



MEDICINA DE LA FERTILIDAD



The Billings Ovulation Method™ in couples with sufertility

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Goals

- Review the concept of infertility and subfertility
- The BOM® and infertility
 - Diagnosis
 - Optimizing natural fertility
 - Therapy
 - Adjuvant therapy
- Fertility Medicine protocols

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Definition

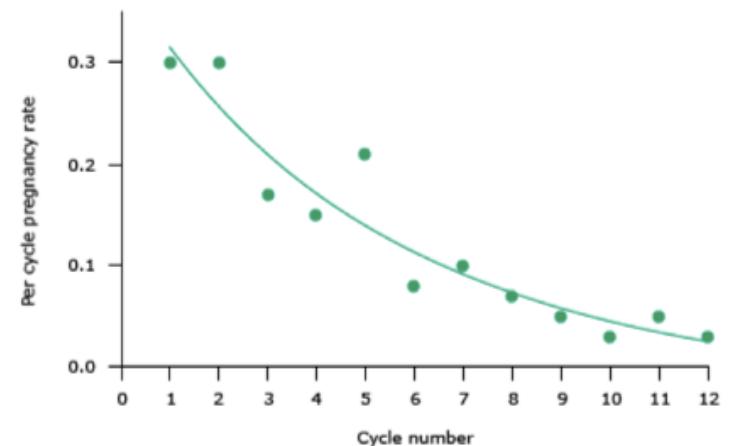
- Infertility is a disease, what is defined as:
 - the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse

Practice Committee of American Society for Reproductive Medicine. Definitions of infertility and recurrent pregnancy loss. Fertil Steril 2008; 90:S60.

Fecundability

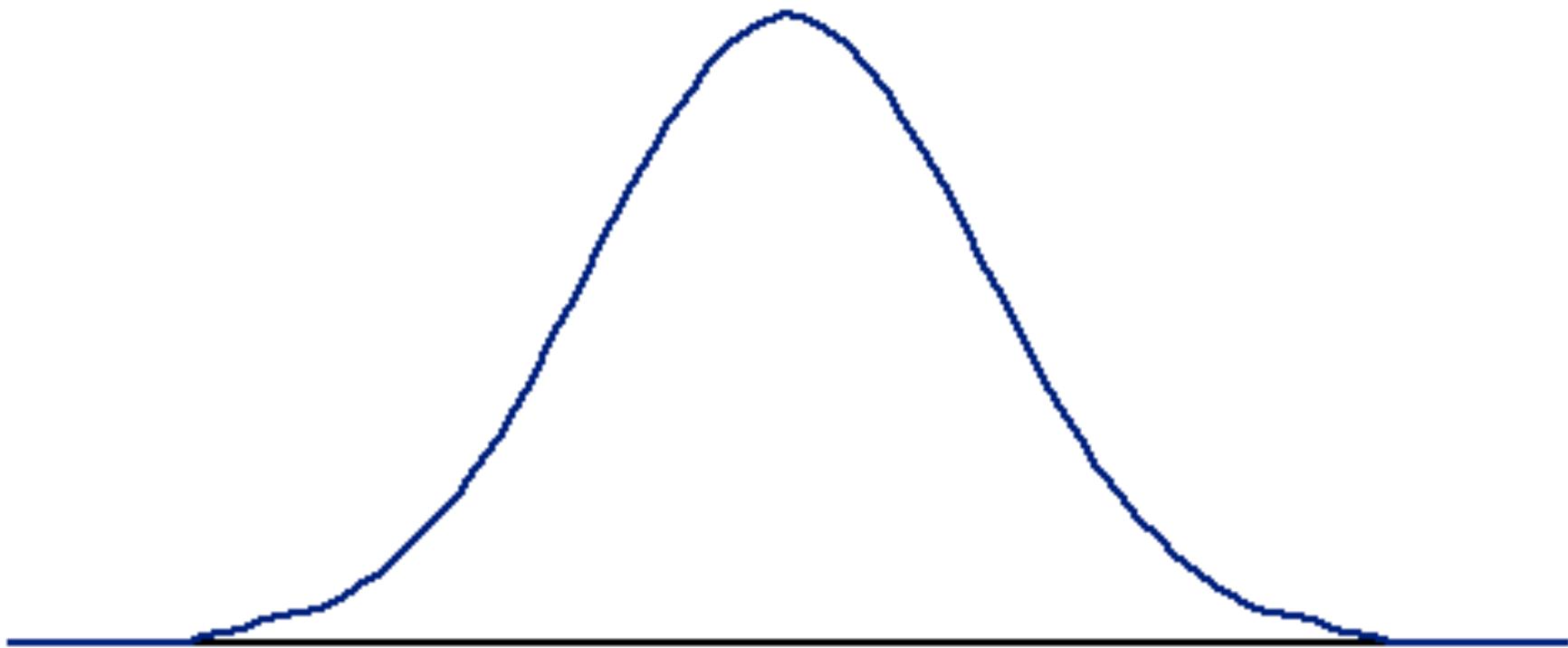
- The probability to conceive a child in a menstrual cycle
 - 25 % in the first month
 - 60 % at six months
 - 75 % at nine months
 - 85 % after 1 year

Fecundability in a cohort of healthy couples attempting to conceive

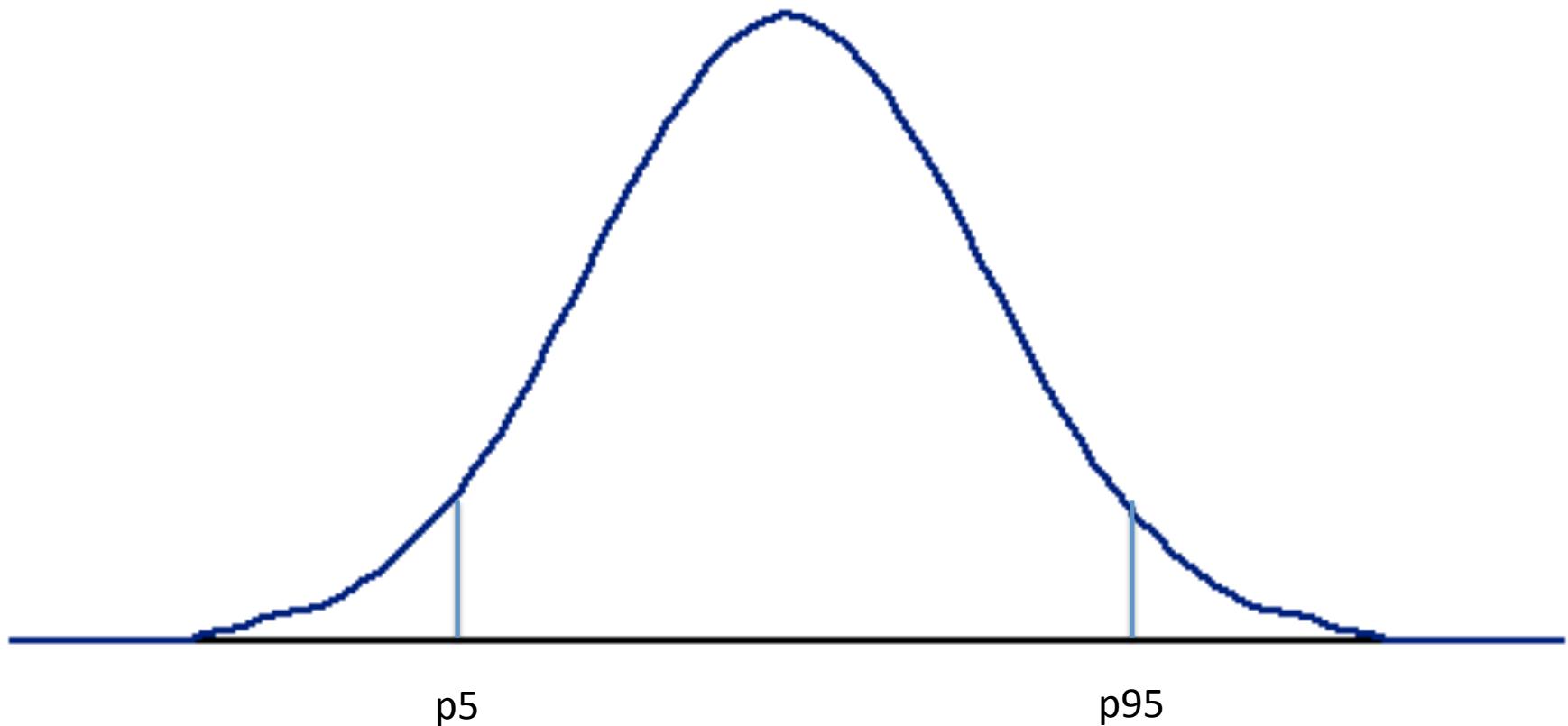


Data from: Zinaman, MJ, Clegg, ED, Brown, CC, et al. Estimates of human fertility and pregnancy loss. *Fertil Steril* 1996; 65:503.

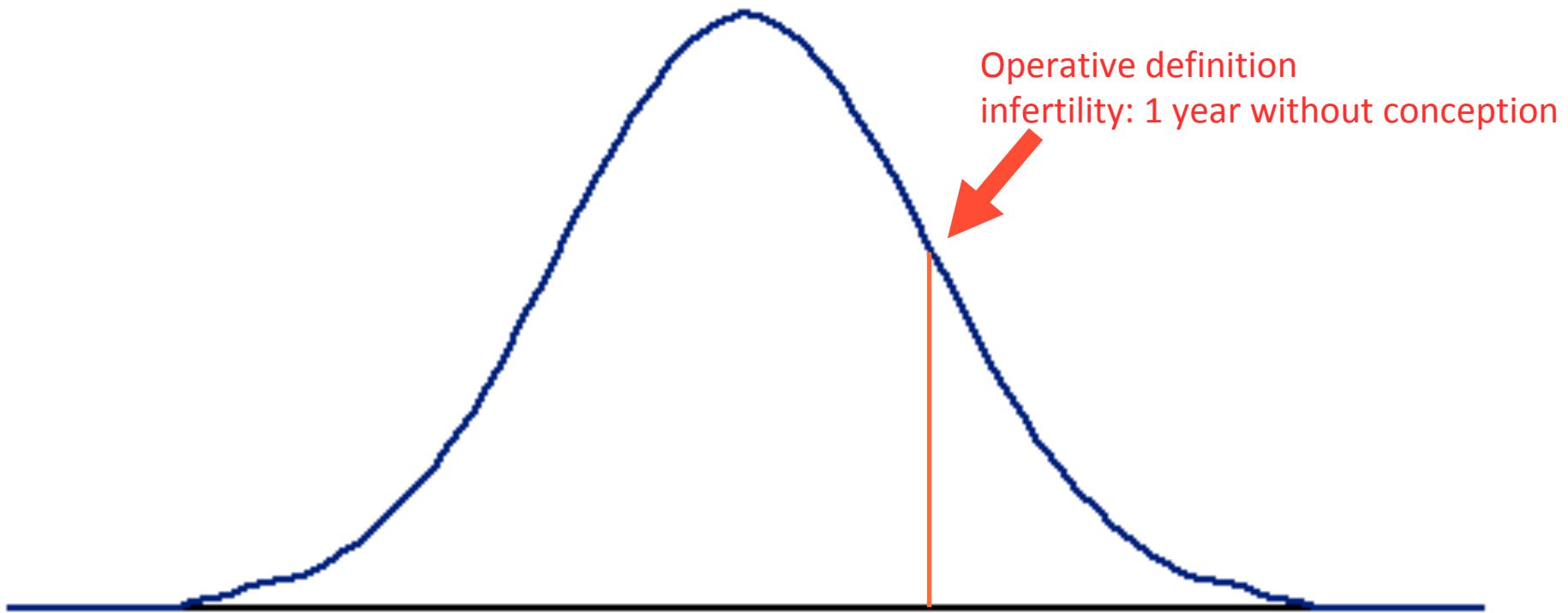
Curva Normal de Gauss



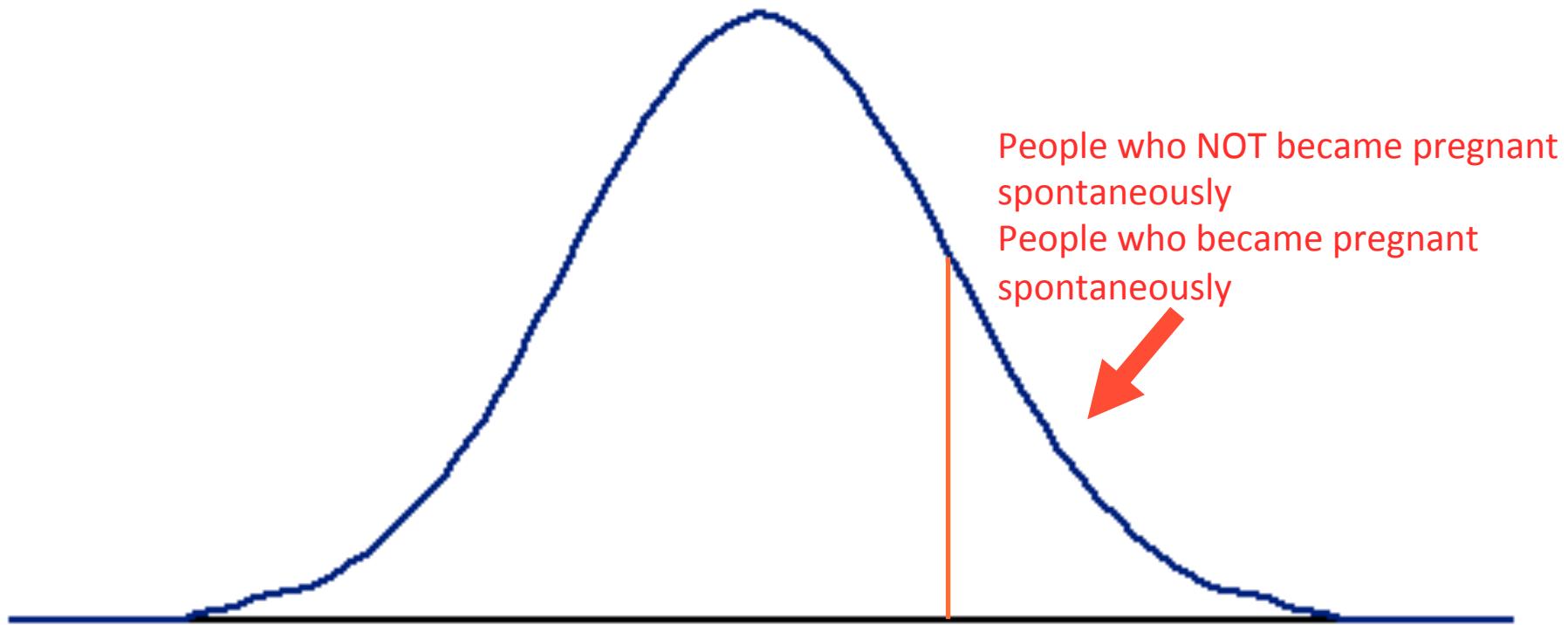
Curva Normal de Gauss



Curva Normal de Gauss



Curva Normal de Gauss



Fecundability

- The probability to conceive a child in a menstrual cycle
 - 25 % in the first month
 - 60 % at six months
 - 75 % at nine months
 - 85 % after 1 year
 - 93 % after 1 year

Infertility

- It is a disease of itself
 - A work at definition, operative
 - Based on statistics
 - Among those who can't conceive a child after a year a high proportion of couples have a pathology
 - Not all people who can't conceive have a disease

Infertility

- It is possible to classify people with infertility in terms of:
 - Become pregnant spontaneously without medical intervention
 - Become pregnant spontaneously with a restorative medical intervention
 - Never become pregnant, regardless of their medical restorative therapy

Subfertility

- Ambiguous concept
- Not used in all countries
- A group of persons which the impossibility to conceive has not been demonstrated
- It could be used in the group of patients with a possibility of spontaneous conception

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Fertility requirements

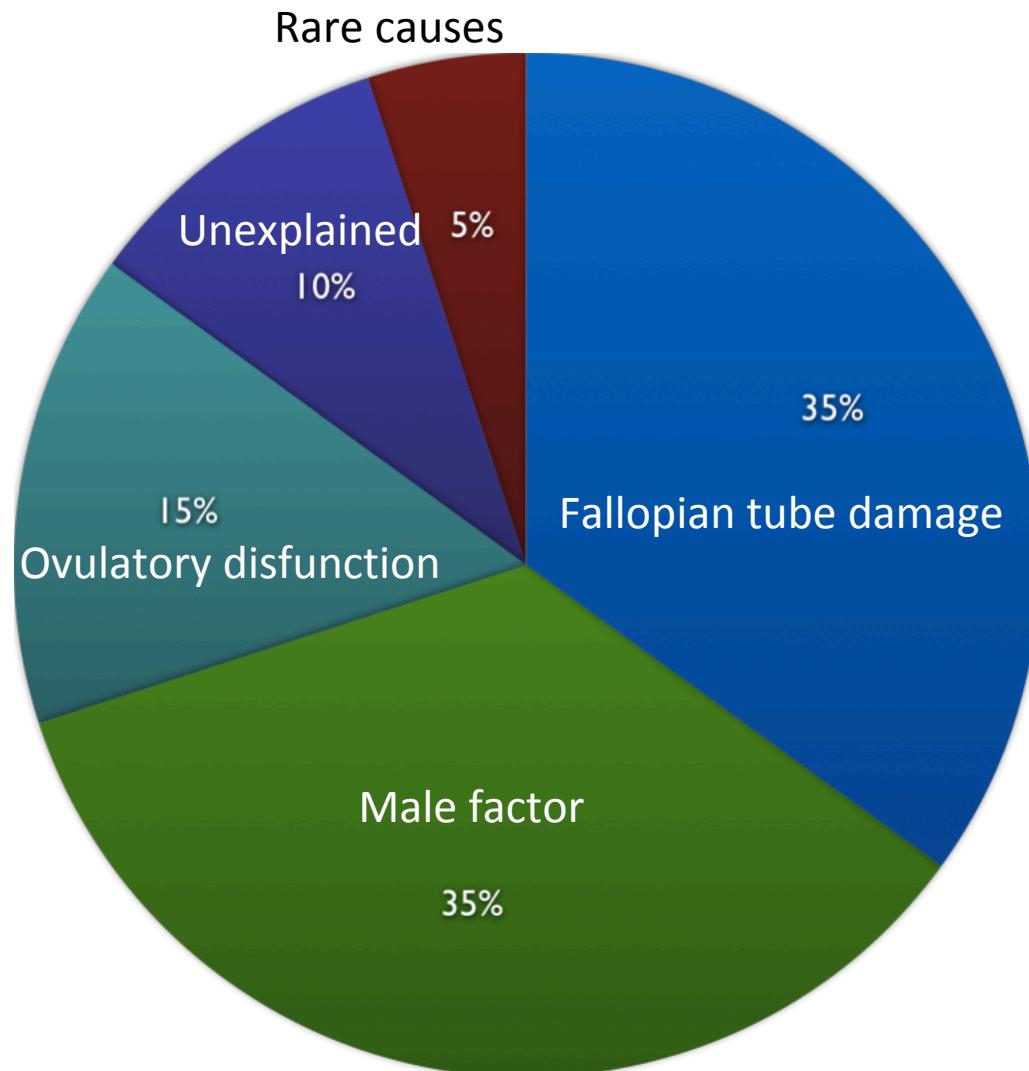
- Presence of healthy and viable sperm
- Presence of healthy egg
- Permeable genital ducts
- Ideal endometrium for implantation of embryo
- Presence of cervical mucus that allow nutrition and survival of sperm

Causes

- A study of WHO, in 8500 couples with infertility, show:
 - Female factor 37 %
 - Male factor 8 %
 - Both 35 %
 - Unexplained cause 5 %
 - Became pregnant during the study 15 %

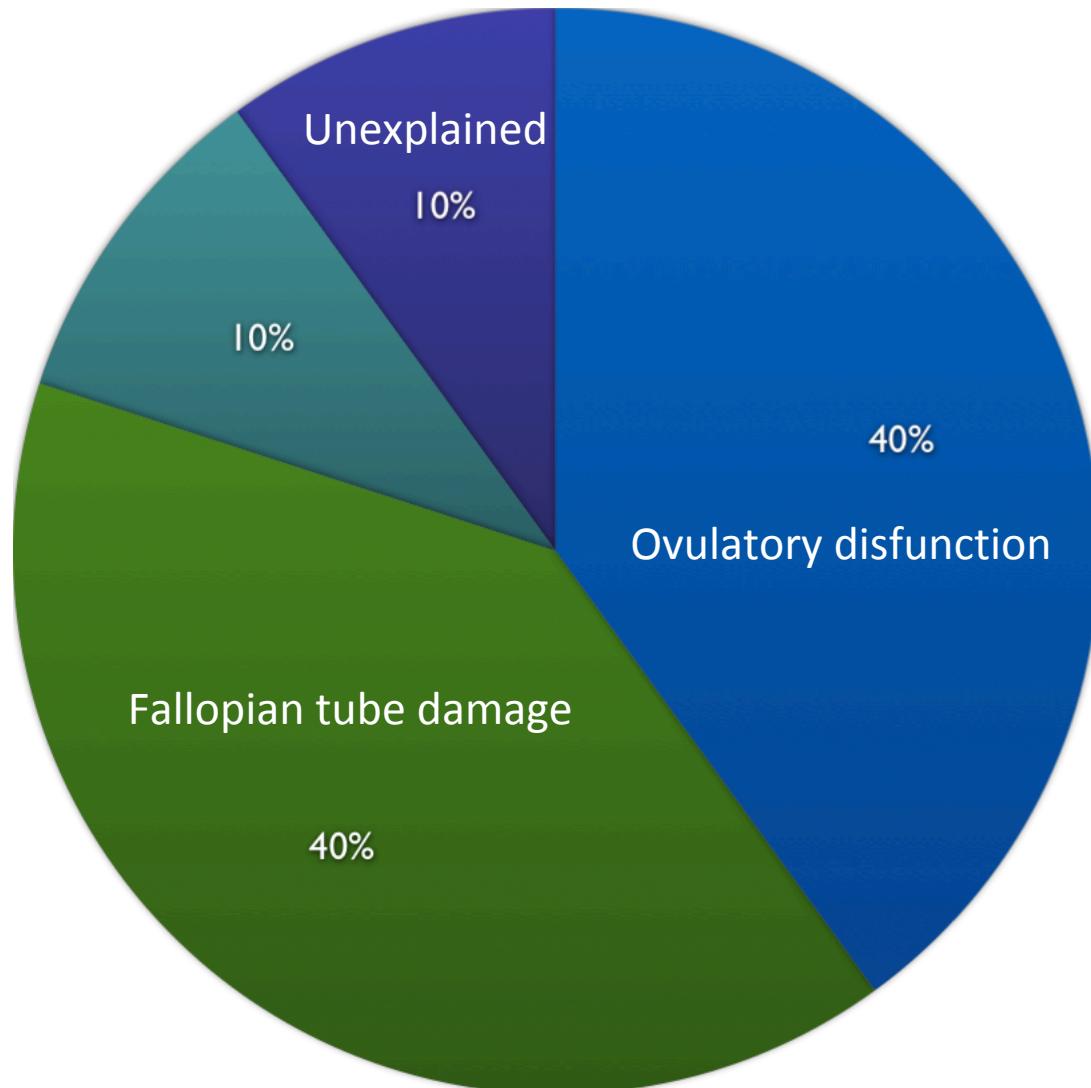
WHO Technical Report Series. Recent Advances in Medically Assisted Conception. Number 820, 1992, pp 1-111

Causes of infertility



Causes of infertility in female

Rare causes
(uterine, cervical, coital,
inmunologic)



Fertility requirements

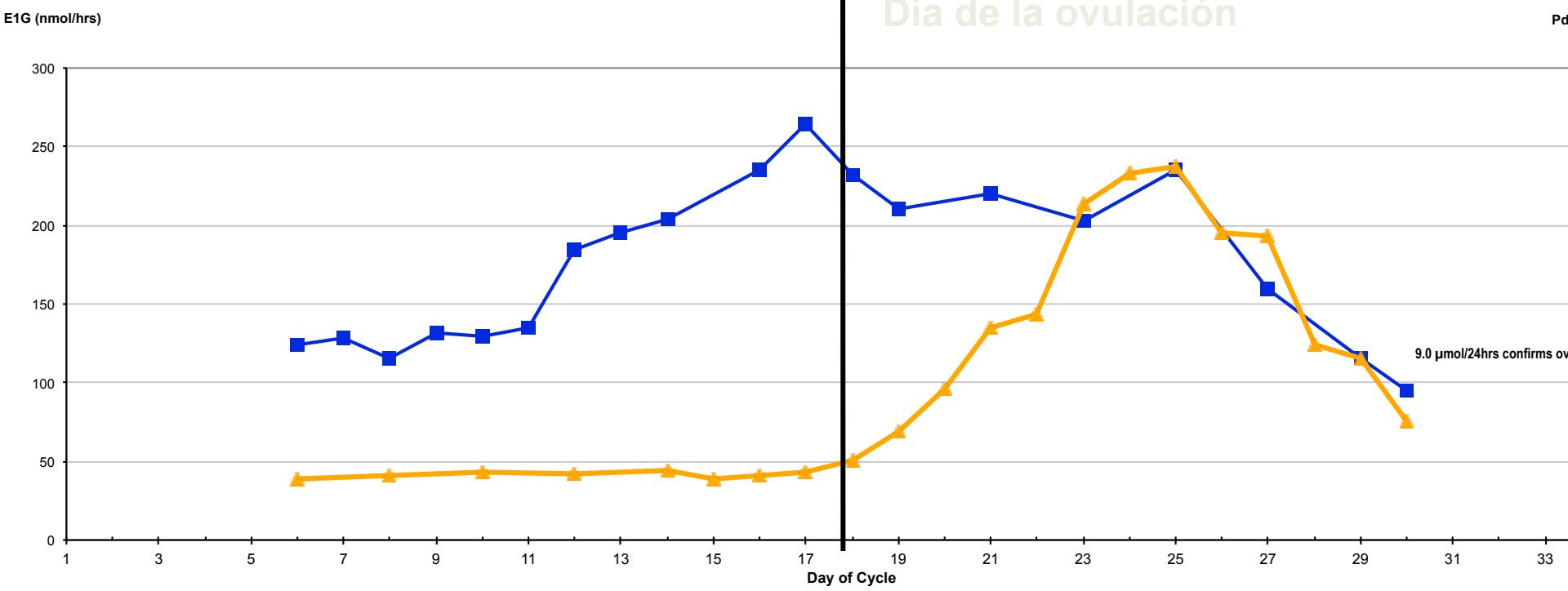
- Presence of healthy and viable sperm
 - Spermogram
- Presence of healthy egg
 - Cycle length, progesterone, ultrasound follicular follow up, FSH, LH, TSH, prolactin, Vit D, GTT
- Permeable genital ducts
 - Hysterosalpingography, laparoscopy
- Ideal endometrium for implantation of embryo
 - Ultrasound, endometrial biopsy, molecular studies
- Presence of cervical mucus that allow nutrition and survival of sperm
 - Postcoital test



Ovulatory and cervical dysfunction

- The Billings Ovulation Method as a diagnostic tool in infertility

1	2	3	4	5	6	7	8	9	10	11	12	13	14		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
					mojada																											
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	3,2		3,4		3,6		3,5		3,7	3,2	3,4	3,6	4,2	5,8	8,0	11,2	12,0	18	19	20	16	16	10	9,6	6,3							



Ovulatory and cervical dysfunction

- The Billings Ovulation Method as a diagnostic tool in infertility
- It allows assess ovulatory and cervical factors
 - Menstrual cycle length
 - Presence of ovulation
 - Luteal phase length
 - Detection of LUF
 - Mucus symptom and presence of mucus
 - It allows to program the best time to practice exams

Goals

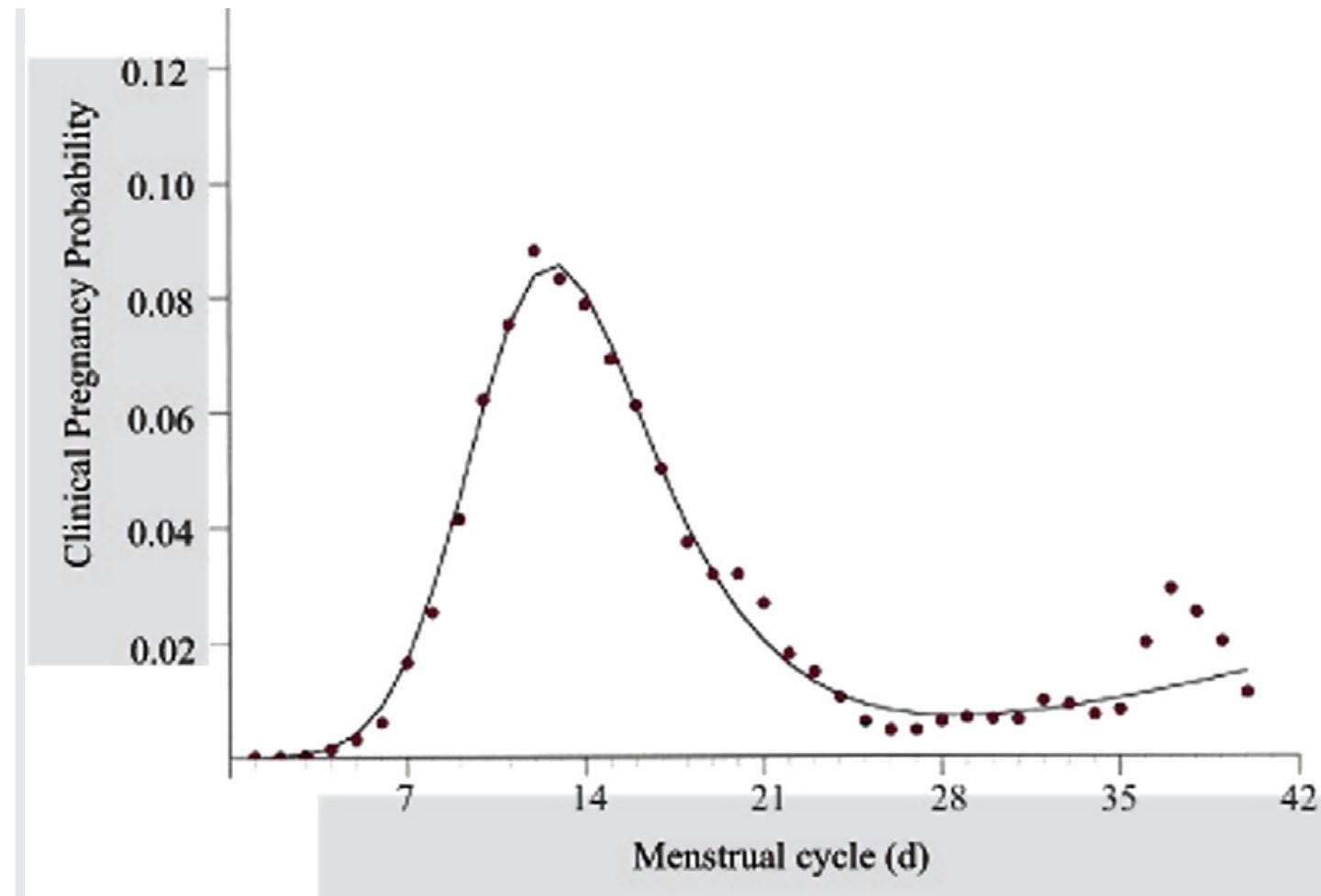
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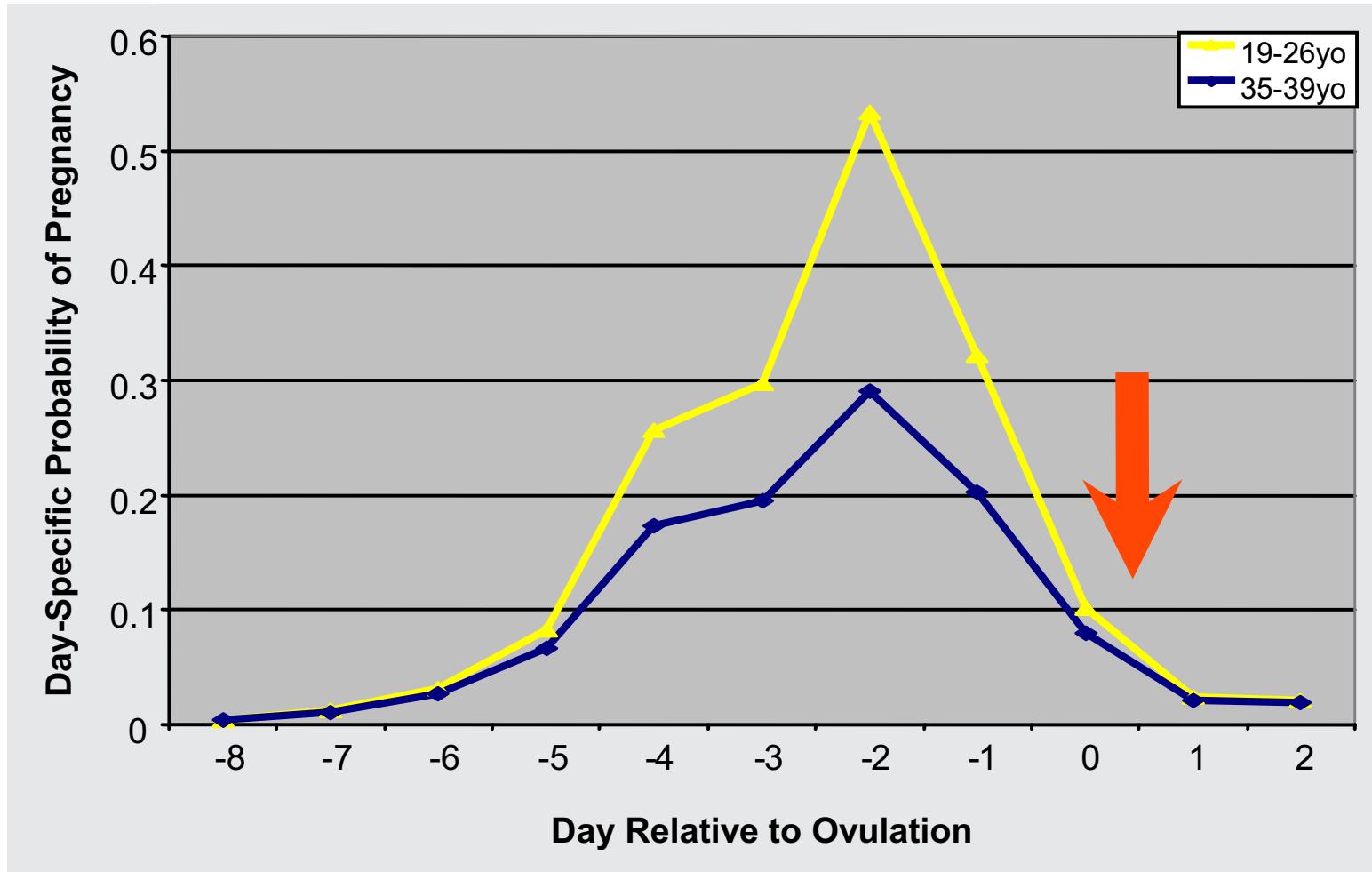
The Billings Ovulation Method

- The Billings Ovulation Method allows optimize the natural fertility
- It is a safe way to know the fertility window
 - Not only the day of ovulation
- Other ways are:
 - Ultrasound follicular follow up
 - Urine LH
 - Urine oestrogens and LH



Clinical pregnancy probability with a single intercourse

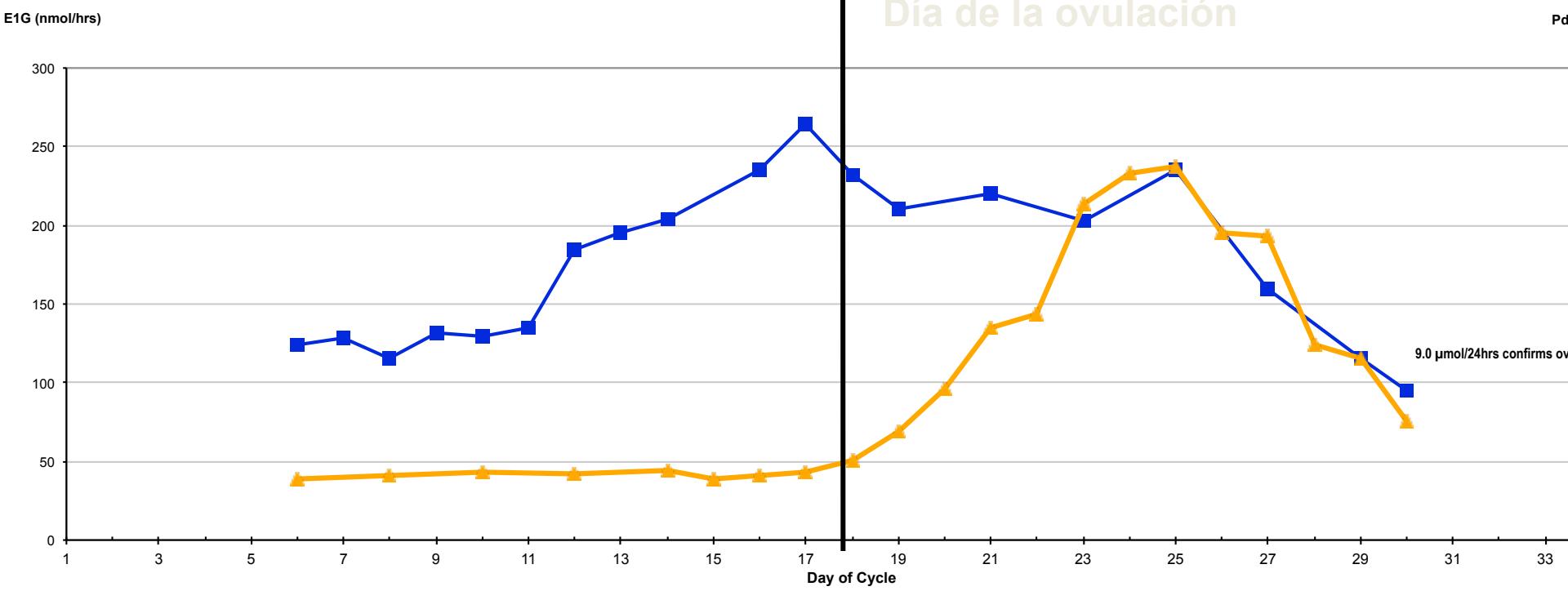
Dunson DB, Baird DD, Wilcox AJ, Weinberg CR. Day-specific probabilities of clinical pregnancy based on two studies with imperfect measures of ovulation. *Hum Reprod* 1999;14:1835–9.

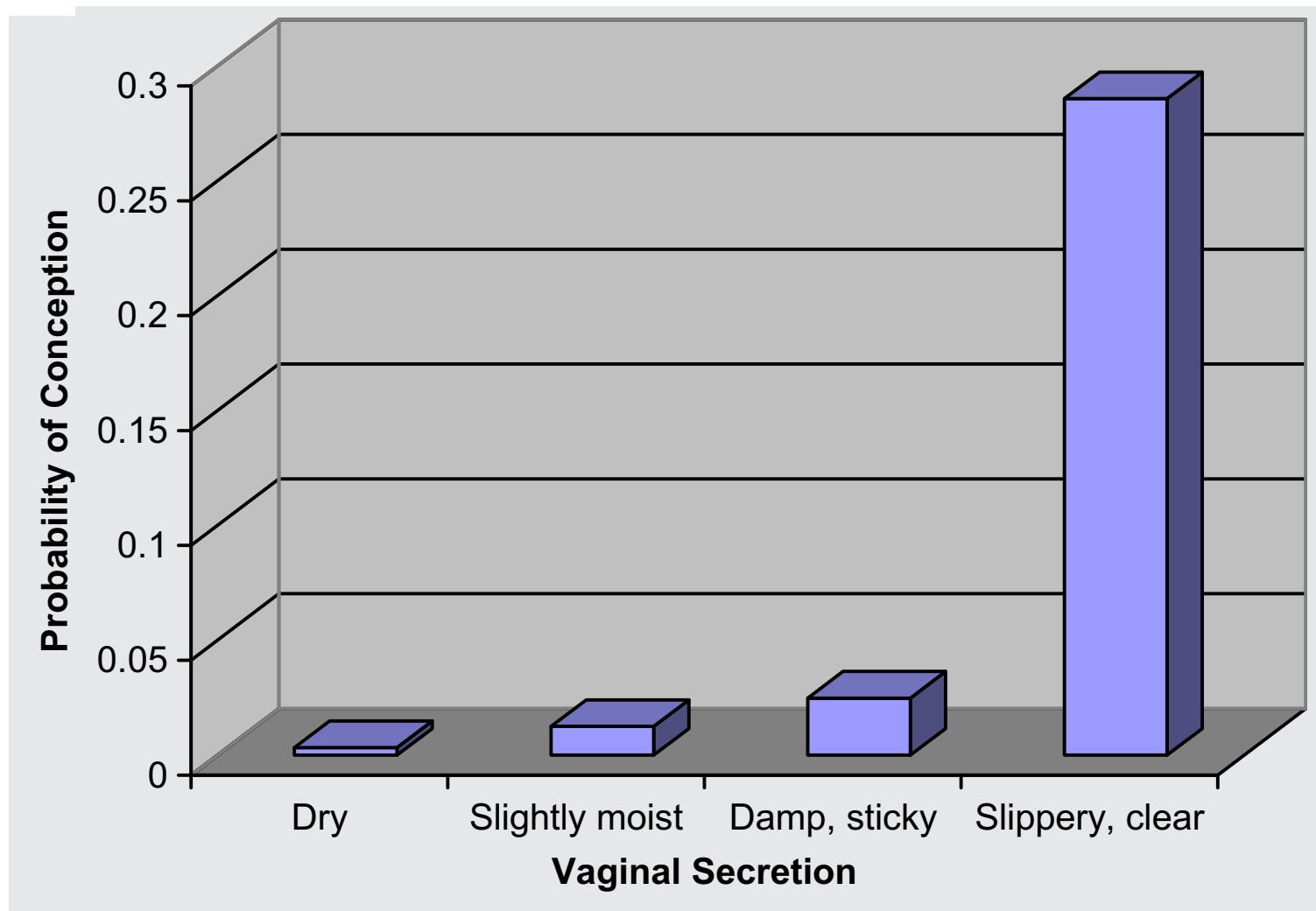


Probability of pregnancy by cycle day, involving recurrent intercourse, by age.

Stanford JB, Dunson DB. Effects of sexual intercourse patterns in time to pregnancy studies. Am J Epidemiol 2007;165:1088-95.

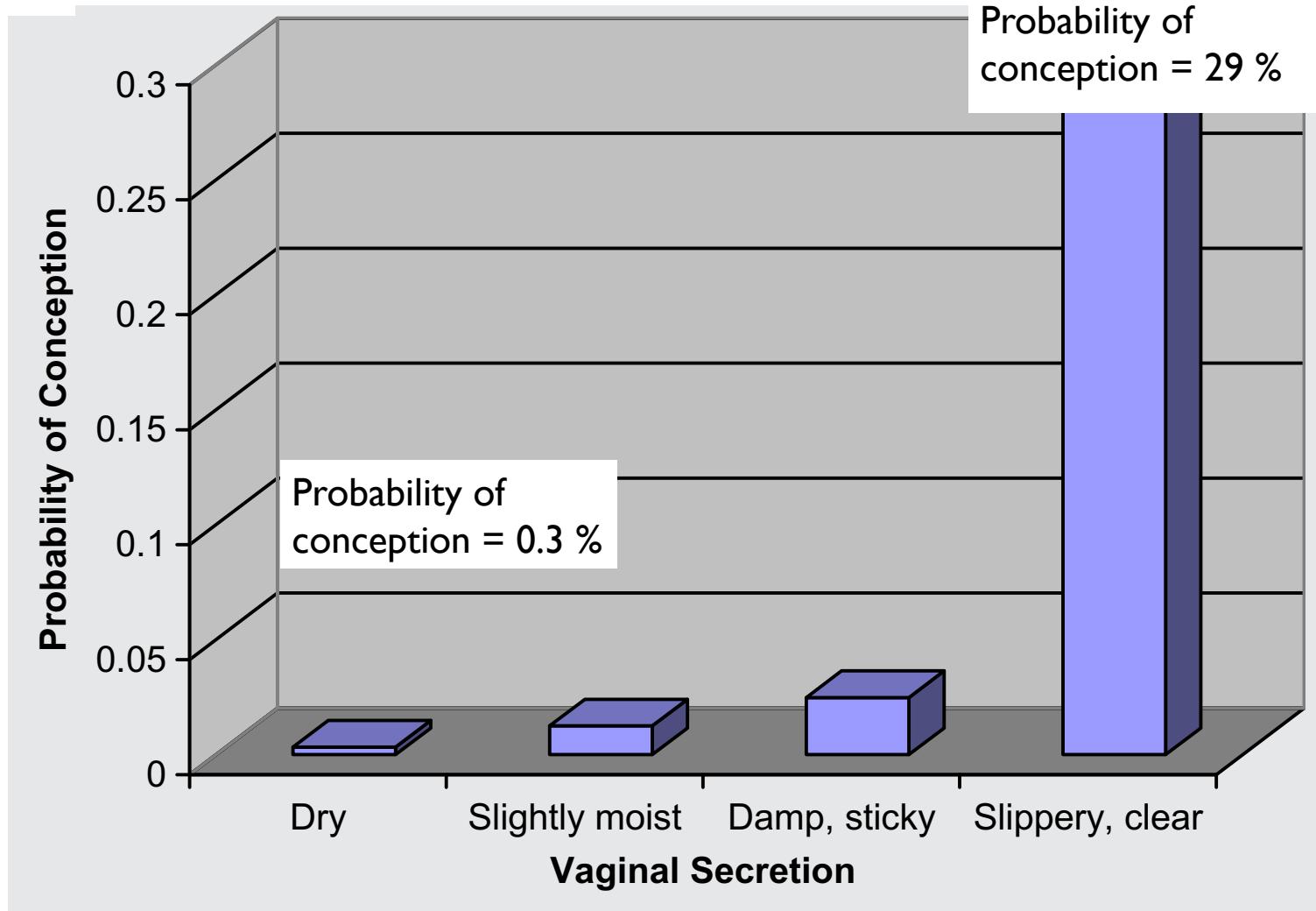
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Estimates of the probability of conception according to vaginal secretion observations on the day of intercourse.

Scarpa B, Dunson DB, Colombo B. Cervical mucus secretions on the day of intercourse: an accurate marker of highly fertile days. Eur J Obstet Gynaecol Reprod Biol 2006;125:72–8.



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Fertility focused intercourse

- Cumulative pregnancy rates in patients with apparently normal fertility and fertility-focused intercourse
 - 76 % of pregnancy in the first month
 - 100 % at 7 months
- Healthy people, without proven fertility
 - 38 % of pregnancies in the first month
 - 68 % of pregnancies at 3 month
 - 81 % of pregnancies at 6 month
 - 92 % of pregnancies at 12 month

Hilgers TW, Daly KD, Prebil AM, Hilgers SK. Cumulative pregnancy rates in patients with apparently normal fertility and fertility-focused intercourse. J Reprod Med. 1992 Oct;37(10):864–6.

Gnoth C. Time to pregnancy: results of the German prospective study and impact on the management of infertility. Human Reproduction. 2003 Sep 1;18(9):1959–66.

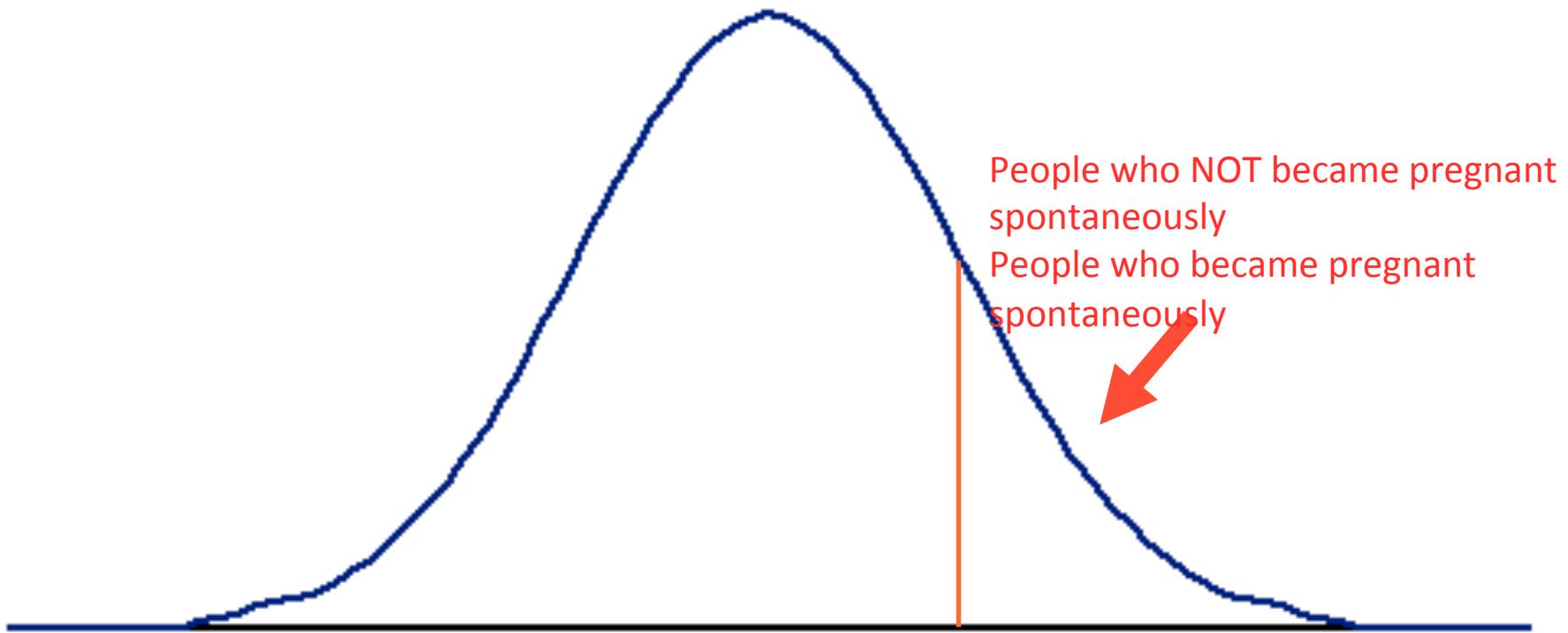
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Infertility Therapy

- Who can we offer the BOM™ to as therapy for infertility?
- To not generate false expectations and not discredit the BOM™

Curva Normal de Gauss



Within the group of people with infertility the probability of spontaneous pregnancy in a year ranges between 0 - 50%

Stanford JB, Mikolajczyk RT, Lynch CD, Simonsen SE. Cumulative pregnancy probabilities among couples with subfertility: effects of varying treatments. *Fertility and Sterility*. Elsevier Ltd; 2010 May 1;93(7):2175–81.

Eijkemans MJC, Lintsen AME, Hunault CC, Bouwmans CAM, Hakkaart L, Braat DDM, et al. Pregnancy chances on an IVF/ICSI waiting list: a national prospective cohort study. *Human Reproduction*. 2008 Apr 18;23(7):1627–32.

Collins JA, Burrows EA, Wilan AR. The prognosis for live birth among untreated infertile couples. *Fertility and Sterility*. 1995 Jul;64(1):22–8.

Hunault CC. Two new prediction rules for spontaneous pregnancy leading to live birth among subfertile couples, based on the synthesis of three previous models. *Human Reproduction*. 2004 Jun 24;19(9):2019–26.



Calculate the probability of a spontaneous ongoing pregnancy within 1 year (leading to live birth).

This probability is **not** reliable in case of :

- Women with ovulation disorders
- Men with severe male factor (Total motile sperm count = volume x concentration x % motility < 3 million)
- Women with 2-sided tubal pathology.

Has a postcoital test been performed?

Female age

34

Duration of subfertility in years

1

Previous pregnancies (in current or other partnerships)?

No

Referred by:

General Practitioner or on own initiative

Percentage progressive motile sperm?

40

Diagnosis of one sided tubal pathology on HSG?

No/not assessed

Diagnosis of one sided tubal pathology on laparoscopy

No/not assessed

The calculated probability of a spontaneous ongoing pregnancy within one year is: **28.7%**
This model has been validated between 2002-2004 in 38 hospitals in the Netherlands by Van der Steeg et al. In the Collaborative Effort of Clinical Evaluation in Reproductive Medicine (CECERM). The models showed to predict accurately.

Infertility Therapy

- Good etiological diagnosis and calculation of probability of spontaneous conception
- Group of patients with acceptable spontaneous conception probability
 - No severe male factor
 - At least one permeable tube
 - Ovulation dysfunction
 - Infertility of unexplained cause
- Low complexity treatments
 - Optimize natural fertility
 - Scheduled sexual intercourse in the fertility window
 - Controlled ovarian stimulation
 - Intrauterine insemination

Infertility Therapy

- Low complexity Treatments
 - Optimize natural fertility
 - Scheduled sexual intercourse in the fertility window (SSI)
 - Controlled ovarian stimulation (COS)
 - Intrauterine insemination (IUI)
- The Billings Ovulation Method™ can:
 - Offer as a first line of therapy
 - Coadjuvant of the COS
 - Define the best moment of the IUI

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Protocolos de Medicina de la Fertilidad

- www.medfer.cl
- www.fertilitymedicine.org



Nuestro objetivo

En Medicina de la Fertilidad buscamos ayudarte
a cuidar tu fertilidad natural, previniendo y tratando enfermedades
que alteran tu capacidad de ser padre o madre.

A través del conocimiento que nos entrega tu cuerpo y la medicina basada en la evidencia,
buscamos potenciar tu fertilidad natural.

Conocimiento de tu cuerpo

Conoce más sobre tu cuerpo. Aprende como funciona y como cuidar esa capacidad de generar vida.

Manejo de la infertilidad

Si estás intentando buscar un embarazo, podemos realizar un diagnóstico adecuado y ofrecer alternativas poco invasivas y respetuosas de tu cuerpo y tu dignidad.

Regulación natural de la fertilidad

Puedes regular tu fertilidad en forma natural y evitar o espaciar un embarazo sin químicos ni dispositivos. Tu cuerpo entrega señales que te permitirán administrar tu fertilidad.

Prevención de la infertilidad

Descubre como proteger tu fertilidad y mejorar tu salud.

“ La fertilidad es un don, no una carga o una imposición. Conoce y valora este gran aspecto de tu vida. Tu eres importante, cuídate.

REGULACION NATURAL
DE LA FERTILIDAD

MANEJO DE LA
INFERTILIDAD

MATERNIDAD

RECOMENDACIONES
GENERALES

DIETA Y SUPLEMENTOS

Asistencia a la Paternidad

Si estás intentando buscar un embarazo, podemos realizar un diagnóstico adecuado y ofrecer alternativas poco invasivas y respetuosas de tu cuerpo y tu dignidad.

Nuestro manejo se basa en un adecuado diagnóstico y en que conozcas tu cuerpo. De esta manera se corrigen todas las situaciones o patologías que afectan tu capacidad de ser papá o mamá. Así optimizamos al máximo tu potencialidad de ser padre. También podemos realizar inducción de la ovulación con fármacos e inseminación intrauterina.

Solicita una hora para hacer una anamnesis y examen físico y solicitar los exámenes que correspondan.

Además agenda una hora con nuestra instructora del Método Billings quien te ayudará a conocer tu cuerpo y los días más fértiles.

Sigue nuestras recomendaciones generales y optimiza tu dieta.

Agenda tu hora médica con el Dr. Stecher en el call center del Sanatorio Alemán 412796000 y también tu hora con la Instructora de Método Billings (Enfermera Pía Bustamante) en el 412796000 o al 412796028.

También lo puedes realizar en la página web: <http://pidehora.sanatorioaleman.cl>

Si lo prefieres puedes completar el siguiente formulario para ponerte en contacto con nosotros

* CAMPO OBLIGATORIO

NOMBRE *

Recomendaciones generales

Registre de acuerdo al Método de la Ovulación Billings™

- Registre la sensación vulvar al final de la jornada (use términos relacionados con el grado de humedad que percibe, use sus propias palabras). Las sensaciones pueden ir desde seca hasta resbalosa, pasando por lubricada, húmeda o mojada. Si observa algún tipo de flujo, regístrelo. No es necesario realizar ningún tipo de examen interno.
- Los días de flujo sanguíneo abundante debido a la menstruación, evite tener relaciones sexuales
- En el periodo definido como patrón básico infértil, mantenga relaciones sexuales en días no consecutivos y al final de la jornada.
- Una vez que se produzca un cambio en su patrón básico infértil evite tener relaciones sexuales hasta el día en que perciba su máxima sensación vulvar; mantenga relaciones sexuales en los días con máxima sensación resbalosa y los siguientes 3 días en cualquier horario.

Recomendaciones

- Evite el consumo de tabaco durante el periodo de búsqueda de embarazo
- Disminuya o preferentemente evite el consumo de bebidas que contengan cafeína
- Evite el uso de drogas recreacionales
- No utilice lubricantes vaginales durante las relaciones sexuales
- Prefiera la dieta Mediterránea (Para más detalles consulte la sección Dieta y suplementos)
- Ingiera un suplemento vitamínico y utilice 800 UI de vitamina D3



ingesta de una cucharada de te de Maca y Moringa al día. Si alguno de los miembros de la pareja tiene sobrepeso (IMC entre 25 y 29,9), recomienda la dieta Mediterránea baja en Hidratos de Carbono. Si alguno de los miembros tiene obesidad (IMC > 30), recomienda la dieta Mediterránea cetogénica por 2 a 4 semanas y luego la dieta Mediterránea baja en Hidratos de Carbono. Si la paciente presenta un IMC > 35 recomienda postponer la búsqueda de embarazo por 3 a 6 meses para evitar complicaciones del embarazo y para el hijo en gestación.

Para la Estimulación ovárica controlada prefiera Letrozol como primera línea. Como segunda línea Letrozol con gonadotrofinas o Clomifeno con gonadotrofinas. Tercera línea Gonadotrofinas.

Bibliografía

Van Asselt KM, Hinloopen RJ, Silvius AM, Van der Linden PJQ, Van Oppen CCAN, Van Balen JAM Huisarts Wet 2010;53:203-14. (Guía de manejo de la infertilidad de HOlanda)

Resumen Guía Holandesa de manejo de la infertilidad

Steures, P., van der Steeg, J. W., Hompes, P. G., Habbema, J. D. F., Eijkemans, M. J., Broekmans, F. J., et al. (2006). Intrauterine insemination with controlled ovarian hyperstimulation versus expectant management for couples with unexplained subfertility and an intermediate prognosis: a randomised clinical trial. *The Lancet*, 368(9531), 216–221. [http://doi.org/10.1016/S0140-6736\(06\)69042-9](http://doi.org/10.1016/S0140-6736(06)69042-9)

Bhattacharya, S., Harrild, K., Mollison, J., Wordsworth, S., Tay, C., Harrold, A., et al. (2008). Clomifene citrate or unstimulated intrauterine insemination compared with expectant management for unexplained infertility: pragmatic randomised controlled trial. *Bmj*, 337(aug07 2), a716–a716. <http://doi.org/10.1136/bmj.a716>

Allahbadia, G. N. (2015). Oral Drugs for Unexplained Infertility. *The Journal of Obstetrics and Gynecology of India*, 66(1), 1–5. <http://doi.org/10.1007/s13224-015-0805-7>

Custers, I. M., van Rumste, M. M. E., van der Steeg, J. W., van Wely, M., Hompes, P. G. A., Bossuyt, P., et al. (2012). Long-term outcome in couples with

El estudio inicial está indicado en:

- Personas que buscan un embarazo por al menos un año, sin uso de anticonceptivos
- Personas que buscan un embarazo por al menos 6 meses, si la mujer tiene más de 35 años
- Personas que buscan un embarazo, cuando la mujer tiene 40 años o más

Iniciar estudio de inmediato en:

- Historia de oligo/amenorrea
- Historia de quimioterapia, radioterapia, estados avanzados de endometriosis
- Sospecha o diagnóstico de enfermedad uterina o tubaria
- Exámenes de laboratorio alterados
- Varones con historia de cirugía testicular, paperas, impotencia o disfunción sexual; quimioterapia o radiación; o historia de subfertilidad con otra pareja
- Luego de 6 meses de un programa de optimización de la fertilidad natural
- Diagnóstico de una enfermedad crónica que altere la fertilidad

Estudio básico

1. Registro del Método de la Ovulación Billings

2. Exámenes de laboratorio:

- FSH y estradiol en día 3 a 5 del ciclo

- TSH

- Prolactina

- 25 OH vitamina D

- Glicemia basal y a las 2 horas postcarga de 75 gramos de glucosa

- Insulina basal y a las 2 horas postcarga de 75 gramos de glucosa

- Perfil lipídico

(en pacientes obesas solicitar perfil hepático. En disfunción ovular o sospecha de exceso de andrógenos solicitar Índice de Andrógenos Libres y DHEAS)

3. Espermograma

4. Exámenes de imágenes

- Ecografía ginecológica

- Histerosalpingografía * **

* En caso de fuerte sospecha de endometriosis o adherencias o secuelas de enfermedad inflamatoria pélvica prefiera laparoscopía con cromopertubación tubaria.

** Prefiera medio de contraste oleoso por sobre el acuoso

Fertility Medicine Protocols: Initial Study

1. Standardized history and physical examination
2. Billings Ovulation Method™ Chart
3. Laboratory tests:
 1. FSH and estradiol on day 3 to 5 of the cycle - TSH - Prolactin - 25 OH vitamin D - Glucose and basal insulin and at 2 hours afterload of 75 grams of glucose - Lipid profile (in obese patients request liver profile).
 2. In ovarian dysfunction or suspected excess of androgens ask for Index of Free Androgens and DHEAS)
4. Spermogram
5. Imaging tests (gynecological ultrasound and Hysterosalpingography)
6. Calculation of the probability of pregnancy



Fertility Medicine Protocols: General Recommendations

Register according to the Billings Ovulation Method™ and follow the rules to achieve a pregnancy

Recommendations

- Avoid tobacco consumption during the pregnancy search period
- Decrease or preferably avoid the consumption of beverages containing caffeine
- Avoid the use of recreational drugs
- Do not use vaginal lubricants during sexual intercourse
- The Mediterranean diet is preferred
- Take a vitamin supplement and use 800 IU of vitamin D3



Fertility Medicine Protocols: Ovulatory Dysfunction

- FSH and normal estradiol. Permeable tubes. Total count of motile sperm > 10,000,000
- Correct the cause of ovulatory dysfunction
- If the patient has a BMI less than 35
 - 3 cycles of COS alternated with SSI
 - 3 cycles of IUI alternated with COS
 - Ultrasound follow-up in the first cycle and continue recording according to the Billings Ovulation Method and urinary LH
- First line Letrozole
- Second line letrozole + gonadotropins or clomiphene + gonadotropins
- Third line Gonadotrophins.
- During the stimulated cycles 1200 mg of N-acetyl cysteine per day is recommended.



Fertility Medicine Protocols: Unexplained Infertility

Ovulatory menstrual cycles

At least one permeable tube

Total count of motile sperm > to 10 million

Calculate probability of spontaneous pregnancy according to Hunault.

- **If the probability of pregnancy is greater than 40%**
 - SSI for 6 months
 - IUI x 3 alternated with COS up to 6 months
- **If the probability of pregnancy is between 30 – 40%**
 - SSI for 3 - 6 months
 - IUI x 3 alternated with COS
- **If the probability of pregnancy is less than 30%**
 - IUI x 3 alternated with COS

Fertility Medicine Protocols: Male factor

Total count of motile sperm is between 3 and 10 million.

In case of total count <3 million, perform spermiogram with sperm separation to evaluate the number of progressive motile sperm (minimum for IUI 1,500,000).

Conduct specialized study of the male

Calculate the probability of spontaneous pregnancy

- **If the probability of pregnancy is greater than 40%**
 - SSI x 6 months
 - COS x 3 alternated with SSI
- **If the probability of pregnancy is between 30 to 40%**
 - SSI for 3-6 months
 - IUI x 3 alternated with COS
- **If the probability of pregnancy is less than 30%**
 - IUI x 3 alternated with COS



Main challenges

- Use BOM charts as a diagnostic tool in monitoring infertility in couples
 - Correlate information given by the charts with specific pathologies and the probability of spontaneous conception
- Properly define the management of the infertility of the couple according their probability of spontaneous pregnancy
 - The real use o BOM in infertility
- Collaborative research with WOOMB
 - Research in Concepción, Chile
 - To assess the Fertility medicine protocols by WOOMB medical team
 - Implement the fertility Medicine protocols in a research manner



The Billings Ovulation Method is a knowledge who every infertility couple need to know