Massachusetts: "Mandated state" with IVF coverage
  - Lower threshold for salpingectomy

- USC / LA County hospital:
  - No access to IVF

    for vast majority of patients

Royal College of Obstetricians & Gynaecologists



Examples - within the United States

1) Management of ectopic pregnancy
2) Treatment of tubal factor infertility
   Surgical management for patients with no access to IVF
3) FSH+ IUI in mandated states
   Given requirement to complete 3 cycles of FSH+IUI prior to IVF, high rate of IUI to IVF conversions in MA
4) Egg retrieval technique (USC)

Gonadotropin-releasing hormone antagonist use is associated with increased pregnancy rates in ovulation induction–intrauterine insemination to in vitro fertilization conversions, independent of age and estradiol level on the day of human chorionic gonadotropin administration

Alexander M. Quaas, M.D., Ph.D., Stacey A. Missmer, Sc.D., and Elizabeth S. Ginsburg, M.D.

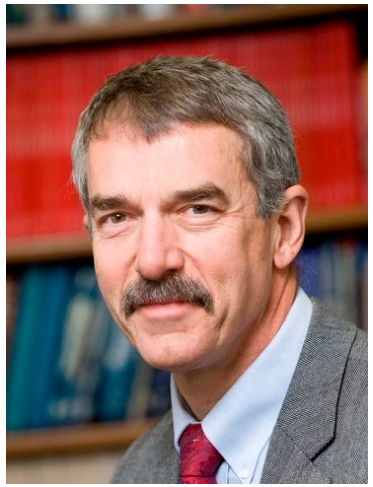
Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology, Brigham and Women's Hospital, Boston, Massachusetts

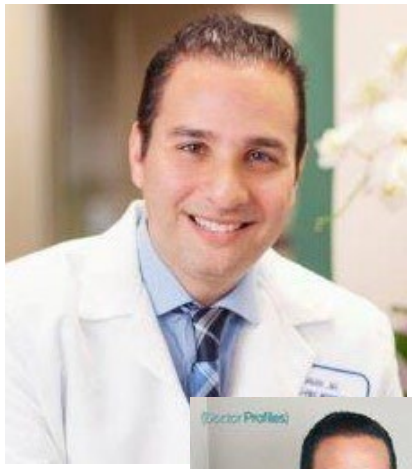
Objective: To determine whether the use of GnRH antagonist in cycles converted from ovulation induction–IUI to IVF affects cycle outcome and pregnancy rates.
Design: Retrospective cohort study.
Setting: Academic research institution.
Patient(s): One hundred eighty-two consecutive patients with ovulation induction–IUI to IVF conversions undergoing oocyte retrieval conducted at our institution from 2004 to 2006.
Intervention(s): The relation between observation of fetal heartbeat and GnRH antagonist exposure was evaluated with use of multivariable logistic regression. The difference in intermediate cycle outcomes by antagonist exposure was estimated with use of linear regression.
Main Outcome Measure(s): Fetal cardiac activity on early ultrasound, intermediate cycle parameters.
Result(s): For patients given treatment with a GnRH antagonist, the odds ratio for achieving pregnancy was 2.13 (95% confidence interval = 1.03–4.39) compared with untreated patients, independent of age and E_2 levels on day of hCG. Patients given antagonist had 1.6 more follicles and 2.1 more oocytes retrieved, 1.9 more mature oocytes, and 2.3 more fertilized oocytes, and the fertilization rate was 9.7% higher.
Conclusion(s): Gonadotropin-releasing hormone antagonist use in ovulation induction–IUI to IVF conversions was associated with increased pregnancy rates and improved intermediate cycle parameters, controlled for age and E_2 levels on day of hCG. Addition of a GnRH antagonist should be considered in ovulation induction–IUI to IVF conversions. (Fertil Steril® 2010;93:605–8. ©2010 by American Society for Reproductive Medicine.)

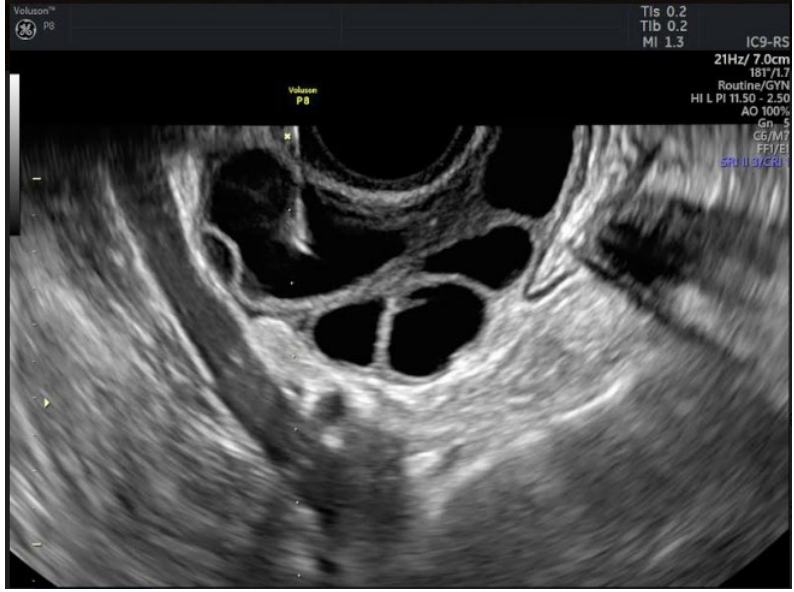
Key Words: OI/IUI to IVF conversions, GnRH antagonists, pregnancy rate

Egg retrieval technique (USC)

My fellowship at USC: 4 different attendings





Attending A: “at the end of aspirating a follicle, always rotate the tip of the needle to get the last bit of fluid”

Attending B: “NEVER twist the needle inside of a follicle”

Transatlantic examples

1) Treatment of hypo-hypo
2) Transatlantic IUI controversy
3) Tenaculum (“that’s how we’ve always done it”)
4) Single embryo transfer

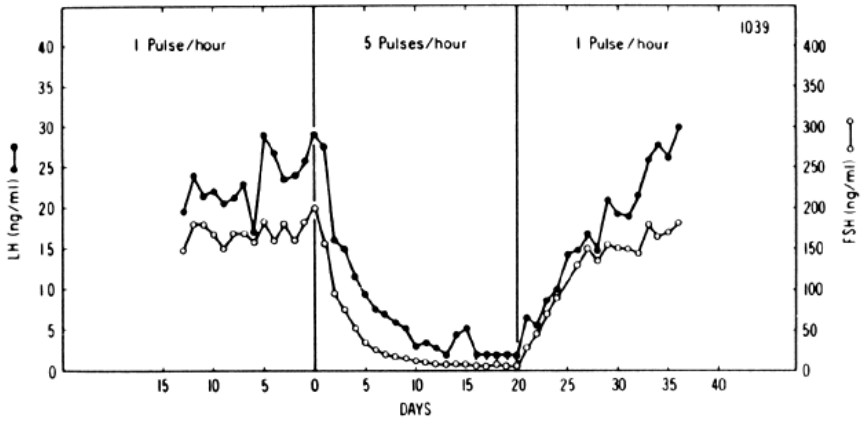
Fertility treatment of functional hypothalamic amenorrhea (FHA, hypo/hypo)

› Science. 1978 Nov 10;202(4368):631-3. doi: 10.1126/science.100883.

Hypophysial responses to continuous and intermittent delivery of hypopthalamic gonadotropin-releasing hormone

P E Belchetz, T M Plant, Y Nakai, E J Keogh, E Knobil

PMID: 100883 DOI: 10.1126/science.100883

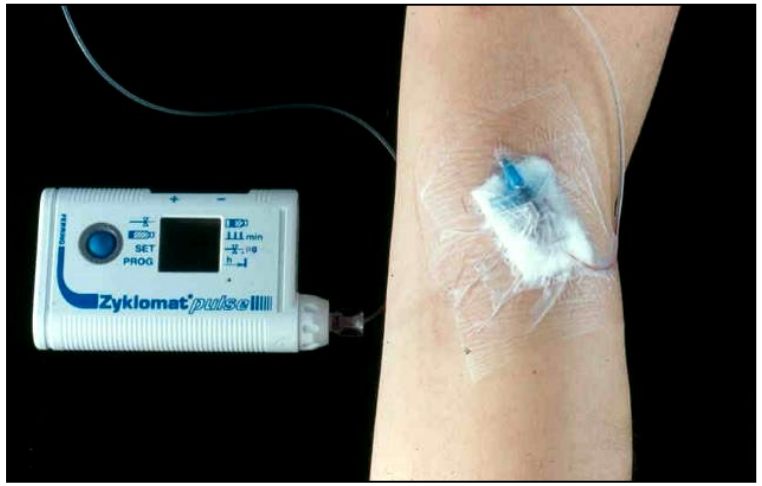


› J Clin Endocrinol Metab. 1980 Nov;51(5):1214-6. doi: 10.1210/jcem-51-5-1214.

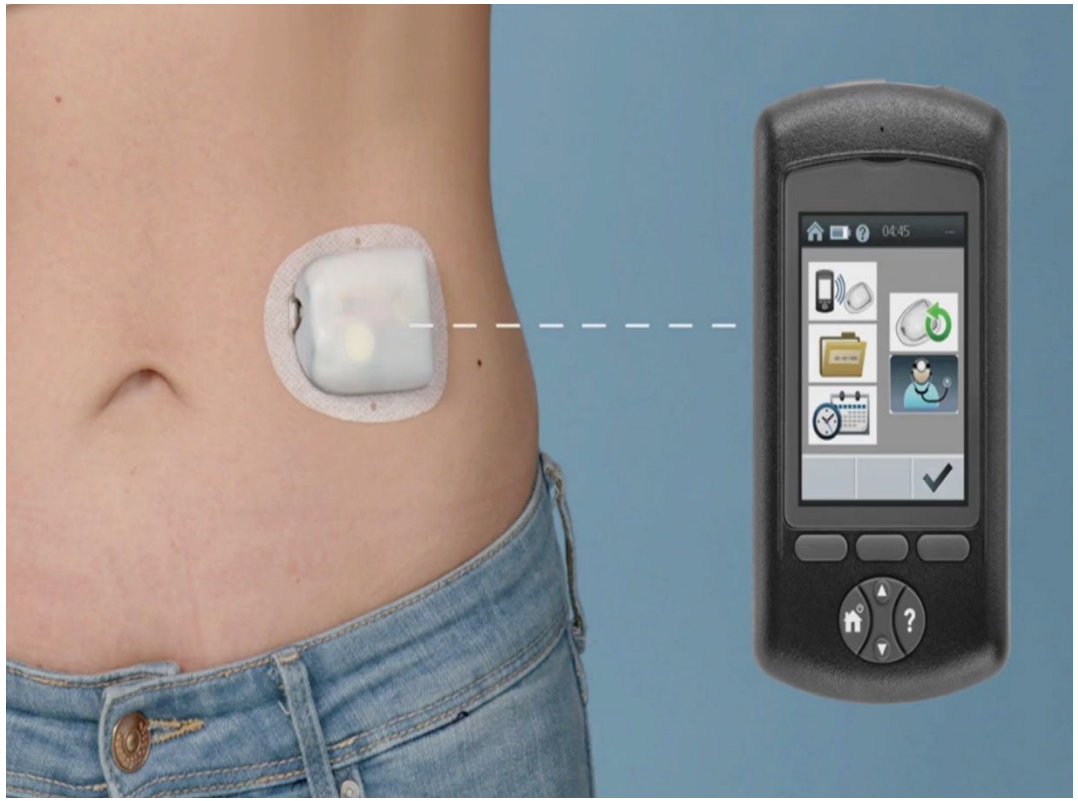
Pregnancies following chronic intermittent (pulsatile) administration of Gn-RH by means of a portable pump ("Zyklomat")--a new approach to the treatment of infertility in hypothalamic amenorrhea

G Leyendecker, L Wildt, M Hansmann

PMID: 6775002 DOI: 10.1210/jcem-51-5-1214



LUTRELEF® (Gonadorelin Acetate) pump



LBR per treatment: 65.9%

Journal of Assisted Reproduction and Genetics (2022) 39:2729–2736
https://doi.org/10.1007/s10815-022-02656-0

REPRODUCTIVE PHYSIOLOGY AND DISEASE

Use of pulsatile gonadotropin-releasing hormone (GnRH) in patients with functional hypothalamic amenorrhea (FHA) results in monofollicular ovulation and high cumulative live birth rates: a 25-year cohort

Philipp Quaas[1] · Alexander M. Quaas[2] · Manuel Fischer[2] · Christian De Geyter[3]

Received: 24 August 2022 / Accepted: 4 November 2022 / Published online: 15 November 2022

Abstract

Purpose To analyze outcomes of pulsatile administration of gonadotropin-releasing hormone (GnRH) in infertile women diagnosed with functional hypothalamic amenorrhea (FHA).

Methods A single-center retrospective cohort study was conducted from 1996 to 2020. Sixty-six patients with the diagnosis FHA that underwent therapy using the pulsatile GnRH pump for conception were included and analyzed. The primary outcome was the live birth rate (LBR). Secondary outcomes were the number of dominant follicles, ovulation rate, biochemical pregnancy rate (BPR), clinical pregnancy rate (CPR), miscarriage rate, and multiple pregnancy rate. A matched control group was selected to compare the birth weight of newborn children.

Results During the study period, 66 patients with FHA underwent 82 treatments (14 of 66 patients had more than one treatment) and a total of 212 cycles (ovulation induction attempts) using pulsatile GnRH. The LBR per treatment was 65.9%. The ovulation rate per cycle was 96%, and monofollicular ovulation was observed in 75% of cycles. The BPR per treatment was 80.5%, and the cumulative CPR per treatment was 74.4%. The miscarriage rate was 11.5%. One dizygotic twin pregnancy was observed (1.6%). Average newborn birth weight (NBW) from patients with FHA was comparable to the control group.

Conclusion(s) In patients with FHA, excellent pregnancy rates were achieved using the subcutaneous GnRH pump. The high cumulative LBR with normal NBW as well as low rates of multiple gestation indicate that the pulsatile GnRH pump represents a safer and more physiologic alternative to ovulation induction with injectable gonadotropins.

Trial registration Ethics Committee Northwest and Central Switzerland (Ethikkommission Nordwest- und Zentralschweiz - EKNZ) - Project-ID 2020-01612.

Keywords Functional hypothalamic amenorrhea (FHA) · Hypothalamic hypopituitarism · Gonadotropin-releasing hormone (GnRH) · Pulsatile GnRH pump · Ovulation induction (OI)

Transatlantic Controversy: IUI

EFFICACY OF SUPEROVULATION AND INTRAUTERINE INSEMINATION IN THE TREATMENT OF INFERTILITY

EFFICACY OF SUPEROVULATION AND INTRAUTERINE INSEMINATION IN THE TREATMENT OF INFERTILITY

DAVID S. GUZICK, M.D., PH.D., SANDRA ANN CARSON, M.D., CHRISTOS COUTIFARIS, M.D., PH.D., JAMES W. OVERSTREET, M.D., PH.D., PAM FACTOR-LITVAK, PH.D., MICHAEL P. STEINKAMPF, M.D., JOSEPH A. HILL, M.D., LUIGI MASTROIANNI, JR., M.D., JOHN E. BUSTER, M.D., STEVEN T. NAKAJIMA, M.D., DONNA L. VOGEL, M.D., PH.D., AND ROBERT E. CANFIELD, M.D., FOR THE NATIONAL COOPERATIVE REPRODUCTIVE MEDICINE NETWORK*

ABSTRACT

Background Induction of superovulation with gonadotropins and intrauterine insemination are frequently used to treat infertility. We conducted a large, randomized, controlled clinical trial of these treatments.

Methods We studied 932 couples in which the woman had no identifiable infertility factor and the man had motile sperm. The couples were randomly assigned to receive intracervical insemination, intrauterine insemination, superovulation and intracervical insemination, or superovulation and intrauterine insemination. Treatment continued for four cycles unless pregnancy was achieved.

Results The 231 couples in the group treated with superovulation and intrauterine insemination had a higher rate of pregnancy (33 percent) than the 234 couples in the intrauterine-insemination group (18 percent), the 234 couples in the group treated with superovulation and intracervical insemination (19 percent), or the 233 couples in the intracervical-insemination group (10 percent). Stratified, discrete-time Cox proportional-hazards analysis showed that the couples in the group treated with superovulation and intrauterine insemination were 3.2 times as likely to become pregnant as those in the intracervical-insemination group (95 percent confidence interval, 2.0 to 5.3) and 1.7 times as likely as those in the intrauterine-insemination group (95 percent confidence interval, 1.2 to 2.6). The couples in the intrauterine-insemination group and in the group treated with superovu-

trauterine insemination, in which motile sperm are suspended in culture medium and injected transcervically into the uterine cavity.

Superovulation and intrauterine insemination are used alone or in combination for the treatment of unexplained infertility, male-factor infertility, and other cases of infertility in which the woman has an unobstructed genital tract and some ovarian function and the man has motile sperm. Although national data on the cost of these procedures have not been compiled, costs of $1,300 per cycle for superovulation and of $500 per cycle for intrauterine insemination are typical.[1] The risks of superovulation include ovarian hyperstimulation,[2] multiple pregnancy,[3] and possibly, an increase in the risk of ovarian cancer.[4]

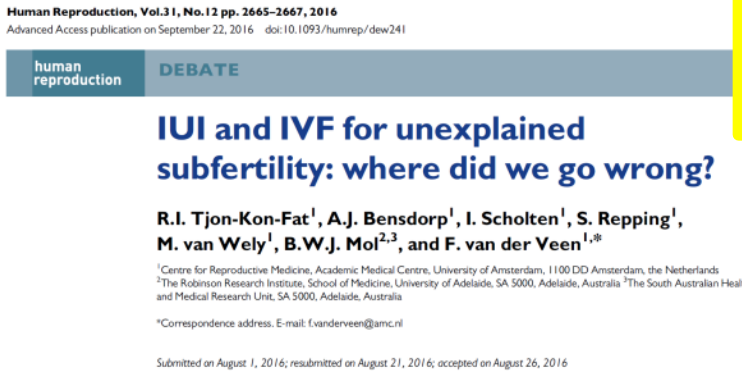
We report the results of a large, randomized, controlled clinical trial of the efficacy of superovulation and intrauterine insemination.

METHODS

Centers and Subjects

This study was conducted at 10 clinical sites and was approved by the appropriate institutional review committee at each site. All the couples gave informed consent to participate.

Before enrollment, each couple underwent a standard evaluation for infertility, including semen analysis in the man; endometrial biopsy, hysterosalpingography, and laparoscopy in the woman; and a test for serum antisperm antibodies in the couple. Semen analysis was performed according to standardized methods[5,6] by trained technicians at each center, who followed common protocols and



Human Reproduction, Vol.31, No.12 pp. 2665–2667, 2016
Advanced Access publication on September 22, 2016 doi:10.1093/humrep/dew241

human reproduction DEBATE

IUI and IVF for unexplained subfertility: where did we go wrong?

R.I. Tjon-Kon-Fat[1], A.J. Bensdorp[1], I. Scholten[1], S. Repping[1], M. van Wely[1], B.W.J. Mol[2,3], and F. van der Veen[1,*]

[1]Centre for Reproductive Medicine, Academic Medical Centre, University of Amsterdam, 1100 DD Amsterdam, the Netherlands [2]The Robinson Research Institute, School of Medicine, University of Adelaide, SA 5000, Adelaide, Australia [3]The South Australian Health and Medical Research Unit, SA 5000, Adelaide, Australia

*Correspondence address. E-mail: f.vanderveen@amc.nl

Submitted on August 1, 2016; resubmitted on August 21, 2016; accepted on August 26, 2016

"The evidence on the effectiveness and safety of IUI and IVF has been evaluated in two Cochrane reviews which both suggested that there is **insufficient evidence to conclude that IUI or IVF is effective compared to sexual intercourse in couples with unexplained subfertility**"."

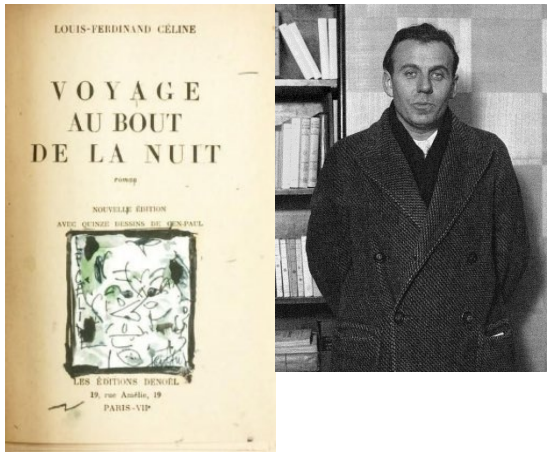
"Recommendations for clinical practice have been given in the most recent National Institute for Health and Care Excellence fertility guideline that advises not to offer IUI any longer and suggests **2 years of sexual intercourse followed by IVF**"

"We feel that it is high time to provide **proper scientific evidence** for the effectiveness of IUI, or lack thereof, and invite the medical community to start **RCTs comparing IUI to sexual intercourse**."

Reality (UK survey): 96% of clinics continued to offer IUI despite NICE recommendations *(Kim et al. 2015)*

Transatlantic Controversy: IUI

"Since most diseases cure themselves after five days, the smart doctor starts to prescribe medication at day three"



Intrauterine insemination with ovarian stimulation versus expectant management for unexplained infertility (TUI): a pragmatic, open-label, randomised, controlled, two-centre trial

Cynthia M Farquhar, Emily Liu, Sarah Armstrong, Nicola Arroll, Sarah Lensen, Julie Brown

Summary

Background Women with unexplained infertility are often offered intrauterine insemination (IUI) with ovarian stimulation as an alternative to in-vitro fertilisation (IVF). However, little evidence exists that IUI is an effective treatment. In 2013, the UK National Institute for Health and Care Excellence recommended that IUI should not be routinely offered for couples with unexplained infertility.

Methods For this pragmatic, open-label, randomised, controlled, two-centre study, we enrolled women attending two fertility clinics in New Zealand with unexplained infertility and an unfavourable prognosis of natural conception. Participants were randomly assigned (1:1) using a computer-generated randomisation sequence, prepared by an independent statistician, to either three cycles of IUI with ovarian stimulation (with either oral clomifene citrate [50–150 mg, days 2–6] or oral letrozole [2·5–7·5 mg, days 2–6], with choice of ovarian stimulation made by the clinic) or three cycles of expectant management (couples advised to be sexually active around the likely time of ovulation and provided with a diary to record the first day of each menstrual cycle and dates of sexual activity) in blocks of four, six, and ten, without stratification. The participating couple and the clinicians were informed of treatment allocation. The primary outcome was cumulative livebirth rate in the intention-to-treat population. The safety analyses were done in the intention-to-treat population. This study was prospectively registered with the Australian and New Zealand Clinical Trials Register, number ACTRN12612001025820.

Findings Between March 12, 2013, and May 12, 2016, we randomly assigned 101 women to IUI with ovarian stimulation and 100 to expectant management, all of whom were included in the primary efficacy analysis and safety analyses. Women assigned to IUI had a higher cumulative livebirth rate than women assigned to expectant management (31 [31%] livebirths among 101 women *vs* nine [9%] livebirths among 100 women; risk ratio [RR] 3·41, 95% CI 1·71–6·79; p=0·0003). Of 31 livebirths in the IUI group, 23 resulted from IUI cycles and eight were conceived without assistance before or between IUI cycles. Of nine livebirths in the expectant management group, one patient was pregnant from IUI with ovarian stimulation at study entry and one had received off-protocol treatment (IVF). Two sets of twins were born, both in the IUI group (one from a cancelled cycle for over-response).

Interpretation IUI with ovarian stimulation is a safe and effective treatment for women with unexplained infertility and an unfavourable prognosis for natural conception.

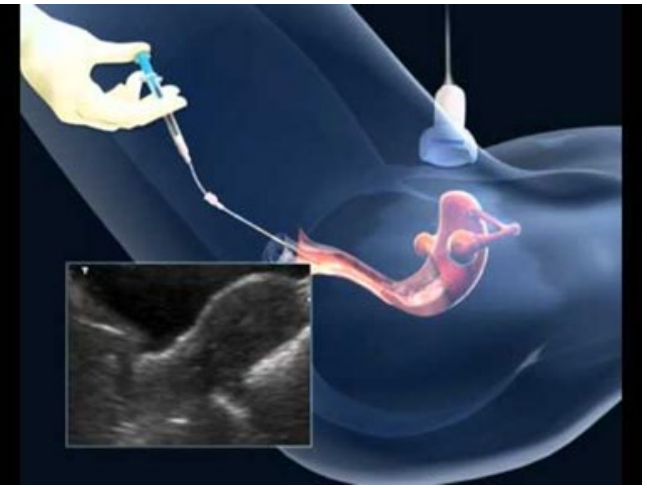
Lancet 2018; 391: 441–50
Published Online November 23, 2017 http://dx.doi.org/10.1016/S0140-6736(17)32406-6
See Comment page 404

Department of Obstetrics and Gynaecology, University of Auckland, Auckland, New Zealand (Prof C M Farquhar MD, S Armstrong MBChB, N Arroll MPH, S Lensen BSc, J Brown PhD); Fertility Plus, Auckland District Health Board, Auckland, New Zealand (Prof C M Farquhar, E Liu MBChB, S Armstrong)
Correspondence to: Prof C M Farquhar, Department of Obstetrics and Gynaecology, University of Auckland, Auckland 1101, New Zealand c.farquhar@auckland.ac.nz

Farquhar et al. 2017:

First RCT to demonstrate benefit of IUI over expectant management

Tenaculum use for embryo transfer ("that's how we've always done it")



> Variations also arise from tightly engrained local practice patterns and the interpretation of existing medical evidence. As a US-trained REI, I was curious to observe that many oocyte retrievals in Switzerland were done under local anesthesia and that a senior colleague mandated the universal use of a tenaculum for embryo transfers because "when one realizes that it is needed, it is already too late."

Quaas AM. Local privileges not universal rights: geographic variations in the science and clinical practice of reproductive medicine. Journal of assisted reproduction and genetics. 2018 Sep;35(9):1559-63.

(Former) transatlantic controversy: single embryo transfer

Human Reproduction vol.15 no.8 pp.1662–1665, 2000

DEBATE continued

Avoiding multiple pregnancies in ART

Replace as many embryos as you like—one at a time

Allan Templeton[1]

Department of Obstetrics & G
Aberdeen, Aberdeen Maternit
2ZD, Scotland, UK

[1]To whom correspondence sh
Department of Obstetrics & G
Aberdeen, Aberdeen Maternit
2ZD, Scotland, UK. E-mail: all

This debate was previously p
17, 2000

There has been much concern
of children born following ass
they are at increased risk of a
concern has focused around cl
following intracytoplasmic spe
ber of important follow-up st
any putative risks in this respe
compared with the morbidity
multiple pregnancy. Even twins
outcome of IVF, run increase

So what more can be done. In the UK, to be fair, there has been some movement. The number of two-embryo replacements is increasing, but there is no evidence yet of a fall in

Human Reproduction Vol.21, No.6 pp. 1337–1344, 2006
Advance Access publication February 22, 2006.
doi:10.1093/humrep/del026

DEBATE—CONTINUED

The relative myth of elective single embryo transfer

Norbert Gleicher[1,2,3,5] and David Barad[1,2,4]

[3]Department of Obstetrics and Gynecology,
ocial Medicine and Department of Obstetrics
Bronx, NY, USA

st 69th Street, New York, NY 10021, USA.

ges of this and other medical journals.
en Europe and the US. While US guide-
, even advocate mandated practice pat-
ant differences in supportive arguments
transfers and the current discussion.

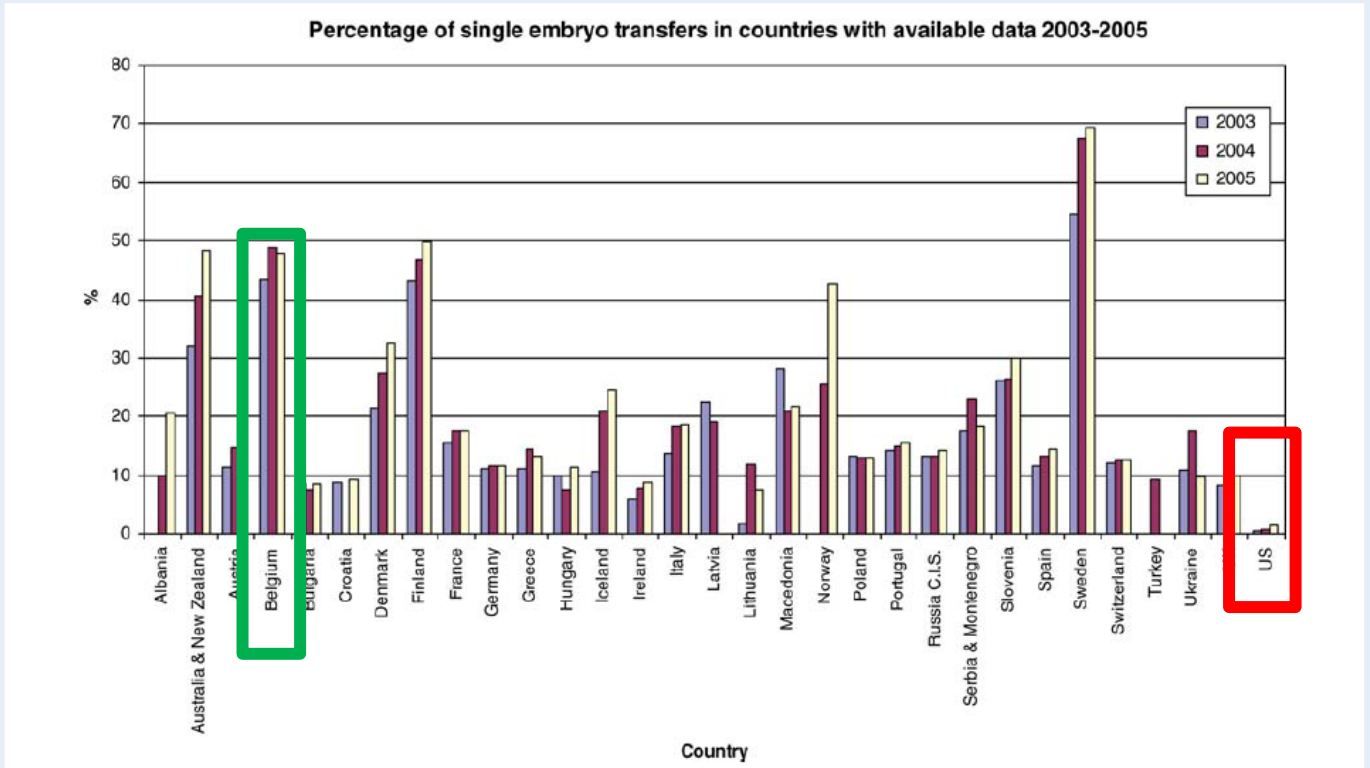


Figure 1 SETs as a proportion of all embryo transfers in 2003–2005.

Example Belgium: Insurance reimbursement regulation linked to rational embryo transfer strategy

Learning from international differences

- February 2024: Alabama Supreme Court Verdict
- Life begins at conception?
- Embryos created via IVF = children?
- What can we learn from other countries?

On 16 February 2024, the Alabama Supreme Court held that embryos created and stored in a medical facility must be considered children under the state's law governing harmful death (Hoffman, 2024). The court further pronounced that life begins at conception, *in vivo* and *in vitro*. While the case centered around punitive damages for the inadvertent destruction of embryos under Alabama's 1872 *Wrongful Death of a Minor* Act, the ramifications are enormous.

Quaas AM, Adashi EY, Paulson RJ. The role of state-of-the-art IVF care as a marker of societal development. Human Reproduction. 2025 Jan;40(1):9-11.

Example: Switzerland

- Major differences compared to US due to a variety of factors
  - Cultural
  - Legal
  - Religious / ethical
  - Healthcare system-related
  - "That's how we have always done it"
- Until September 2017: Strict regulations concerning ART
- 1992-2017: Federal regulation
  - Core: " it is only allowed to develop as many fertilized human eggs outside the female body into embryos as can be immediately implanted."

Quaas AM. Local privileges not universal rights: geographic variations in the science and clinical practice of reproductive medicine. Journal of assisted reproduction and genetics. 2018 Sep;35(9):1559-63.

Change in the "Fortpflanzungsmedizingesetz" (FMedG)

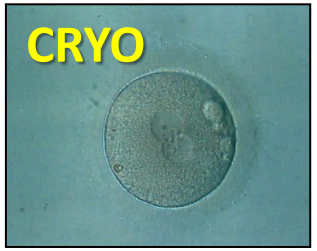
Until 2017:

- PROHIBITED
  - **Culture of more than *three* 2PNs**
  - Embryo cryopreservation
  - Pre-implantation diagnosis
  - Egg and embryo donation, surrogacy
  - Treatment of singles same-sex couples
  - Reproductive cloning

- ALLOWED
  - Cryopreservation of 2PNs
  - Polar body testing
  - Sperm donation (for married couples with male factor!)
  - Treatment of infertility in unmarried heterosexual couples

Problem: no blast cryo ⇒ treatment unpredictable ⇒ ↓ pregnancy + ↑ multiple rates

June 2016 public vote: 62-38% in favor of less restrictions



Since Sept 2017:

- PROHIBITED
  - Culture of more than **twelve** 2PNs
  - Egg and embryo donation, surrogacy
  - Treatment of singles same-sex couples
  - Reproductive cloning

- ALLOWED
  - **Embryo cryopreservation**
  - **PGT-A**
  - Sperm donation (for married couples with male factor!)
  - Treatment of infertility in unmarried heterosexual couples

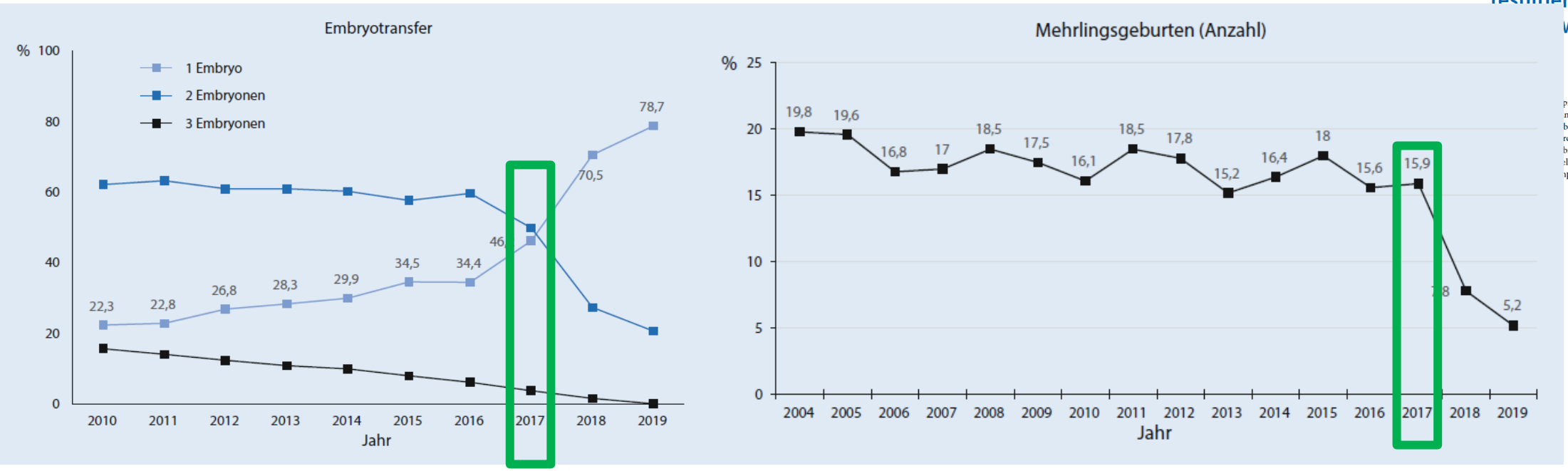
Effect of the new law

Gynäkologische Endokrinologie
In der Diskussion
Gynäkologische Endokrinologie 2021 · 19:156–159
https://doi.org/10.1007/s10304-020-00369-0
Angenommen: 9. Dezember 2020
Online publiziert: 7. Januar 2021

H. Kentenich, Berlin
W. Küpker, Baden-Baden
S. Tschudin, Basel
L. Wildt, Innsbruck

C. De Geyter
Reproduktionsmedizin und gynäkologische Endokrinologie (RME), Universitätsspital Basel, Basel, Schweiz

Änderung des Fortpflanzungs-medizingesetzes und daraus resultierende Entwicklungen in der Schweiz



pro Behandlung er-ndenen Embryonen ben Behandlungszy-rden. Die Kryokon-bryonen war unter-ellen im Vorkernsta-prägnierte Eizellen"

Kantonsärzten und dem Bundesamt für Statistik (BfS) übermittelt. Diese Transparenz war für die Schweizer Öffentlichkeit sehr wichtig und trägt bis heute sehr zur Akzeptanz der assistierten Reproduktionsmedizin in der Schweizer Bevölkerung bei.

Immediate drastic ↑ in sET and ↓in multiple pregnancy rate

De Geyter C. Änderung des Fortpflanzungsmedizingesetzes und daraus resultierende Entwicklungen in der Schweiz. Gynäkologische Endokrinologie. 2021 May;19(2):156-9.

What can we learn?

OXFORD human reproduction

Human Reproduction, 2024, 00(0), 1–3
https://doi.org/10.1093/humrep/deae238
Opinion

The role of state-of-the-art IVF care as a marker of societal development

Alexander M. Quaas [1,*], Eli Y. Adashi[2], and Richard J. Paulson[3]

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[2]Department of Medical Science, Warren Alpert Medical School, Brown University, Providence, RI, USA
[3]Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, Keck School of Medicine, University of Southern California, Los Angeles, CA, USA

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https://orcid.org/0000-0002-9644-2115

ABSTRACT

Access to state-of-the-art ART can be viewed as a marker of societal development. The recent Alabama Supreme Court ruling represents a major local setback in the access to state-of-the-art ART. If this isolated local incident becomes a national trend, the USA will lose ground in this emerging area of healthcare, and its citizens will be left with substandard treatment options for the redress of infertility.

Keywords: infertility / *in vitro* fertilization / IVF / assisted reproductive technology / ART / embryo cryopreservation / personhood amendment

When does life begin?

From a religious viewpoint, the answer to this question may depend on your faith. Religious teachings and traditions are characterized by complexity and contradictions about when life really starts, dependent on diverse beliefs regarding ensoulment and the inception of personhood. These beliefs are inevitably subjective, and *'science can neither prove nor refute the teaching of those religions that consider the zygote to be a human person with an immortal soul'* (Neaves, 2017).

Should an embryo have the same moral status and protection as a child? Lessons learned from other countries

The consequences of elevating a vitrified embryo to the same moral plane as a child are well-known from countries wherein this legal stance has been in place (Quaas, 2018). In Germany, the 'Embryonenschutzgesetz' (embryo protection law) has long proven obstructive to optimal infertility care, preventing providers from delivering state-of-the-art ART and prompting some patients to seek care abroad. At its core, only as many pronuclear stage oocytes are allowed to be selected as are planned to be transferred in the same cycle, with no option of embryo selection or blastocyst cryopreservation, resulting in low pregnancy rates and high multiple pregnancy rates compared to other countries (Ludwig *et al.*, 2000).

Price of using religious rather than scientific principles in ART:
↓IVF success
↑morbidity and mortality

Quaas AM, Adashi EY, Paulson RJ. The role of state-of-the-art IVF care as a marker of societal development. Human Reproduction. 2025 Jan;40(1):9-11.

Influence of insurance coverage

- According to WHO: Infertility = disease
- Infertility coverage heavily influences access to care
- BUT: even in mandated states, access gaps exist

Disparities in access to infertility services in a state with mandated insurance coverage

The objective of our study was to examine the demographic and socioeconomic characteristics of patients accessing infertility services in a state (Massachusetts) with mandated and comprehensive insurance coverage for such services. Even in a state with such insurance coverage, disparities in access to infertility services exist, with the majority of individuals accessing those services being Caucasian, highly educated, and wealthy. (Fertil Steril® 2005;84:221–3. ©2005 by American Society for Reproductive Medicine.)

Journal of Assisted Reproduction and Genetics (2021) 38:1069–1070
https://doi.org/10.1007/s10815-021-02205-1

COMMENTARY

Infertility: still a largely uncovered and undertreated disease

Alexander M. Quaas [1,2] · Maansi Manoj [3]

Received: 19 April 2021 / Accepted: 20 April 2021 / Published online: 28 April 2021

Keywords Infertility coverage · Access to care · Health disparities · Assisted reproductive technology

A few weeks ago, nested between countless messages inviting me to submit a manuscript to an obscure journal or attend a conference in China, I received an email out of the blue from Maansi, a 10th grader from Georgia, with an invitation to connect. The email exuded drive and enthusiasm, and despite my wife's warnings that this may be a "Nigerian prince" type of scam, I reached out to her.

During the initial conversation, Maansi explained that she was a high school student interested in women's health, and that part of her motivation to consider a career in the field of gynecology was a self-described passion for working in the fields of reproductive justice and equitable healthcare delivery. She witnessed how prompt medical assistance helped a close friend with severe Crohn's disease at a young age, giving her pause to reflect about those who are not as lucky to have access to proper healthcare. In her own words, she set out to "use her privilege to make sure that others get the treatment that they deserve."

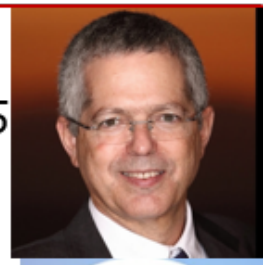
With this backdrop, she has reached out to her community for applications at various stages of their career. And we do help people conceive every day. Fact is the majority of people we help in the USA are white, educated, and affluent.

This is not by choice but more a matter of inequitable insurance coverage distribution: a large portion of the population is uninsured, and amongst the insured, only a small fraction have access to fertility benefits. The gap between the "haves and the have nots" has been widening for years, with a dramatic acceleration of this process during the COVID-19 pandemic [1]. Educated and wealthy employees of tech companies with special insurance add-ons enjoy access to almost limitless fertility benefits, including fertility preservation and even coverage for "add-ons" to ART services, such as the use of human growth hormone during ovarian stimulation. In contrast, tubal occlusion or severe male factor, relatively easy-to-fix "bread and butter" indications for IVF, still represents a reproductive death sentence for the majority of the population devoid of access to ART coverage [2].

Quaas, Alexander M., and Maansi Manoj. "Infertility: still a largely uncovered and undertreated disease." Journal of Assisted Reproduction and Genetics 38.5 (2021): 1069-1070.

Jain, Tarun, and Mark D. Hornstein. "Disparities in access to infertility services in a state with mandated insurance coverage." Fertility and sterility 84.1 (2005): 221-223.

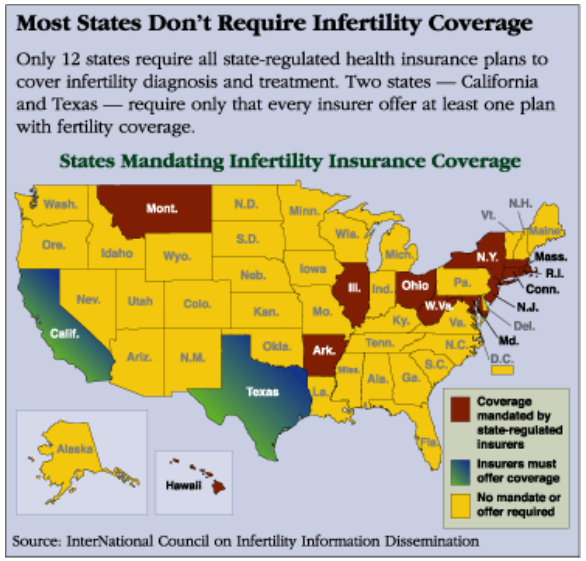
Example Israel

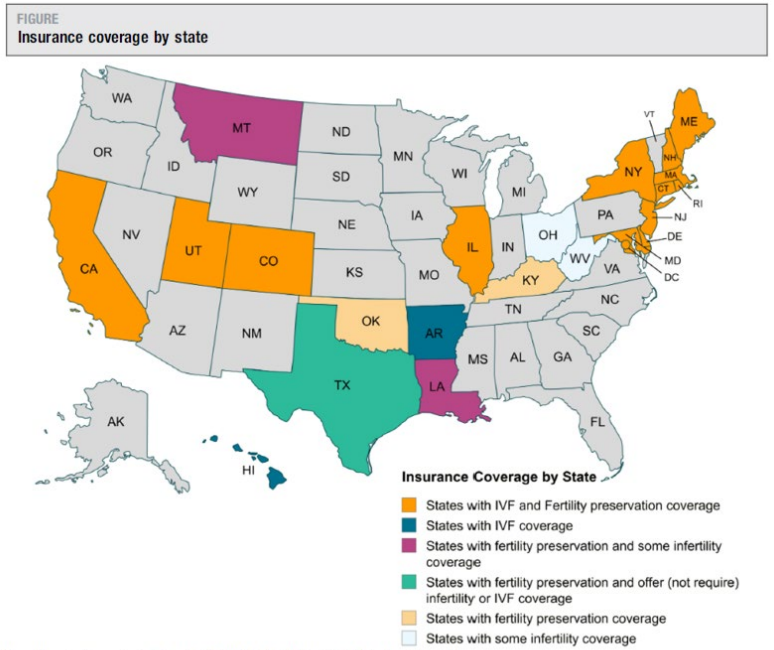


- IVF insurance coverage:
  - "Practically endless" up to age 45
  - "health basket" (government)
- Egg donation / PGT-A allowed
- Very low rates of PGT-A use
  - out of pocket expense)
- 70% fresh embryo transfer
- Agonist or dual trigger
- Gender selection only for couples with ≥ 4 children of the same gender by special request
- Heavy influence of religious beliefs (Orthodox Jew / Druze / Islam etc.)

California: SB729

- Introduced by Senator Caroline Menjivar
- Signed into law 9/29/24, in effect since 1/1/26
- Emphasis on inclusion of coverage for LGBTQIA+ individuals
- California: 22nd state with mandate (22 states + DC)





The California infertility insurance mandate: another step toward reproductive justice?

Alexander M. Quaas, MD, PhD; Eli Y. Adashi, MD, MS

Introduction

On September 29, 2024, California Governor Gavin C. Newsom signed Senate Bill 729 (SB 729) into law. The bill's author, Senator Caroline Menjivar (D- San Fernando Valley), issued a press release stating, "Today is a personal and emotional victory. And it is a triumph for the many Californians who have been denied a path towards family-building because of the financial barriers that come with fertility treatment, their relationship status, or are blatantly discriminated against as a member of the LGBTQ+ community."[1]

Once it goes into effect on January 1, 2026, the enacted bill will require that large group health plans—employers covering at least 101 participants—provide insurance coverage for the diagnosis and treatment of infertility. Treatment options are to include a maximum of 3 completed oocyte retrievals and unlimited embryo transfers. The new law prohibits discrimination based on sexual orientation, gender identity, marital status, and other grounds.[2]

The aims of this perspective study are to review the history and other specific aspects of infertility insurance mandates and to outline future directions in the realm of reproductive justice.

Infertility as a disease

In 2009, the International Committee for Monitoring Assisted Reproductive Technology and the World Health Organization defined infertility as "a disease of the reproductive system."[5] Support for this designation was expressed by delegates to the 2017 American Medical Association annual meeting. Nevertheless, insurance coverage for infertility treatment varies substantially in developed countries, with exclusions, limitations and potentially high out-of-pocket costs in many countries with coverage in place. Regrettably, assisted reproductive technology (ART) is commonly stereotyped as an elective luxury service,[6] despite widespread support in favor of in vitro fertilization (IVF) insurance coverage in developed countries, as evidenced by a large population survey conducted in 6 European countries, the United States, and Australia.[7]

History of infertility insurance mandates in other states

After the first notable IVF-attributable births, Louise Joy Brown on July 25, 1978, in the United Kingdom, and Elizabeth Jordan Carr on December 28, 1981, in Norfolk, Virginia, IVF went unfunded by health insurance plans for several years. On May 1, 1985, Harry R. Hughes (57th

What is reproductive justice?

Reproductive justice has been defined as "the complete physical, mental, spiritual, political, social, and economic well-being of women and girls, based on the full achievement and protection of women's human rights."[3] It recognizes the importance of bodily autonomy, the right to have children, the right not to have children, and the right to parent.[4]

Quaas AM, Adashi EY. The California infertility insurance mandate: another step toward reproductive justice?. American Journal of Obstetrics and Gynecology. 2025 Nov 8.

Reproductive tourism

- Example: third party reproduction in Europe
- Egg donation: illegal in Germany / Switzerland / Norway
- Spain (2019): 18,457 treatment cycles for patients from abroad
  - Cost per cycle: €5,900-11,000
- Sperm donation: Denmark = popular destination due to liberal legislation / regulations
- Dilemma: increased mobility of cryopreserved gametes (sperm / egg banks) ↔ variations in local laws

The current status of oocyte banks: domestic and international perspectives

Alexander M. Quaas, M.D., Ph.D.[a,b,c] and Guido Pennings, Ph.D.[d]

[a] University Hospital, University of Basel, Clinic for Reproductive Medicine and Gynecologic Endocrinology, Basel, Switzerland; [b] Reproductive Partners San Diego, San Diego, California; [c] Division of Reproductive Endocrinology and Infertility, University of California, San Diego, California; [d] Bioethics Institute Ghent, Department of Philosophy and Moral Sciences, Ghent University, Ghent, Belgium

Two major breakthroughs in the field of assisted reproduction—oocyte donation and oocyte vitrification—have joined forces to create the rapidly emerging phenomenon of commercial egg banks (CEBs). In this review, we examine the history of this concept, the operational models, the geographical variations, and the benefits and pitfalls of CEBs, including the ethical and legal dilemmas arising from gamete mobility. We highlight future directions in the brave new world of third-party reproduction. (Fertil Steril® 2018;110:1203–8. ©2018 by American Society for Reproductive Medicine.)

Key Words: Assisted reproductive technology, CEBs, commercial egg banks, egg banking, oocyte cryopreservation, third-party reproduction

Discuss: You can discuss this article with its authors and other readers at https://www.fertstertdialog.com/users/16110-fertility-and-sterility/posts/36448-26534

Quaas AM, Pennings G. The current status of oocyte banks: domestic and international perspectives. Fertility and sterility. 2018 Dec 1;110(7):1203-8.

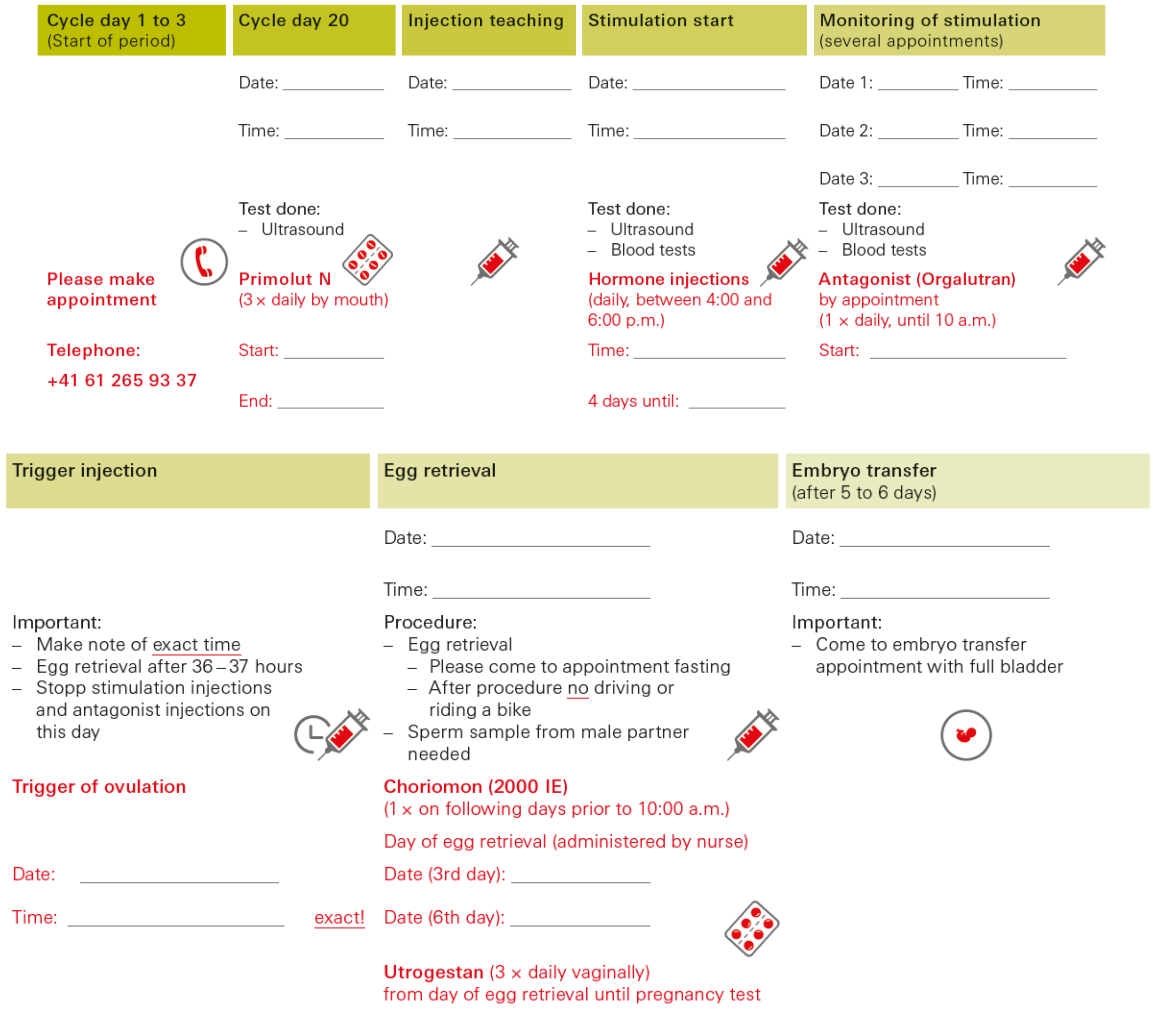
Regional differences in ovarian stimulation / ART care

- I have given presentations on this topic alone
  - Comprehensive discussion beyond scope of this lecture
- Informal survey of ART providers in other countries

- 3 stimulated cycles reimbursed by state
  - but only for the first child
  - Medications partly paid
  - Public and private sector: split
- Egg donation allowed
- PGT-A: only in research protocols
- Standard protocol: antagonist
- Trigger: 80% hCG / 20% agonist
- 80% fresh transfer, 97-98% eSET
- (Female) age limits for treatment: 41 (public sector), 46 (private sector)

- 3 cycles +FETs reimbursed by NHS
  - Until live birth achieved
  - Criteria: age<40, BMI<30, both non-smokers
- Egg donation / PGT-A allowed
- PGT-A: <3% as not funded
- Standard protocol: antagonist
- Trigger: Majority hCG
- 75% fresh transfer, 90% eSET
- Drugs licensed in England may not be available in Scotland
- Predominantly NHS-driven, only one private unit

Standard IVF protocol (University of Basel, Switzerland)



Cycle day 1 to 3 (Start of period)	Cycle day 20	Injection teaching	Stimulation start	Monitoring of stimulation (several appointments)
	Date: _____ Time: _____	Date: _____ Time: _____	Date: _____ Time: _____	Date 1: _____ Time: _____ Date 2: _____ Time: _____ Date 3: _____ Time: _____
	Test done: – Ultrasound		Test done: – Ultrasound – Blood tests	Test done: – Ultrasound – Blood tests
Please make appointment Telephone: +41 61 265 93 37	Primolut N (3 × daily by mouth) Start: _____ End: _____		Hormone injections (daily, between 4:00 and 6:00 p.m.) Time: _____ 4 days until: _____	Antagonist (Orgalutran) by appointment (1 × daily, until 10 a.m.) Start: _____

Trigger injection	Egg retrieval	Embryo transfer (after 5 to 6 days)
	Date: _____ Time: _____	Date: _____ Time: _____
Important: – Make note of exact time – Egg retrieval after 36 – 37 hours – Stopp stimulation injections and antagonist injections on this day	Procedure: – Egg retrieval – Please come to appointment fasting – After procedure no driving or riding a bike – Sperm sample from male partner needed	Important: – Come to embryo transfer appointment with full bladder
Trigger of ovulation Date: _____ Time: _____ exact!	Choriomon (2000 IE) (1 × on following days prior to 10:00 a.m.) Day of egg retrieval (administered by nurse) Date (3rd day): _____ Date (6th day): _____	Utrogestan (3 × daily vaginally) from day of egg retrieval until pregnancy test

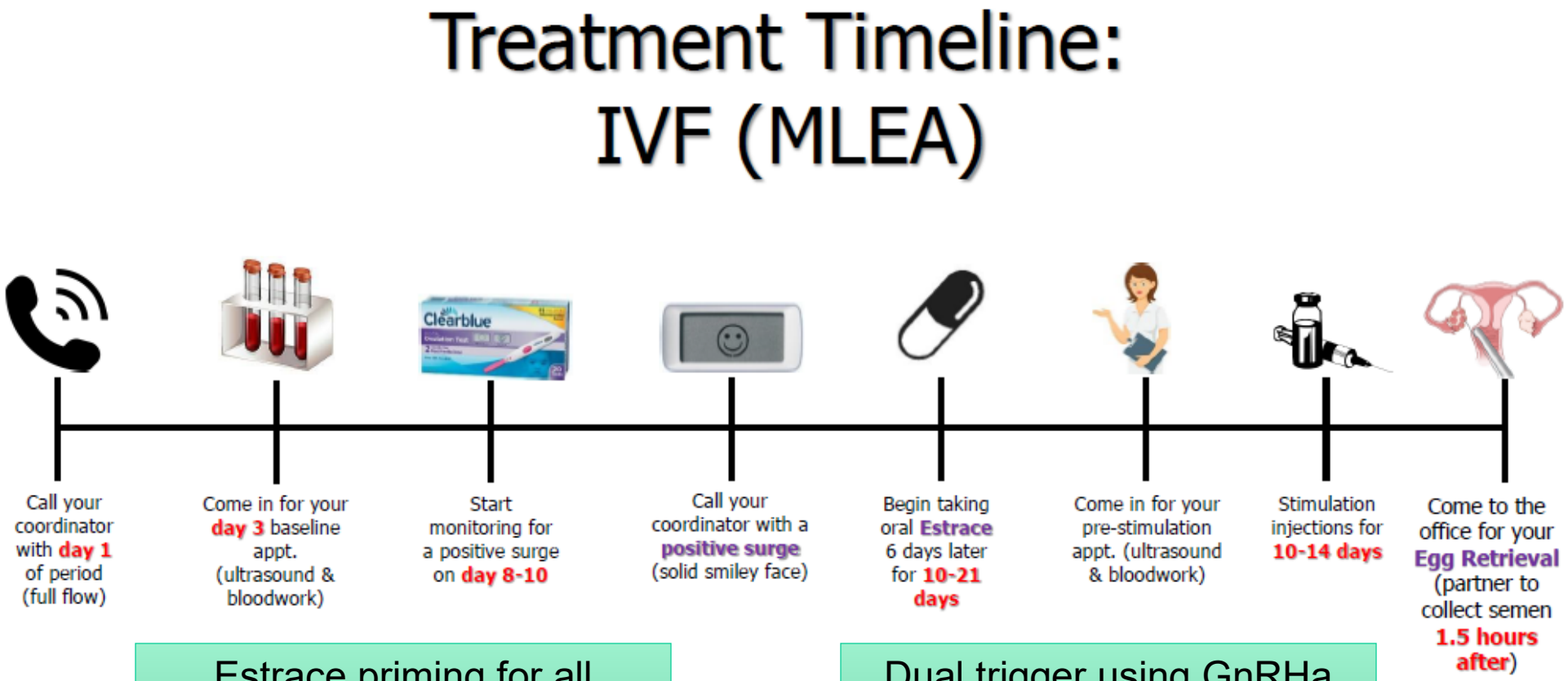
Ovarian synchronization with progestin

hMG stimulation GnRH antagonist start when largest follicle ≥ 12 mm

GnRHa trigger, low dose hCG on day of OPU for fresh transfers

Fresh transfers possible

Standard IVF protocol (RP San Diego / UCSD)



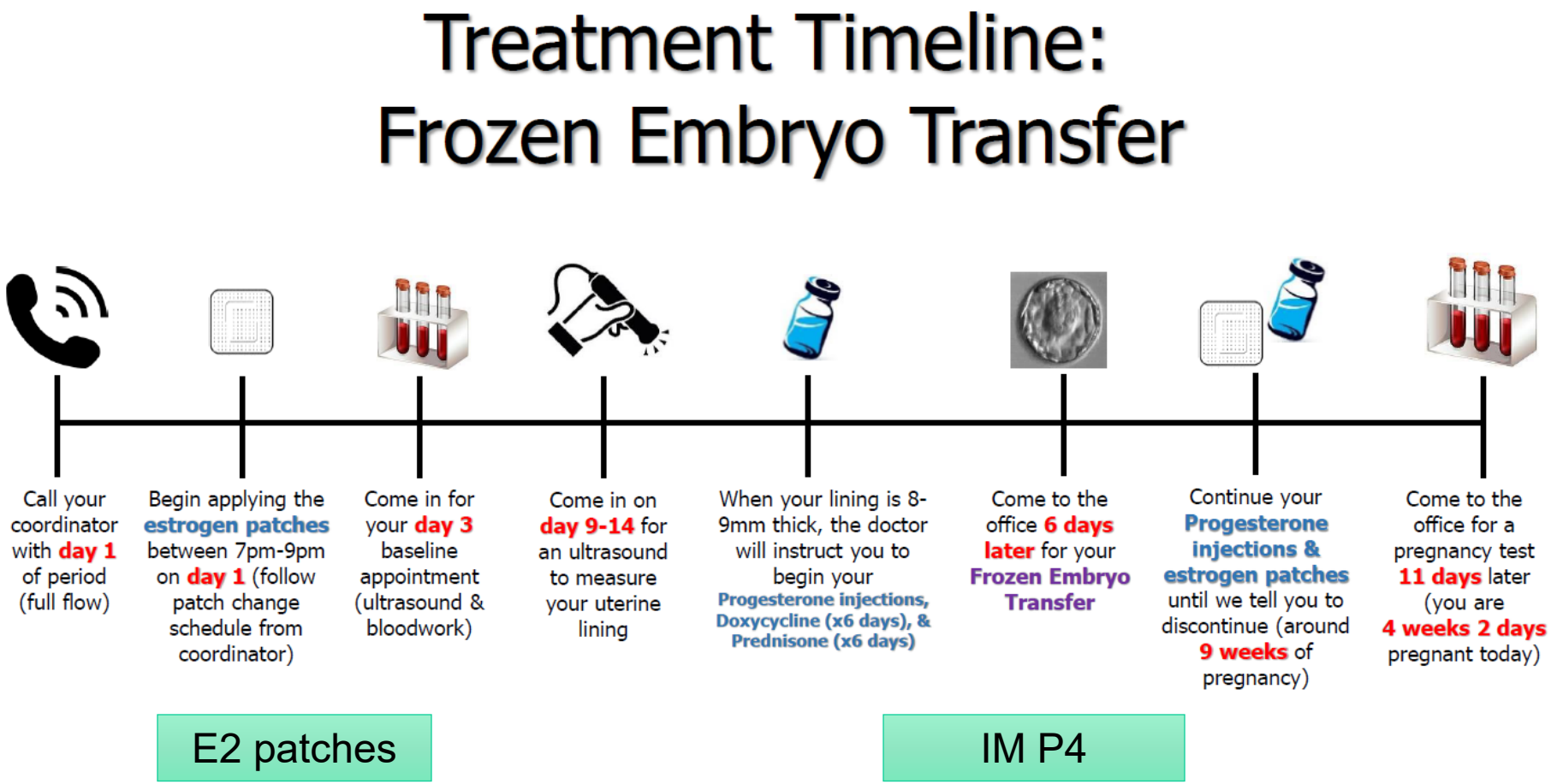
Estrace priming for all patients

hMG + rFSH stimulation
GnRH antagonist start when largest follicle ≥ 14 mm

Dual trigger using GnRHa and (low-dose) hCG

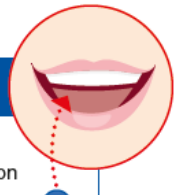
No fresh transfers

Programmed FET: standard protocol (RPSD / UCSD)



Programmed FET: standard protocol (Basel, CH)

Cycle day 2 – 3	Around cycle day 9 – 20
First appointment **Tests done:** • Ultrasound	**Second appointment** **Tests done:** • Ultrasound • Blood test

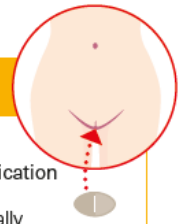


Preparatory phase

Start:
Oestrogen medication (Proginova)
3 × daily by mouth

Preparation of the lining of the uterus (proliferation)

If tests are OK at **second appointment**



Day 0

Start:
Progestin medication (Utrogestan)
3 × daily vaginally

Final preparation of the lining of the uterus (luteal phase)

Oestrogen medication (Proginova)

Progestin medication (Utrogestan)

Oral E2 **Vaginal P4**

A Thawing of zygotes (fertilized oocytes)

Day 1	Day 5	Day 14
The zygotes will be thawed.	**Third appointment** You will be called by our laboratory staff. If at least one blastocyst has developed the transfer will take place on this day.	**Fourth appointment** Pregnancy test

B Thawing of blastocysts (day 5 embryos)

Day 1	Day 5	Day 14
–	**Third appointment** At l thaw labo	**Fourth appointment**

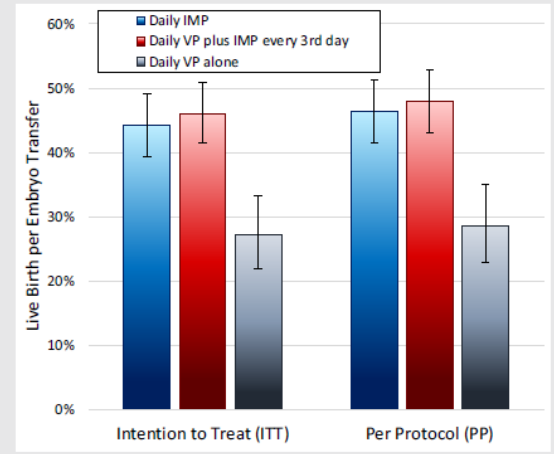
SEMINAL CONTRIBUTIONS

Intramuscular prog optimizes live birth frozen embryo tran clinical trial

Kate Devine, M.D.,[a] Kevin S. Richter, Ph.D.,[b] Samad Jahan and Jeffrey L. McKeeby, M.D.[a]

[a] Shady Grove Fertility; and [b] Fertility Science Consulting, Rockvill

FIGURE 2



Live birth rates per embryo transfer compared among treatment groups. Error bars illustrate binomial 95% confidence intervals for birth rate estimates calculated by the modified Wald method. IMP = daily intramuscular progesterone. VP = vaginal progesterone.

Devine. Intramuscular progesterone optimizes frozen embryo transfer outcomes. Fertil Steril 2021.

Another Transatlantic Controversy

Best practices according to my experiences and judgement


SEMINAL CONTRIBUTION

Check for updat

Common practices among consistently high-performing in vitro fertilization programs in the United States: 10-year update

Jennifer F. Knudtson, M.D.,[a] Randal D. Robinson, M.D.,[a] Amy E. Sparks, Ph.D.,[b] Micah J. Hill, M.D.,[c] T. Arthur Chang, Ph.D.,[a] and Bradley J. Van Voorhis, M.D.[b]

[a] Department of Obstetrics and Gynecology, University of Texas Health Science Center San Antonio, San Antonio, Texas; [b] Department of Obstetrics and Gynecology, University of Iowa Carver College of Medicine, Iowa City, Iowa; and [c] Program in Reproductive Endocrinology and Gynecology, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, Maryland

- Offer SO+IUI for unexplained infertility
- Ovarian stimulation with antagonist or PPOS protocol
- Stimulation with hMG or mixed protocol for most patients
- Use of adjuvants in poor responders: may consider androgens + GH
- Agonist or dual trigger
- Blastocyst culture
- Selective use of PGT-A
- Offer fresh transfers but low threshold for “freeze-all”
- eSET in >95% of patients but not rigorously mandated
- Favor natural FET, if programmed: IM P4
- Access to all methods of third-party reproduction to singles, couples and members of the LGBTQIA+ community
- Promotion of fertility preservation for medical + non-medical indications

Thank you!!

Alex Quaas MD PhD

Medical Director, Shady Grove Fertility Solana Beach

March 20, 2026

Q&A

Addendum (if questions on this): Informal survey of ART providers in other countries

- 6 reimbursed cycles
- Egg donation / PGT-A allowed
- Low rates of PGT-A use (<20%)
- 70% fresh embryo transfer
- 70% dual trigger / 30% agonist
- High rates of eSET
- Cross border ART (French same sex couples, German day 5 freezing, Dutch RIF patients etc.)

- Law to limit number of oocytes to be fertilized to 6
  - Study: equivalent implantation / OPR with 6 compared to 10

Reproductive outcomes of intracytoplasmic sperm injection (ICSI) in good-prognosis patients who electively decided to limit the number of oocytes used for microinjection: a two-center comparative study

Ograniczenie liczby komórek jajowych wykorzystanych w docytoplazmatycznej iniekcji plemnika (ICSI) nie pogarsza wyników leczenia metodą zapłodnienia pozaustrojowego: dwuośrodkowe badanie porównawcze

Przemysław Ciepiela[1], Paweł Kuć[2,3], Agnieszka Kuczyńska[2,4], Anna Kazienko[1], Rafał Kurzawa[1,5], Waldemar Kuczyński[2,6]

Addendum (if questions on this): Informal survey of ART providers in other countries

- Coverage different in each province
  - (Quebec: 1 IVF cycle up to 41 y.o.)
- Egg donation / PGT-A allowed
- PGT-A use: 30%
- 36% fresh embryo transfer
- Dual trigger for fresh
  agonist for "freeze-all"
- 98% eSET
- Single parent (male or female) and same sex couple covered, surrogacy tolerated

- IVF insurance coverage:
  - "Practically endless" up to age 45
  - "health basket" (government)
- Egg donation / PGT-A allowed
- Very low rates of PGT-A use
  - out of pocket expense)
- 70% fresh embryo transfer
- Agonist or dual trigger
- Gender selection only for couples with ≥ 4 children of the same gender by special request
- Heavy influence of religious beliefs (Orthodox Jew / Druze / Islam etc.)

Addendum (if questions on this): Informal survey of ART providers in other countries

- 3 stimulated cycles reimbursed by state
  - but only for the first child
  - Medications partly paid
  - Public and private sector: split
- Egg donation allowed
- PGT-A: only in research protocols
- Standard protocol: antagonist
- Trigger: 80% hCG / 20% agonist
- 80% fresh transfer, 97-98% eSET
- (Female) age limits for treatment: 41 (public sector), 46 (private sector)

- 3 cycles +FETs reimbursed by NHS
  - Until live birth achieved
  - Criteria: age<40, BMI<30, both non-smokers
- Egg donation / PGT-A allowed
- PGT-A: <3% as not funded
- Standard protocol: antagonist
- Trigger: Majority hCG
- 75% fresh transfer, 90% eSET
- Drugs licensed in England may not be available in Scotland
- Predominantly NHS-driven, only one private unit