PRE-CONGRESS COURSE 14

New generation patients

TF Management of Fertility Units, SIG Psychology and Counselling and Fertility Europe
Munich - Germany, 29 June 2014

eshre
SCIENCE MOVING
PEOPLE
MOVING SCIENCE

New generation patients

Munich, Germany
29 June 2014

Organised by
The ESHRE Task Force Management of Fertility Units, the ESHRE Special Interest Group Psychology and Counselling & Fertility Europe

Contents

Course coordinators

Luca Gianaroli (Italy) and Chris Verhaak (The Netherlands)

Course description

Social and demographic changes occurred in the last few years had an impact also on the demand for ART treatments.
Alongside traditional patients, new categories of patients with peculiar needs emerged. At the same time, the role of new technologies in the interaction between clinicians and patients is becoming preponderant.
This course aims to provide medical and paramedical staff of IVF units with useful information regarding emerging populations of patients and with tools to face their specific needs. Moreover, the course will analyze the role of new forms of communication in ART with the aim to provide participants with advice on how to manage them in an effective and safe way, thus maximizing their usefulness

Target audience

Clinicians, psychologists, paramedical staff

Course type

Advanced

Scientific programme

08:45 - 09:00 Introduction
Veljko Vlaisavljevic - Slovenia

Session 1: New generation patients: Social aspects

Chairmen: Lieve Decaluwe – Belgium and Alina David - Romania

09:00 - 09:30 Evolution of socio-demographic situation and reproductive behaviour: do we see the same patient as before?
Tomas Kucera - Czech Republic
09:30 - 09:45 Discussion
09:45 - 10:15 Social freezing
Juan Garcia Velasco - Spain
10:15 - 10:30 Discussion

10:30 - 11:00 Coffee break

Session 2: ART for medical reasons

Chairmen: Denisa Priadkova – Slovakia and Timur Gürgan - Turkey

11:00 - 11:30 New applications of PGD
Luca Gianaroli - Italy
11:30 - 11:45 Discussion
11:45 - 12:15 Gametes storage for fertility preservation
Ana Cristina Cobo Cabal - Spain
12:15 - 12:30 Discussion

12:30 - 13:30 Lunch break

Session 3: ART for legal and social reasons

Chairmen: Paul Devroey – Belgium and Elin Einarsdottir - Iceland

13:30 - 14:00 Travelling patients: the business of cross-border
Tonko Mardesic - Czech Republic
14:00 - 14:15 Discussion
14:15 - 14:45 Different models of family thus different types of ART patient
Amparo Ruiz Jorro - Spain
14:45 - 15:00 Discussion

15:00 - 15:30 Coffee break

Session 4: New technologies and communication

Chairmen: Sofia Gameiro – Portugal and Clare Lewis-Jones - United Kingdom

15:30 - 16:00 E-patients: from Dr. Google to Telemedicine
Karoline Steckley - Italy
16:00 - 16:15 Discussion

16:15 - 16:45 How to communicate with new generation patients
Sofia Gameiro - Portugal

16:45 - 17:00 Discussion

17:00 - 17:15 Closing remarks
Paul Devroey - Belgium

ESHRE GUIDELINE:

// PSYCHOSOCIAL CARE IN INFERTILITY AND MEDICALLY ASSISTED REPRODUCTION

GET INFORMED

The draft of the guideline will be presented at the ESHRE Annual Meeting 2014 by Dr. Sofia Gameiro

Be there!
Monday 30 June
at 15:15, Room 5

GIVE YOUR OPNION!

The guideline will be open for external review after the annual meeting.

Take this opportunity to review the guideline and submit your comments!

For more information check www.eshre.eu/guidelines or email nathalie@eshre.eu

GUIDELINE GROUP

Sofia Gameiro (Chair), Jacky Boivin, Eline Dancet, Cora de Klerk, Marysa Emery, Clare Lewis-Jones, Petra Thorn, Uschi Van den Broeck, Christos Venetis, Chris Verhaak and Tewes Wischmann

New generation patients

Introduction

Veljko Vlaisavljević
Professor in Obstetrics and Gynaecology at the University of Ljubljana

Department of Reproductive Medicine
University Medical Centre Maribor

Conflicts of interest

- Nothing to declare

Learning objectives of the syllabus

- New generation of patients: social aspects
- MAR for medical reasons
- MAR for legal and social reasons
- New technologies and communication

Timetable of MAR

- 80´s
IVF laboratory

- 90´s
Lab technology

- 2000´s
Drugs & therapy

- 2010´s
Patients & patient's rights

New P@tients

- Social aspects of MAR
- New applications of MAR for medical reasons
- Special families
- ePatients

Reproductive medicine today

Participatory model

Drastic change in the nature of patients **due to internet** as an alternative source of information.

Reproductive medicine today

Quality assessment

Quality control becomes a key feature !

- Guidelines
- International QM standards
- Legislation (national level, EU level)

Patient centerdness

Being respectful of individual preferences, needs and values; and ensuring that patient values guide all clinical decisions.

Institute of Medicine 2001

PubMed patients
New methods, drugs, treatments

www.IVF Centres
Web pages, mobile applications,

Social media

How to ensure the right information and protection of the patient against low quality practice?

Evaluating the success of the clinic

Norman 2011

	Low	Moderate	High	The elite
Fresh PR	Moderate	High per ET	High per cycle	High single live term birth (SLTB)*
Frozen PR	Low	Moderate	High	High SLTB*
Cumulative fresh&cryo	Low	Moderate	High	High SLTB*
Multiple PR	High	Low	Low (< 10%)	Low (<5%)
Patient side effect	Moderate	Moderate	Low	Very low
Patient satisfaction	Moderate	Moderate	High	Excellent
Treatment options	Low	Moderate	Customisation	Personalized
Emphasis of quality	None	Moderate	High TQM	Exceptional TQM

*expressed as national or international percentile for comparable patients

The perfect clinic

PREGNANCY RATES	Transparent, honest, audited
EDUCATION OF STAFF	Training, skills, technology, ethics
RESEARCH & INOVATION	Implementation, outputs
FOCUS ON PATIENT CARE	Feedback, options, finances
EMOTIONAL ENGAGEMENT	Communication, consultation
CONTROLLED SYSTEMS	Total quality management, ISO
TRUTH	Results, unexpected events, treatments, literature

Norman 2011

EBCOG
The European Board and College of Obstetrics and Gynaecology
FINAL DRAFT

Standards of Care for Women's Health in Europe

Report of a Working Party
EUROPEAN BOARD AND COLLEGE OF OBSTETRICS & GYNAECOLOGY (EBCOG)
(www.ebcog.eu)
15/11/2013
Gynaecology Services (Volume 2)

Infertility and Assisted Conception

Standards of Care for Women's Health in Europe,2013

Staffing and competence

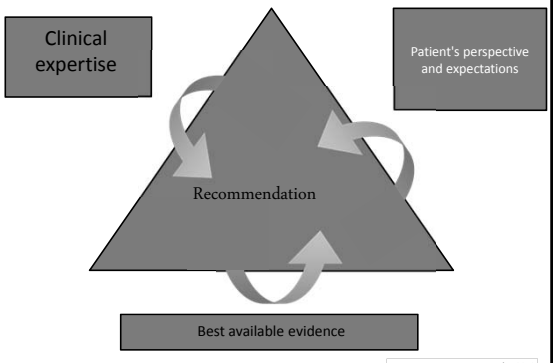
6.1 A **quality manager should be employed** in each specialised centre.
6.2 All staff should be certified by the appropriate national body.
6.3 Specialised centres should have regular meetings to discuss and manage cases in a multi-disciplinary environment

Running an IVF Centre

- 10% clinical skills
- 30% scientific skills
- 60% sheer organisation

TQM= the scientific way of doing business

From: Mortimer D& Mortimer S.T. : Quality and risk management in the IVF laboratory. Cambridge University Press, 2005



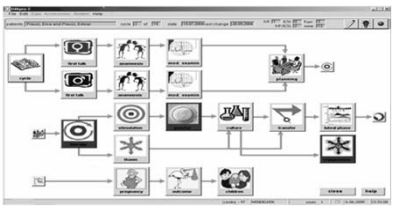
N.Vermeulen 2013

Dia 15

" In God we trust, all others must bring data."

W. Edwards Deming,Ph.D

IVF Centre Database !
Paperless office & online registration



Science starts when centre begins to operate with quantitative measurements and numbers.

Quality of treatment

- Medical and laboratory aspects
- Psychological and ethical aspects
- Organisational aspects
- **Fulfilment of quality expectations from the patient´s perspective**

ePatients

- Expect a better understanding of the treatment process.
- Need help to make *the right decision.*

Why are social media popular?

- Almost anyone can participate
- Little or no censorship
- Engaging patients in multiple channels

Mobile friendly sites

Patient communication

Creating communication

Video content

Twitting

QUALITY OF ORGANISATION = QUALITY OF CARE
(Patient satisfaction + better outcome)

Today, patients expect to be treated like a customer.
They require services characterised by:

Convenience
Responsiveness
Safety
Quality
Respect

Patient satisfaction

Patient satisfaction is becoming a vital factor.

- IVF centres need to develop a higher level of personalised service and satisfaction, otherwise they will risk losing patients.

ESHRE'S GOOD PRACTICE GUIDE
Cross border reproductive care

- High quality and safe MAR treatment
  - Patients / children / third party collaborators
  - equal treatment of domestic and cross border patients
  - avoid "disproportionate stimulation"
  - avoid "deviation from the rules of embryo transfer"

Shenfield et al., HR, 2011

Conclusion

- Internet has enhanced the process of transforming Europe into a borderless area for patients seeking fertility treatment.
- ePatients are able to seek help for their specific fertility treatment needs outside their native country.
- Restrictive national regulations have become less important in the era of globalisation and cross border medicine.
- Restrictive national regulations in MAR generate inequality among the patients.

Evolution of the socio-demographic situation and reproductive behaviour: are we seeing the same patient as before?

Dr. Tomáš Kučera, Charles University in Prague, Department of Demography and Geodemography

Disclosures

The author of this presentation is not in a commercial and/or financial relationships with manufacturers of pharmaceuticals, laboratory supplies and/or medical devices.

Objectives

- To trace the most profound changes in reproductive behaviour of European populations expressed through changing levels and patterns of fertility
- To overview and comment basic socio-economic factors determining low and aged fertility in most of European countries
- To estimate changes of the ART patients contingent size and structure

Historical changes in fertility and its driving forces

During the past two centuries the overall level of fertility in Europe has decreased from about 5-6 to 1-2 live births per woman.

The observed decrease in fertility was the result of a transition from a highly extensive to an intensive mode of population reproduction labelled as (the first) demographic transition.

Major intensification of human population reproduction was a part of the universal process of modernization represented namely by the process of industrialization and accompanying changes (urbanization, secularization and ceding some traditional roles of the family to the social state) experienced by most European societies during the 19th and the first half of the 20th century.

Historical changes in fertility and its driving forces

Ongoing changes of values, norms and attitudes during the second half of the 20th century, which has led to the individualization of modern societies, resulted in new patterns of family and reproductive behavior, called the second demographic transition.

As a result of this second transition, the total fertility rate further declined significantly below the replacement level.

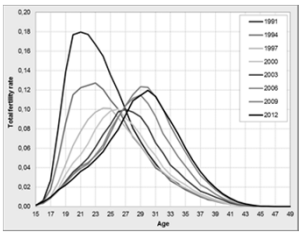
In some European countries this process was speeded up and deepened by an economic recession accompanying the transition from a centrally planned to a market economy during the 1990s.

Recent development of fertility

However the recent development of fertility is not only about the increase or decrease of total fertility rate values.

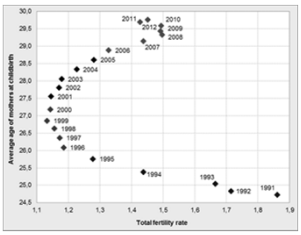
Fertility has also been intensively ageing - overall fertility distribution according to the mother's age has been transformed and its central values have moved to higher ages.

Ageing of fertility



Transformation of fertility patterns, Czech Republic, 1991-2012, ASFR (live birth per woman)

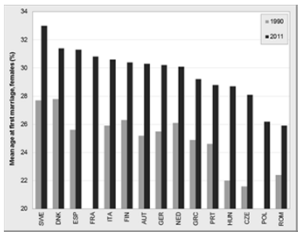
Source: CZSO, calculations and design B. Burcin



Total fertility rate and mean age at birth (live births per woman and years)

Source: CZSO, calculations and design B. Burcin

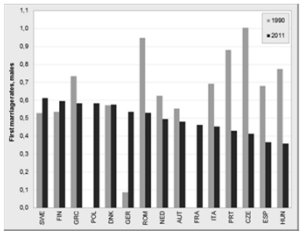
Ageing of fertility – determinants (delayed marriages)



Mean age at first marriage, selected countries, females (years)

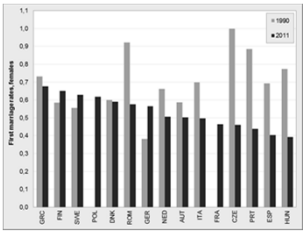
Source: Eurostat, own calculations, design T. Pachlová

Ageing of fertility – determinants (very low nuptiality)



First marriage rate, selected countries, males (marriage per person)

Source: Eurostat, own calculations, design T. Pachlová



First marriage rate, selected countries, females (marriage per person)

Source: Eurostat, own calculations, design T. Pachlová

Ageing of fertility – other determinants

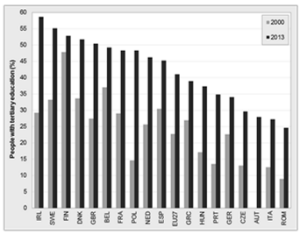
Growing proportion of couples is living in a consensual union.

Between one third and one half of newly born children in EU countries are born out of wedlock, to single mothers or unmarried couples.

Described phenomena reflect modern times opportunities as well as limitations:

- ability to very effectively regulate reproduction
- existence of a wide range of self-fulfilment opportunities
- necessity and possibility to study
- increasing emancipation and gender equality but also worsening position of young people on the labour market

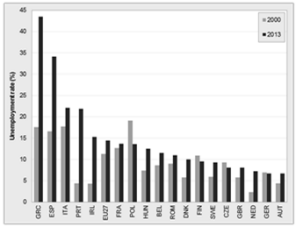
Ageing of fertility – determinants (tertiary education)



Proportion of people at age 30-34 with attained tertiary education, selected countries, both sexes (%)

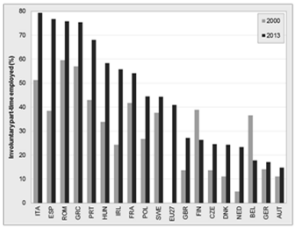
Source: Eurostat, own calculations, design T. Pachlová

Ageing of fertility – determinants (labour market position)



Unemployment rate, people aged 25-29 years, selected countries, both sexes (%)

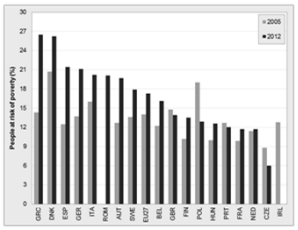
Source: Eurostat, own calculations, design T. Pachlová



Involuntary part-time employed of all part-time employed, people aged 25-29 years, selected countries, both sexes (%)

Source: Eurostat, own calculations, design T. Pachlová

Ageing of fertility – determinants (risk of poverty)



People at risk of poverty, aged 25-29 years (%)

Source: Eurostat, own calculations, design T. Pachlová

Is it the same patient or not?

The same patient in the demographic sense of the word, is a patient of the same sex and age.

Statistically the same patient would mean an approximately stable structure of health problems as well as a very similar volume and structure of medical procedures required and many other similar parameters of the medical care system. This is not a medical problem even though it draws the interest of all people responsible or interested in the effective functioning of the healthcare system or of part of it.

Is it the same patient or not?

Our further considerations are based on the assumption that the patient's age is a very important parameter influencing parameters of the provided care as well as its results. Therefore we are eager to know what will basic characteristics likely be, as to the size and age structure of the female source population.

Is it the same patient or not?

The volume of services depends on the size and age structure of the source population as well as on the age specific exposure rates, i.e. intensities of attempts to conceive.

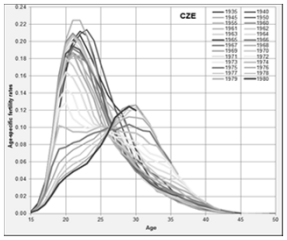
Assuming that to a particular age, a corresponding number of attempts is needed to get a unit outcome and since the other number of attempts lead to a unit failure, one can suppose that the number of failures and thus the specific demand for ART, is in relation with the number of outcomes.

Therefore a change in the age specific fertility rate can represent a relatively robust estimator of change of an analogical intensity of the demand for ART. Together with the change of size and age structure of the source population, it determines changes in the size and structure of the demand for ART.

Is it the same patient or not?

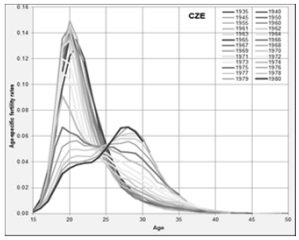
Of course, there are numerous assumptions out of our control and therefore any sufficiently reliable estimate is practically impossible. Nevertheless we can try to see what is going to happen with the main factors - size and structure of the exposed population and with one of the main estimators of the demand - age specific fertility rates.

How did fertility patterns change?



Age-specific fertility rates, selected birth cohorts, Czech Republic (births per woman)

Source: Human Fertility Database, calculations and design N. Kadatskaya



Age-specific fertility rates, selected birth cohorts, first parity, Czech Republic (births per woman)

Source: Human Fertility Database, calculations and design N. Kadatskaya

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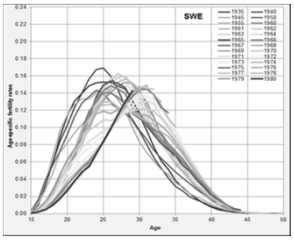

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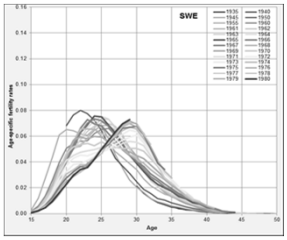

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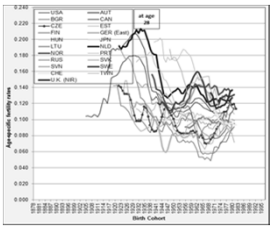
How has the fertility level changed age by age?



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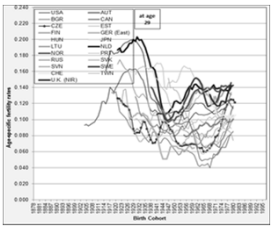

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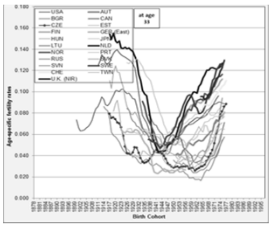

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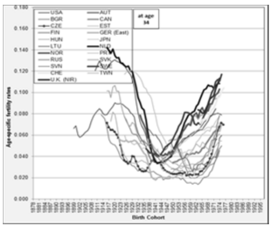

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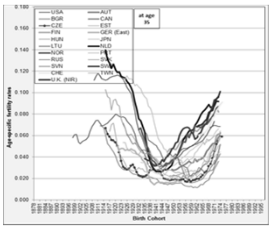

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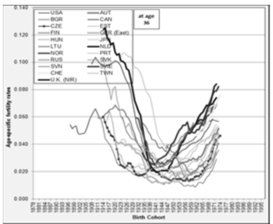

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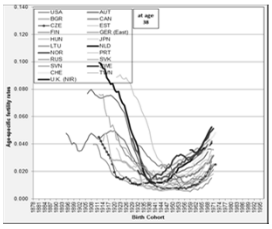

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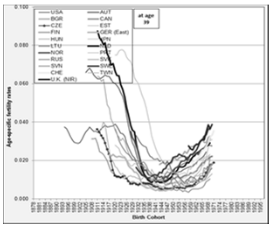

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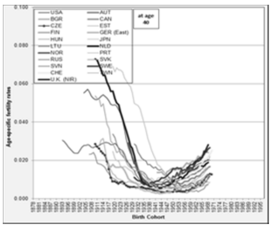

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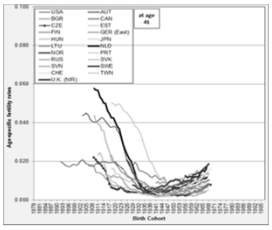

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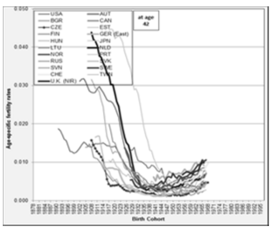

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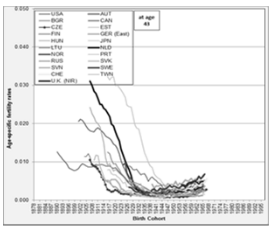

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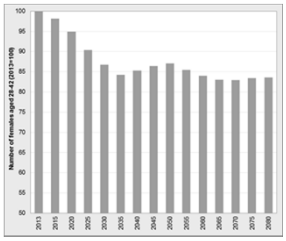
Source: Human Fertility Database, calculations and design N. Kadatskaya

Is it the same patient or not?



Relative size of the main contingent of potential patients (source population) in the EU27 (woman aged 28-42)

Source: Eurostat, own calculations, design T. Pachlová

Is it the same patient or not?

Referring to the distribution of cycles by age groups, we limited the main contingent of potential patients by the exact ages 28 and 43 years. At the beginning of 2013, there were almost 52,2 million females in this age interval (28-42). Their number is going to decrease by more than 15 % (8.3 million) by 2035 and consequently after a small oscillation around the middle of the century it should relatively stabilize at the level of about 43 million females.

Regardless of all these intensive changes, the relative age structure of this contingent is going to be highly stable since the average age should only vary in the very narrow interval between 35,4 and 35,7 years. The assumed decrease of its size without a principal ageing of the contingent itself would significantly reduce the demand for ART.

The expected reduction is going to be partially compensated by further ageing of fertility. However ageing of fertility ran out of its potential in most Europe as it was seen also in the previous graphs.

Is it the same patient or not?

To sum up, the relative age structure of patients, and consequently also their demand **should not change** significantly in the EU27 during the next decades.

However there will very likely be fewer patients, of course, if the sex and age specific prevalence of diseases treatable by ART is not going to change principally.

This conclusion primarily refers to the "average" population of the EU27. However national as well as regional populations and fertility development can principally differ from our observations and estimates. Therefore it is only a general but not a universal conclusion

Social freezing

Dr. Juan A Garcia-Velasco
Instituto Valenciano de Infertilidad
Madrid

Why "social"

- **Medical/onco indicatins** vs **non-medical**
- If it is technically feasable, why not do it?
  - risk?
  - costs?
  - expectations?

We are less fertile

- less children <35y
  - 27% in Australia
- sperm is loosing quality (WHO 2011)
  - 20% pure male factor
- demand for ART keeps increasing
  - 9% from 2003 to 2009
  - 41% in women >40 y

ASRM 2012

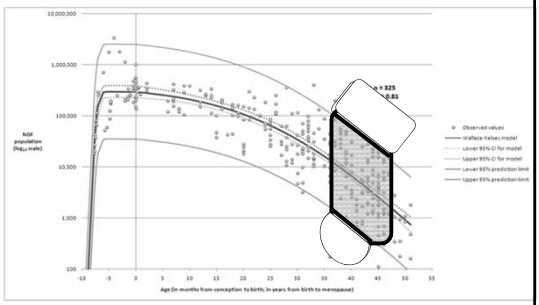
We are less fertile

- 1/25-100 children born after ART
- 1/7 children in >37 y
- risk of being childless

<30 y	6%
<35 y	14%
40 y	35%

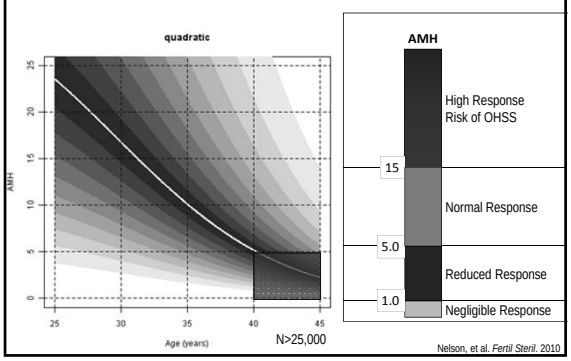
Uterus – sperm – oocytes...

The reality



Kelsey and Wallace PLOS One 2010.

AMH age nomogram

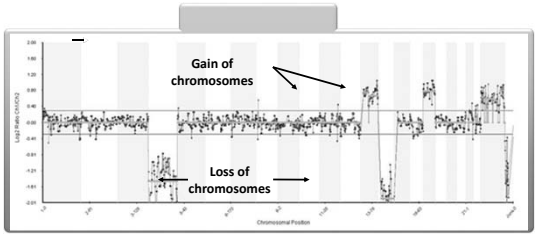


N>25,000

Nelson, et al. *Fertil Steril*. 2010

Scarce … and not very good

o 77% oocytes are aneuploid at 40 y.



Geraedts, Montag, Magli, et al. 2011

How big is this problem

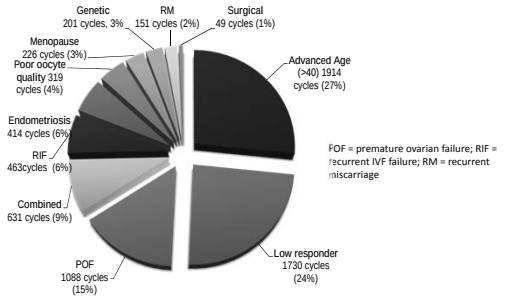
Fresh IVF	2047
Frozen cycles	1076
Egg donation	1005

Age

1,404 > 34 y.o
68.6%

IVI-Madrid 2012

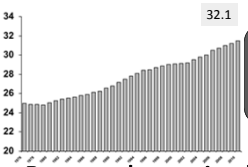
7,186 donor egg cycles



Budak. Evolution of a large oocyte donation program over a 10-year period. Fertil Steril 2007.

Our reality

Delayed maternity….and more:



each decade ↑2 years

51 y. in 22nd century?

Best embryos in the 20's

Is aging a disease?

No, causes diseases

- brain damage (dementia)

- a great percentage of IVF cycles done today are because of women age

- use of medicine for "social/life style diseases"? (obesity)

Is it "good" to freeze?

- Safe
- Efficacious
- Cost-effective
- Ethically acceptable

Who may benefit

- 20-25% opt not to have kids
  Education level?

DINKS
double income no kids

SSS
single, sexy, successful

Safe

- Current protocol
  – rFSH / Antag/ GnRHa

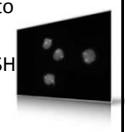
Complications	0.41% (17)
Intraabdominal bleeding	0.34% (14)
Severe pain	0.05% (2)
Ovarian torsion	0.02% (1)

Bodri et al. 2008

- Practically no OHSS risk
  - as no hCG is used
  - and no embryo transfer performed

Safe

- And the child?
  - Low birth weight, preterm… NOT related to freezing
  - Similar chromosomal abnormalities by FISH



Cobo et al. 2001

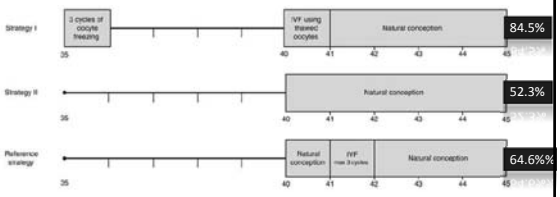
  - 900 new borns similar to general population
  - 200 new borns similar to IVF patients

Noyes et al. 2009

Chian et al. 2008

Cost-effective

- Egg freezing is more cost-effective than IVF
- 35 y.o. patient that waits till she is 40



Van Loendersloot et al. Hum Reprod 2011

Efficacious

o survival after thawing	90-97%
o fertilization	71-79%
o implantation	17-41%
o pregnancy	36-61%

o Pregnancy/ thawed oocyte 4.5-12%

Most are young women <35 y

ASRM Practice Committee 2012

Vitrification efficacy

Table III Clinical outcome according to the type of oocytes received

	Egg-bank	Fresh
Number of embryos transferred	267 (90.5)	259 (89.6)
Mean number of embryos replaced	513 (1.74 ± 0.7)	498 (1.72 ± 0.7)
Number of cycles with embryo 're-vitrification'/cryopreservation	196 (66.7)	216 (74.7)*
Mean number of re-vitrified or cryopreserved embryos	592 (2.0 ± 2.1)	743 (2.5 ± 2.3)*
Implantation rate	205 (39.9)	204 (40.9)
Positive hCG test/cycle	165 (55.9)	159 (55.0)
Clinical pregnancy rate/cycle	148 (50.2)	144 (49.8)
Positive hCG test/transfer	165 (61.8)	159 (61.4)
Clinical pregnancy rate/transfer	148 (55.4)	144 (55.6)
Twin pregnancy rate	48 (32.4)	54 (37.5)

Unless otherwise indicated values are mean ± SD or *n* (%).
*$P < 0.05$.

Cobo et al Hum Reprod, 2010

ARTICLE IN PRESS

ASRM PAGES

Mature oocyte cryopreservation: a guideline

The Practice Committees of the American Society for Reproductive Medicine and the Society for Assisted Reproductive Technology

Society for Reproductive Medicine and Society for Assisted Reproductive Technology, Birmingham, Alabama

There is good evidence that fertilization and pregnancy rates are similar to IVF/ICSI with fresh oocytes when vitrified/warmed oocytes are used as part of IVF/ICSI for young women. Although data are limited, no increase in chromosomal abnormalities, birth defects, and developmental deficits has been reported in the offspring born from cryopreserved oocytes when compared to pregnancies from conventional IVF/ICSI and the general population. Evidence indicates that oocyte vitrification and warming should no longer be considered experimental. This document replaces the document last published in 2008 titled, "Ovarian Tissue and Oocyte Cryopreservation," Fertil Steril 2008;90:S241-6. (Fertil Steril® 2012;■:■–■.

Use your smartphone

Summary of randomized controlled trials comparing fresh versus vitrified oocytes.

	Cobo 2008 (24)	Cobo 2010 (26)	Rienzi 2010 (25)	Parmegiani 2011 (19)
Patient population	Oocyte donors	Oocyte donors	Infertile patients <43 years of age requiring ICSI with >6 mature oocytes	Infertile patients <42 years of age requiring ICSI with >5 mature oocytes
No. patients	30 vitrification 30 fresh	295 vitrification 289 fresh	40 vitrification 40 fresh	31 vitrification 31 fresh
Mean age at retrieval	26	26	35	35
No. oocytes	231 vitrification 219 fresh	3286 vitrification 3185 fresh	124 vitrification 120 fresh	168 vitrification NA fresh
No. oocytes per retrieval	18.2	11	13	NA
Survival	96.9%	92.5%	96.8%	89.9%
Fertilization rate	76.3 vitrification 82.2 fresh	74% vitrification 73% fresh	79.2% vitrification 83.3% fresh	71% vitrification 72.6% fresh
No. transferred vitrification vs. fresh	3.8 vitrification 3.9 fresh	1.7 vitrification 1.7 fresh	2.3 vitrification 2.5 fresh	2.5 vitrification 2.6 fresh
Day of transfer	3	3	2	2–3
Implantation rate	40.8% vitrification 100% fresh	39.9% vitrification 40.9% fresh	20.4% vitrification 21.7% fresh	17.1% vitrification NA fresh
CPR/transfer vitrification vs. fresh	60.8% (23 vitrification transfers) 100% (1 [illegible] fresh)	55.4% vitrification [illegible]	38.5% vitrification [illegible]	35.5% vitrification [illegible]
CPR/oocyte thawed	6.1%	4.5%	12%	6.5%

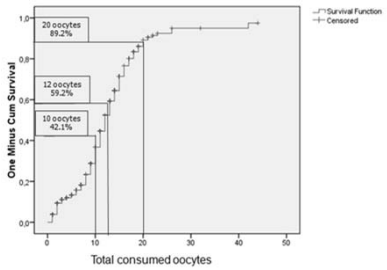
Note: All used vitrification with Cryotop, 15% EG (

Practice Committee. Oocyte cryopreservation. Fertil Steril 2012.

IVI) But…….

- 50% live birth rate
  in women <35 years
  and 12 oocytes in the OPU
- ….and “Mr Right” needs 450 IU rFSH
  to obtain 2 oocytes

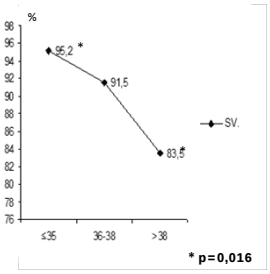
IVI) Pregnancy per # vitrified eggs



IVI) Survival after thawing per age

Group	Nº Patients	MII oocytes (mean±SD)
≤35	50	605 (12,5±1,8)ª
36-38	33	428 (9,1 ± 3,0)ᵇ
>38	47	252 (3,7±3,9)ᶜ

a≠b≠c (p<0,05)



* p=0,016

Ethically acceptable

- would reduce the need for donor eggs
- would allow to have children with their own gametes at advanced maternal age
- would reduce the number of failed cycles at AME
- would provide women with reproductive autonomy

Gorthi 2001, Loockwood 2011, Pennings 2011)

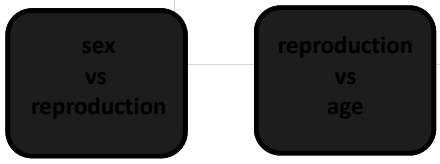
But…why?

- delay in stablished partner
  - "Mr Right" is late to appear…or doesn't exist
- increased divorce rate
- "lack of compromise"
- lack of partner
- huge pressure to find 'ideal' partner in a specific time frame

Oocyte vitrification—Women's emancipation set in stone

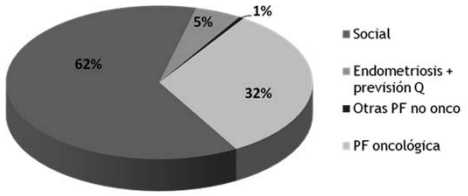
Fertility and Sterility® Vol. 91, No. 4, Supplement, April 2009

Roy Homburg, F.R.C.O.G.[a,b]
Fulco van der Veen, M.D.[c]
Sherman J. Silber, M.D.[d]



1960's **21st century**

Fertility preservation - IVI



343 medical reasons

723 non medical reasons

Results

# cycles	723 cycles
Mean age	36.6
Cancelled cycles	4/723
Social freezing	91% (n:658)
Endometriosis + Ovarian surgery	7% (n:52)
# retrieved oocytes	7225
# vitrified oocytes	5498 (76%)
Mean # retrieved oocytes	10
Mean # vitrified oocytes	7.6

Results

Thawed cycles	25 cases
Thawed oocytes	169
Mean # thawed oocytes	6.5 (3-14)
Survival after thawing	152 (89.9%)
Fertilization rate	116 (76.3%)
Fresh and frozen ET	38
Clinical pregnancy/ET	17 (44.7%)
Clinical pregnancy/patient	68%
Miscarriage	6 (35%)
Ongoing pregnancy rate	11/25: 44%
Live births	5 (8 ongoing)(2 gem)

Conclusions

INFORM

- Medically speaking, best moment to have a child naturally is before 35y
- We freeze GAMETES, not fertility
- Spread the possibilities of the technique
- Avoid unrealistic expectations by information based on general data – too late
- It is our responsibility to inform society about the big impact that age has on fertility

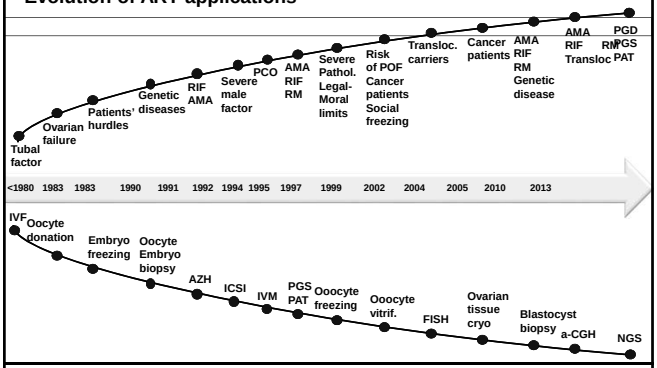
"New applications of PGD"

L. Gianaroli, M.C. Magli, A.P.Ferraretti

S.I.S.Me.R. - Unità di Medicina della Riproduzione - Bologna

iiarg www.iiarg.com www.sismer.it SISMER

Evolution of ART applications



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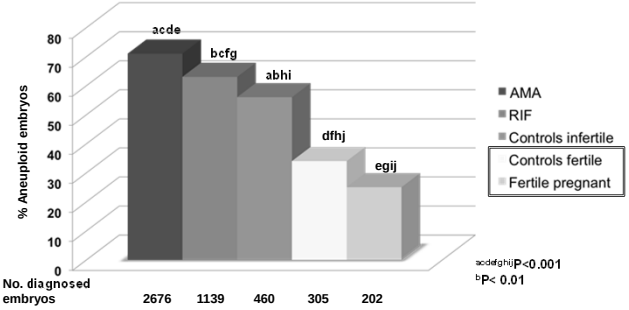
CHROMOSOME ERRORS IN EMBRYOS

FISH for 6-9 chromosomes on Day 3 blastomeres



[a-c][d-f][g-h][i]P<0.001
[b]P< 0.01

SISMER data 1996-2012; Kilani et al., Reprod Biomed Online 2014

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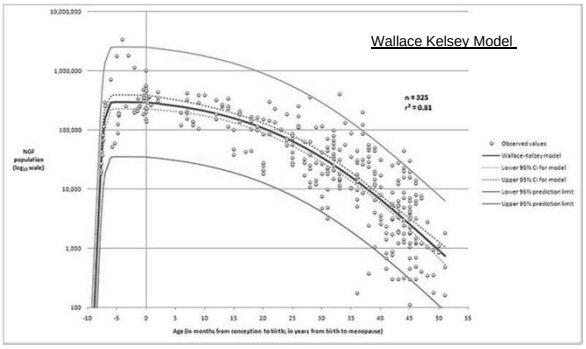
REDUCED OVARIAN RESERVE



Wallace and Kelsey. Human Ovarian Reserve from Conception to the Menopause. PLoS One. 2010; 5(1): e8772.

PGD PREVENTIVE ART

eproductive history of 321 couples SISMER 1997 - 2013

- 74 infertile
- 73 not proven fertility
- 174 fertile → 126 TOP affected fetuses
  - 78 affected children born
  - 20 deceased children

1 dead at the age of 2 yrs – Wiskott-Aldrich
1 dead at the age of 3 yrs – SSCP
1 dead at the age of 14 months – spinal-muscolar atrophy
1 dead 6 hrs after birth – type II glicogenosis
1 dead at the age of 7 months – spinal-muscolar atrophy
1 dead 5 hrs after birth - Potter 1
1 dead at the age of 6 yrs - Wiskott-Aldrich
1 dead 12 hrs after birth – 21 hydroxylase deficiency
1 dead at the age of 2 yrs – Menkes
1 dead at the age of 2 yrs – type II glycogenosis
1 dead at the age of 2 yrs – type II glycogenosis
1 dead at the age of 9 months – spinal-musclar atrophy
1 dead at the age of 7 months – osteopetrosis
1 dead 10 days after birth – congenital tubular myopathy
1 dead 6 months after birth – congenital tubular myopathy
1 dead at the age of 2.5 years – Gaucher
1 dead – Thalassemia
1 dead 4 days after birth – Methyl malonic aciduria
1 dead 6 days after birth – Carbamil phosphate deficiency
1 dead 5 hrs after birth – Charcot-Marie-Tooth 1

CLINICAL APPLICATIONS

- Oocyte donation
- Social freezing
- Mitochondrial disorders

RESEARCH APPLICATIONS

- **Simplified technologies**

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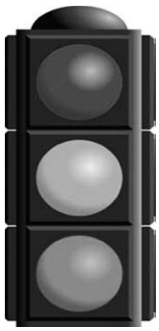

Stop! Do not transfer

Caution! Further investigation required

Go ahead with transfer!

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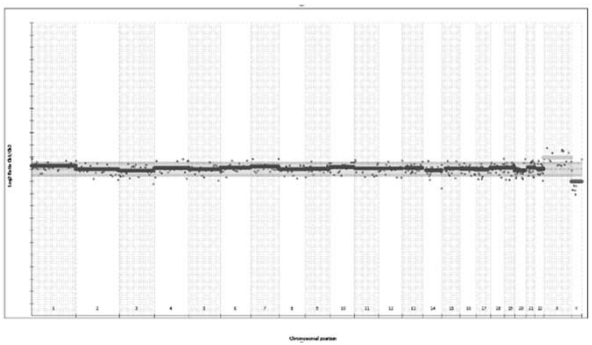
Technogenetics platform



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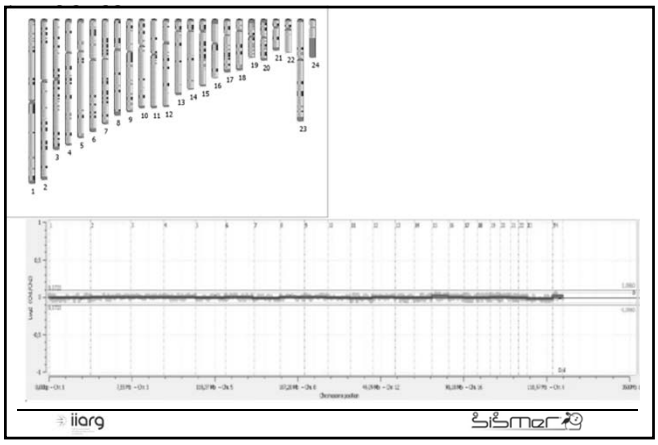
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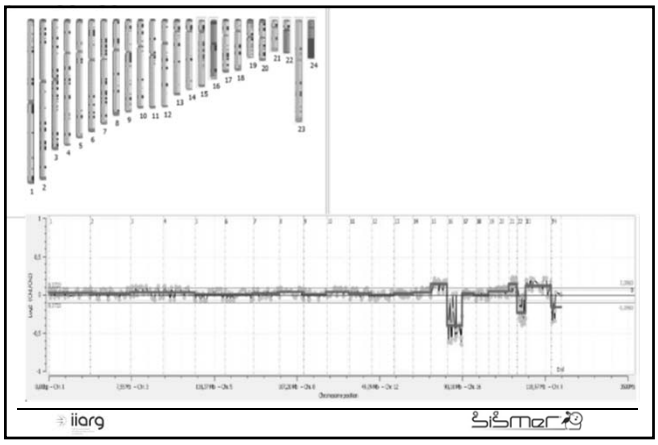
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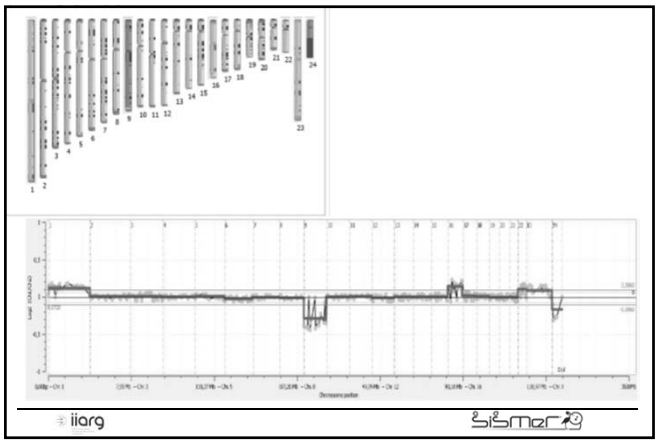
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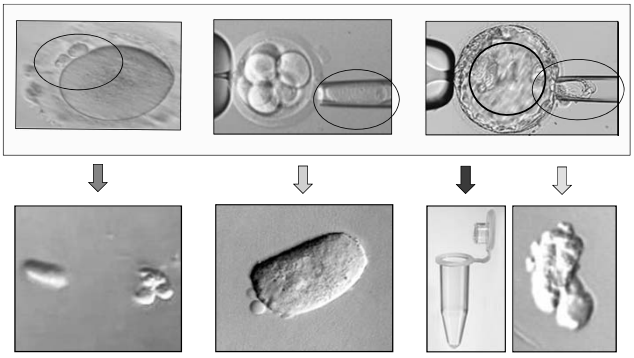
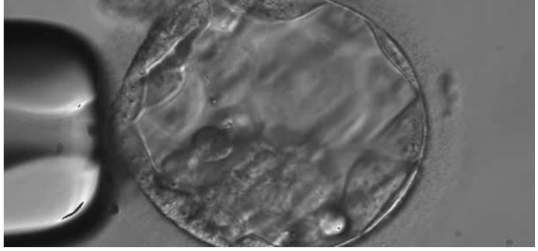
RESEARCH APPLICATIONS

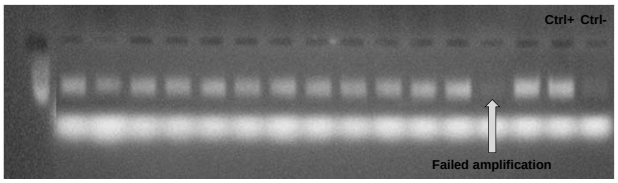
- **Simplified technologies**
- **New sources of embryonic DNA**





Blastocoelic fluids

No. blastocoelic fluids	28
With no DNA (%)	9 (32)
With result (%)	19 (68)



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TOTAL CORRESPONDENCE (9/19)

Sample	PB1	PB2	Blastomere	Blastocoele	Trophectoderm
3	euploid	loss 2	-	gain 2	gain 2
5	gain 8	gain 15, 22	-	loss 8,15,22	loss 8,15,22
7	-		loss 14	loss 14	loss 14
9	-		euploid	euploid	euploid
13	gain 4,5,6,7,9,11,12,15,19,20,X loss 1,2,3,8,10,13,14,16,18	gain 1,2,3,8,10,13,14,16,18 loss 4,5,6,7,9,11,12,15,19,20,X	-	euploid	euploid
19	euploid	euploid	-	euploid	euploid
21	-	-	euploid	euploid	euploid
22	-	-	euploid	euploid	euploid
29	euploid	euploid	-	euploid	euploid

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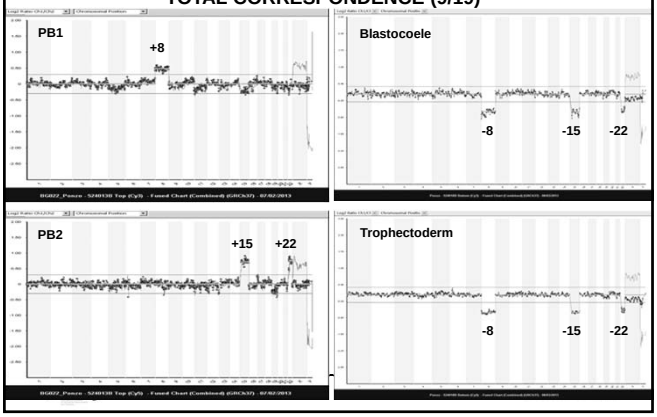
TOTAL CORRESPONDENCE (9/19)



TOTAL CORRESPONDENCE + ADDITIONAL ANEUPLOIDIES (6/19)

Sample	PB1	PB2	Blastomere	Blastocoele	Trophectoderm
1	loss 16	loss 12	-	gain 12,16 loss 15	gain 12,16 loss 15
4	euploid	gain 22	-	loss 17,22	loss 17,22
11	euploid	gain 16	-	loss 9, 16	loss 9, 16
24	-	-	loss 16	loss 14,16,17 ⟺	loss 16
28	euploid	loss 21	-	gain 21 ⟺	gain 21, loss 1
33	euploid	gain 15	-	loss 1,15 ⟺	loss 15

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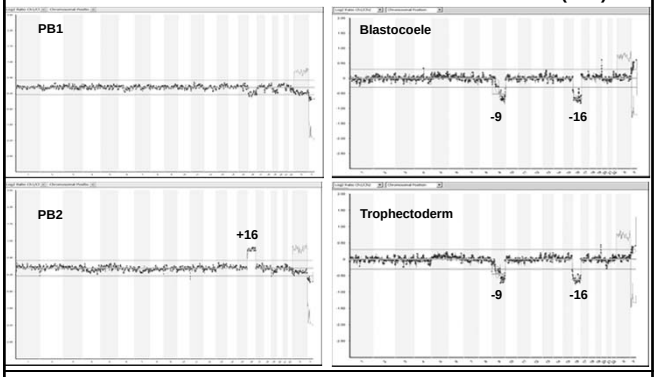
TOTAL CORRESPONDENCE + ADDITIONAL ANEUPLOIDIES (6/19)



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Blastocoelic fluids

No. blastocoelic fluids	**28**
With no DNA (%)	**9 (32)**
With result (%)	**19 (68)**
total correspondence	**9**
correspondence + other aneuploidies	**6** (**15**)
partial correspondence	**3**
no correspondence	**1**

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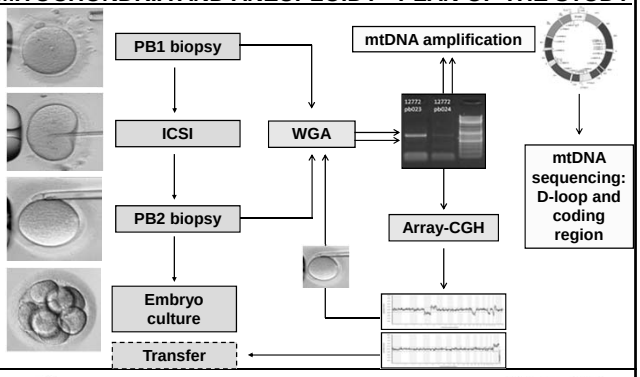
RESEARCH APPLICATIONS

- Simplified technologies
- New sources of embryonic DNA
- Mitochondria and aneuploidy

MITOCHONDRIA AND ANEUPLOIDY - PLAN OF THE STUDY



MITOCHONDRIA AND ANEUPLOIDY

Number of patients	13
Mean age ± SD (years)	40.2 ± 1.5
Total number of PBs	89
aneuploid (%)	68 (76)
Total number of oocytes	40
aneuploid (%)	27 (67.5)

⇩

- Segregation of mtDNA at meiosis
- Correlation between aneuploidy and haplogroup

SEGREGATION OF mtDNA AT MEIOSIS

Sequencing of the D-loop and coding region:

- **In all oocytes, there was full correspondence with the blood**
- **In 9% of PBs, there were mismatches not present in the blood**

ID	Haplotype	
Pt blood 3	16129A, 16148T, 16192T,16223T,16294T, 16374C, 16391A, 16519C, 73G	
PB082	16129A, 16148T, 16192T,16223T,16294T, 16374C, 16391A, 16519C, 73G 16176C>C/A	PB II
Pt blood 5	16069T, 16126C, 73G	
PB121	16069T, 16126C, 73G 27C>T	PB I
Pt blood 6	16126C, 16292T, 16294T, 16296T, 16304C, 16319A, 16519C, 73G	
PB131	16126C, 16292T, 16294T, 16296T, 16304C, 16319A, 16519C, 73G 8427C>T/C	PB I
PB135	16126C, 16292T, 16294T, 16296T, 16304C, 16319A, 16519C, 73G 16149 A>G	PB I
PB136	16126C, 16292T, 16294T, 16296T, 16304C, 16319A, 16519C, 73G 16178 T>A	PB II
Pt blood 7	16126C, 16172C, 16292T, 16294T, 16519C,73G	
PB141	16126C, 16172C, wt, wt, wt, 73G	PB I
PB142	16126C, 16172C, wt, wt, wt, 73G	PB II
Pt blood 12	16192T, 16311C, 73G	
PB182	16192T, 16311C, 73G 16544T>C, 56A>G	PB II

?

SEGREGATION OF mtDNA AT MEIOSIS

Sequencing of the D-loop and coding region:

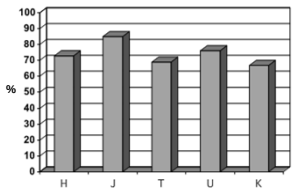
- **In all oocytes, there was full correspondence with the blood**
- **In 9% of PBs, there were mismatches not present in the blood**

Technical issue:
in the ooplasm these changes were under the detectable threshold level, but not in PBs.

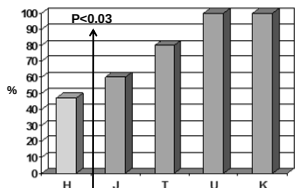
Biological issue:
the oocyte could have an active mechanism to preserve a condition of 'normality by guiding the extrusion of mtDNA variants in the PBs. This would prevent the transmission of severe mutations that cause an altered mitochondrial energy metabolism.
At the same time, the controlled accumulation of mtDNA variants in the germline might allow to produce a bioenergetic diversity that could be advantageous in new environments.

ANEUPLOIDY AND HAPLOGROUP

Frequency of aneuploid PBs



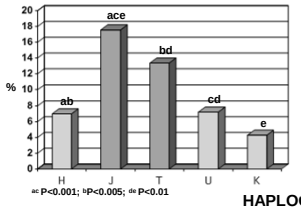
Frequency of aneuploid oocytes



HAPLOGROUPS

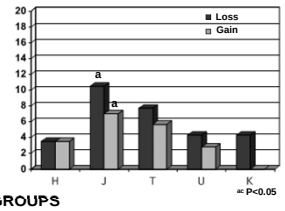
ANEUPLOIDY AND HAPLOGROUP

Frequency of total aneuploidies in PBs



[ac] P<0.001; [b]P<0.005; [de] P<0.01

Frequency of losses and gains in PBs



[ac] P<0.05

HAPLOGROUPS

According to the literature, the efficiency of the electron transport chain and the ATP production are diminished in haplogroup J in comparison with haplogroup H.

- ➔ **Lower incidence of aneuploidy in haplogroup H**
- ➔ **Higher incidence of aneuploidy in haplogroup J**

iiarg

MITOCHONDRIA

In PBs, there are mtDNA polymorphisms that are not detected in corresponding oocytes and blood.

Different haplogroups may affect the meiotic process:

- **Oocytes from haplogroup H had the lower incidence of aneuploidy.**
- **The sister haplogroups J/T presented a significantly higher incidence of chromosome errors when compared with haplogroup H and U/K.**
- **The haplogroup J losses occurred more frequently than gains, whereas the two figures were similar in haplogroup H.**

This may occur through a diverse level of ATP production.

iiarg

RESEARCH APPLICATIONS

- **Simplified technologies**
- **New sources of embryonic DNA**
- **Mitochondria and aneuploidy**
- **Gene expression**

iiarg

GENE EXPRESSION

Monozygotic twins
- Normal karyotype
- Trisomy 21

→ Study of transcriptome of fetal fibroblasts

- To assess the perturbations of gene expression in trisomy 21
- To eliminate the noise of genomic variability

The differential expression between the twins is organized in domains along all chromosomes that are either upregulated or downregulated.

Letourneau et al., Nature 2014

iiarg

GENE EXPRESSION

Monozygotic twins
- Normal karyotype
- Trisomy 21

The nuclear compartments of trisomic cells undergo modifications of the chromatin environment influencing the overall transcriptome.

→ **Gene expression dysregulation domains may contribute to some trisomy 21 phenotypes.**

Letourneau et al., Nature 2014

iiarg

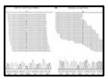
RESEARCH APPLICATIONS

- Simplified technologies
- New sources of embryonic DNA
- Mitochondria and aneuploidy
- Gene expression
- New technologies

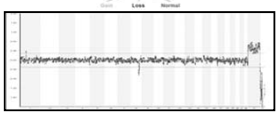
iiarg

NEW TECHNOLOGIES

Automatic sequencing for new polymorphic variants

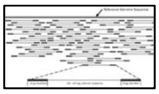


High-resolution a-CGH



Clinical significance…..

Next Generation Sequencing



How many genes to test: 100, 1000, 10000…..

iiar iiarg

SISMER

iiarg

SISMER

Gametes storage for fertility preservation

IVI
Ana Cobo
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www.ivi.es

Munich, June, 2014

IVI

I declare no conflict of interest….

IVI

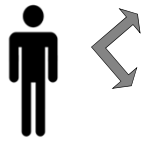
❖ Objective

To review the cryopreservation of male and female gametes as an alternative for fertility preservation

Contents

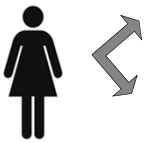
I. Introduction
II. Male FP
III. Female FP

Who can benefit from FP?



Medical reasons
- Cancer

Iatrogenic reasons
- Vasectomy



Medical reasons
- Cancer
- Other (endometriosis, Turner S., Fragile X etc.)

Social Freezing

Fertility Preservation

Oncological patients

Gonadotoxicity

- Age.
- Initial condition of the gonad.
- Type of cancer (lymphoma, breast).
- Agent used.
  - Association with other chemotherapy.
  - Combinations CHT-RT.
- Dose and cycles applied.

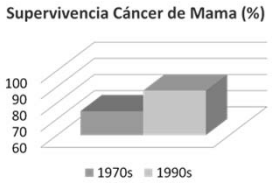
Gonadotoxic Effect

Chemotherapy

Chance of pregnancy post-treatment by age and sex (15-45 years).

Brydoy M, et al. Acta Oncologica 2007; 46: 480-90

- Breast cancer:
  - The most common malignancy in women at reproductive age
  - 6.4% <40 yrs at diagnosis



Fertility preservation in cancer patients

- **FP IN MALES**
  - **Sperm cryopreservation**
  - **Testicular tissue cryopreservation**
- **FP IN FEMALES**
  - **Medical protection of the gonads**
  - **Orthotopic ovarian grafting**
  - **Oocyte/embryo vitrification**

Male Fertility Preservation

Table 1. Azoospermic patients at t_3, t_6, t_9, t_{12} and t_{24}

Months	Chemotherapy		Radiotherapy	
	Total patients	Azoospermic patients [*n* (%)]	Total patients	Azoospermic patients [*n* (%)]
3	40	15 (37)	44	2 (4)
6	32	11 (34)	43	11 (26)
9	42	5 (12)	46	9 (19)
12	46	3 (6)	69	6 (9)
24	33	1 (3)	57	3 (6)

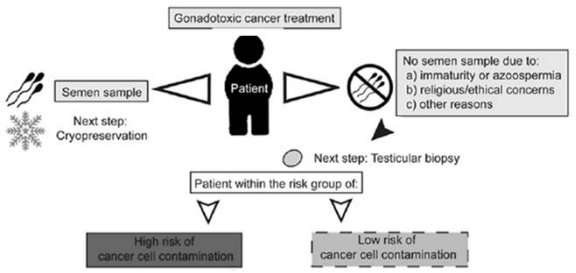
Usually recovered testicular function in 12-24 months

Pre-treatment semen characteristics do not predict recovery

Only 10-15% of patients cryopreserving sperm finally use these samples

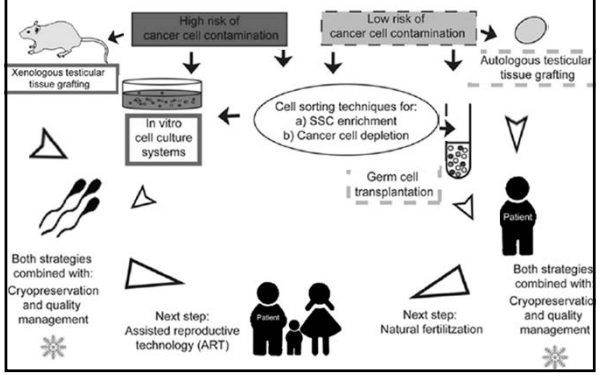
Gandini et al. Hum Reprod 2006; 21: 2882-9; *Meseguer et al. Fertil Steril 2006; 85: 640-5*

Male Fertility Preservation



Jahnukainen & Stukenborg, J Clin Endocrinol Metab 2012; 97: 4341-51

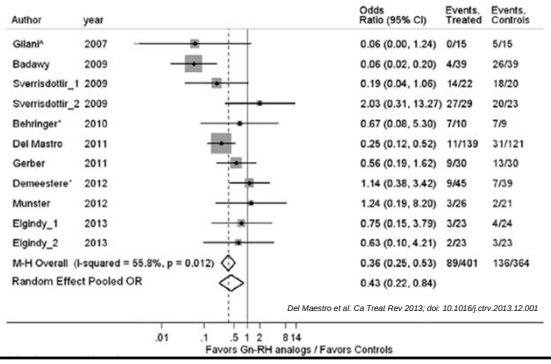
Male Fertility Preservation



Fertility preservation in cancer patients

- **FP IN MALES**
  - **Sperm cryopreservation**
  - **Testicular tissue cryopreservation**
- **FP IN FEMALES**
  - **Medical protection of the gonads**
  - **Orthotopic ovarian grafting**
  - **Oocyte/embryo vitrification**

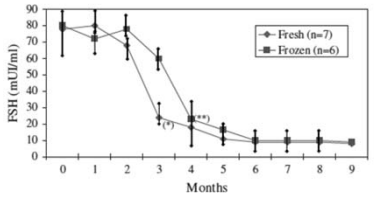
Medical gonadal protection
Premature Ovarian Failure



Del Maestro et al. Ca Treat Rev 2013; doi: 10.1016/j.ctrv.2013.12.001

Orthotopic Ovarian Grafting

Initiation of graft function



Donnez et al Ann. Med. 2011; 43: 437-450

Review of 60 cases: Restoration of ovarian activity was observed in at least 52 cases among the 56 (93%). It took 3.5–6.5 months after reimplantation (mean 4.5 months). *Donnez J et al Fertil Steril 2013; 99:1503 13.*

Live birth after grafting of ovarian cortex

Live birth after transplantation of frozen-thawed ovarian tissue after bilateral oophorectomy for benign disease

Jacques Donnez, M.D., Ph.D.,[a] Pascale Jadoul, M.D.,[a] Céline Pirard, M.D., Ph.D.,[a] Graham Hutchings, M.D., Ph.D.,[a] Dominique Demylle, Ph.D.,[a] Jean Squifflet, M.D., Ph.D.,[a] Johan Smitz, M.D., Ph.D.,[b] and Marie-Madeleine Dolmans, M.D., Ph.D.[a]

Fertility and Sterility® Vol. 98, No. 3, September 2012

TABLE 2

Series of 20 live b

References	procedure	Graft site	Live birth: Spontaneous	Live birth: IVF
Donnez et al., 2004 (9), 2008 (20), 2011 (4,32)	SF	Peritoneal window (2 steps)	+	+ (+)*
		Ovarian medulla	++ (+)*	
Meirow et al., 2005 (17)	SF	Beneath the ovarian cortex	–	+
Demeestere et al., 2007 (24)	SF	Ovarian and peritoneal windows (2 steps)	++	–
Andersen et al., 2008 (18); Ernst et al., 2010 (33); Schmidt et al., 2011 (29)	SF	Subcortical ovarian pocket	+	+
		Ovarian medulla	+	+
Silber et al., 2008 (34), 2010 (35)	SF	Ovarian medulla	+	–
			+	
Piver et al., 2009 (25); Roux et al., 2010 (11)	SF	Ovarian and peritoneal windows (1 and 2 steps)	+	–
			+	
Sanchez-Serrano et al., 2010 (36)	SF	Ovarian medulla	–	++ (twins)
Revel et al., 2011 (37)	SF	Peritoneal window	–	+
Dittrich et al., 2012 (38)	SF	Ovarian medulla	–	+
Revelli et al., 2012 (39)	SF	Ovarian medulla	+	

* Parentheses indicate ongoing pregnancy at the present time.

Donnez. Live birth after bilateral oophorectomy. Fertil Steril 2012.

Donnez et al F&S 2012

Orthotopic Ovarian Grafting

Risk of cancer cell contamination

DISEASE	SAFE	UNSAFE
BREAST CANCER	✖	
HL	✖	
NHL	✖	
LEUKEMIA		✖
EWING SARCOMA	✖	

Meirow D et al. Hum Reprod. 2008; Sánchez-Serrano M et al. Hum Reprod. 2009; Dolmans et al. Blood 2010; Greve et al. Blood 2012; Abir R et al. Hum Reprod 2010

Is vitrification of oocytes useful for fertility preservation for age-related fertility decline and in cancer patients?

Ana Cobo, Ph.D.,[a] Juan A. García-Velasco, M.D.,[b] Javier Domingo, M.D.,[c] José Remohí, M.D.,[a] and Antonio Pellicer, M.D.[a]

[a] IVI Valencia, Valencia; [b] IVI Madrid, Madrid; and [c] IVI Las Palmas, Las Palmas, Spain

Fertility and Sterility® VOL. 99 NO. 6 / MAY 2013

The aim of this review is to provide current knowledge on oocyte cryopreservation, with special emphasis on vitrification as a means to preserve fertility in different indications. Major advancements achieved in the past few years in the cryolaboratory have facilitated major changes in our practice. Areas such as fertility preservation for social or oncologic reasons, the possibility to create oocyte banks for egg donation programs, the opportunity to avoid ovarian hyperstimulation syndrome, or to accumulate oocytes in low-yield patients, or even to offer treatment segmentation by stimulating the ovaries, vitrifying, and then transferring in a natural cycle are some of the options that are now available with the development of cryopreservation. We present general experience from our group and others on fertility preservation for age-related fertility decline as well as in oncologic patients, confirming that oocyte vitrification is a standardized, simple, reproducible, and efficient option. (Fertil Steril® 2013;99:1485–95. ©2013 by American Society for Reproductive Medicine.)

Key Words: Fertility preservation, oocyte vitrification, cancer patients, social freezers, fertility decline

Discuss: You can discuss this article with its authors and with other ASRM members at http://fertstertforum.com/coboa-vitrification-oocytes-fertility-preservation-cancer-patients/

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Oocyte vitrification

Human Reproduction, Vol.0, No.0 pp. 1–8, 2010
doi:10.1093/humrep/deq196
human reproduction ORIGINAL ARTICLE Embryology

Use of cryo-banked oocytes in an ovum donation programme: a prospective, randomized, controlled, clinical trial

Ana Cobo', Marcos Meseguer, José Remohí, and Antonio Pellicer

Over 3,000 oocytes per arm

Table IV Primary outcome, OPR, according to the type of oocytes received.

	Egg-bank	Fresh
Ongoing pregnancy rate/ITT	131 (43.7)	125 (41.7)
Ongoing pregnancy rate/cycle	131 (44.4)	125 (43.3)
Ongoing pregnancy rate/transfer	131 (49.1)	125 (48.3)

Unless otherwise indicated values are mean ± SD or *n* (%).
ITT, intention to treat.

OR: 0.921
(95% CI: 0.667–1.274)

Survival rate ⇨ 90.2%

N=3467 OD cycles
N=40741 oocytes
(11.8 mean)

Clinical outcome. 5-years experience of Egg-banking for ovum donation (OD) in IVI Valencia

		95% CI
Number of embryo transfers/donation	3050/3382 (90.1)	(89.1-91.1)
Number of day-3 transfers	1627 (53.8)	(52.0-55.5)
Number of blastocyst transfers	1399 (46.3)	(44.5-48.0)
Number of embryos replaced (Mean ± SD)	5695 (1.9)	1.8-1.9
Number of embryo cryopreservation cycles/donation cycle	2426 (70.0)	(68.5-71.5)
Mean number of re-vitrified embryos (Mean ± SD)	7244 (3.0)	(2.9-3.0)
Implantation rate	39.1	(37.8-40.5)
Implantation rate/day-3 embryo transfer	34.6	(32.6-36.5)
Implantation rate/blastocyst embryo transfer	44.5	(42.5-46.5)
Ongoing pregnancy /cycle	1398 (40.3)	(38.7-42.0)
Ongoing pregnancy /embryo transfer	1398 (46.1)	(44.4-47.9)
Ongoing pregnancy / day-3 embryo transfer	695 (42.7)	(40.3-45.1)
Ongoing pregnancy /blastocyst embryo transfer	693 (49.5)	(46.8-52.1)
Number of Cryo-transfers/ cryotransfer attempt	1588/1656 (95.9)	(94.9-96.7)
Mean number of embryos replaced	1.8	(1.7-1.8)
Ongoing pregnancy rate/transfer	899 (56.6)	(54.2-59.1)
Number of babies born (deliveries) "fresh ET"	1717 (1331)	
Number of babies born (deliveries) "Cryo-transfers"	1070 (899)	

Cobo et al in preparation

Perinatal outcome

	Fresh oocytes N=1224	Vitrified oocytes N=1027	OR(95%CI)	p value
Gestational age	38.2 (38.0-38.4)	38.2 (38.0-38.4)		ns
Weight	2871 (2834-2908)	2859 (2818-2901)		ns
LBW <2500gr	29.6% (27.0-32.2)	29.9% (27.1-32.7)	1.01 (0.85-1.21)	ns
LBW <1500gr	3.7% (2.4-5.0)	4.0% (2.6-5.4)	1.07 (0.64-1.78)	ns
Height	48.8 (48.7-49.0)	48.9 (46.6-49.1)		ns
Cranial perimeter	33.6 (33.5-33.8)	33.5 (33.4-33.7)		ns
Apgar 1	8.9 (8.8.-8.9)	8.8 (8.7-8.9)		ns
Apgar 5	9.6 (9.5-9.6)	9.6 (9.5-9.6)		ns
Apgar 10	9.6 (9.5-9.7)	9.6 (9.5-9.7)		ns
Malformation	1.4% (0.9-2.2)	1.7% (1.0-2.1)	1.20 (0.61-2.32)	ns
Major malformation	0.8% (0.4-1.5)	0.7% (0.3-1.4)	0.83 (0.32-2.20)	ns
Minor malformation	0.6% (0.3-1.2)	1.0% (0.5-1.8)	1.71 (0.64-4.51)	ns
Intensive care adm.	14.2% (12.3-16.3)	13.8 (11.8-16.0)	0.97 (0.76-1.23)	ns
ICU stay (days)	12.6 (10.5-14.7)	12.3 (10.0-14.5)		
Perinatal Mortality	0.1% (0.04-0.6)	0.09% (0.01-0.5)	0.59 (0.05-6.66)	ns
Healthy infant	99.9% (98.9-100)	99.9% (98.9-100)	na	ns
→ Female	47.5% (44.7-50.3)	53.8% (50.7-56.8)	1.29 (1.10-1.51)	0.04
Male	52.5%	46.2%		

Cobo et al submitted

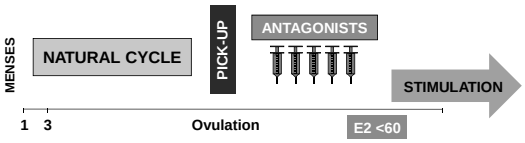
Controlled ovarian stimulation for cancer patients

1.Time
2.Type of cancer
- Hormone dependent
- Non-hormone dependent

Controlled ovarian stimulation for cancer patients

1. Time

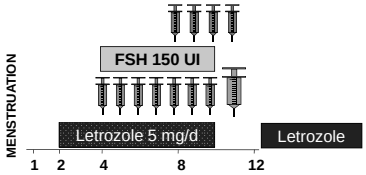
Ovarian stimulation: follicular phase



Follicular Phase

Pick-up
(or stimulation with low doses of 75 UI of FSH when follicle of 18- 20mm)

COH in cancer patients



- GnRH Antagonists when follicles ≥14 mm.
- GnRH agonist when leading follicles 19-21 mm.

Oktay et al, JCEM 2006

Slide 22

A1 Acobo; 10/03/2013

Ovarian response to controlled ovarian hyperstimulation in cancer patients is diminished even before oncological treatment

N= 272 cancer patients
Control N=97 healthy women (IVF)

Javier Domingo, M.D.,[a] Vicente Guillén, M.D.,[a] Yanira Ayllón, M.D.,[a] María Martínez, M.D.,[b] Elkin Muñoz, M.D.,[c] Antonio Pellicer, M.D.,[c] and Juan A. García-Velasco, M.D.[c]
[a] IVI Las Palmas, Las Palmas, [b] IVI Madrid, Rey Juan Carlos University, Madrid, [c] IVI Vigo, Vigo, and [d] IVI Valencia, Valencia University, Valencia, Spain

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TABLE 1

Patient demographics according to the type of stimulation.

	Non-HD, antagonist FSH (n = 66)	HD, letrozole FSH (n = 142)	Control (n = 97)
Age	30.6 ± 5.7	33.2 ± 4.3	31.9 ± 5.3
Days of stimulation	8.7 ± 1.7[a]	9.6 ± 2.4	9.9 ± 1.6
Total FSH, IU	1,803 ± 889	1,755 ± 1,114	1,947 ± 808
Peak serum E^2, pg/mL	1,744 ± 1,242	381 ± 191[a]	2,109 ± 1,260
Retrieved oocytes	12.2 ± 6.5	9.8 ± 7.1[a]	12.4 ± 5.4
% MII oocytes	75.3 ± 18.5	74.4 ± 22.1	74.2 ± 17.7

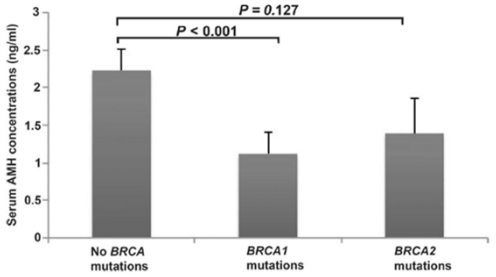
[a] P< .05.

Domingo. Fertility preservation in cancer patients. Fertil Steril 2012.

Low response more frequent in Cancer patients
≤4 oocytes (21.2% vs. 2.6%; P<.001)

Oocyte Vitrification for FP

Diminished ovarian reserve in BRCA1-deficient individuals



Titus et al. Sci Transl Med 5; 2013

Five years' experience using oocyte vitrification to preserve fertility for medical and nonmedical indications

Juan A. García-Velasco, M.D.,[a,d] Javier Domingo, M.D.,[b] Ana Cobo, Ph.D.,[c] María Martínez, M.D.,[a] Luis Carmona, M.D.,[b] and Antonio Pellicer, M.D.[a]

VOL. 99 NO. 7 / JUNE 2013 Fertility and Sterility®

12 babies.

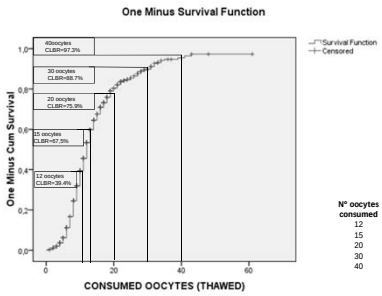
	Non oncological	Oncological
Nº patients FP	907	361
Nº Patients using their vit. oocytes	35	14
Mean age at vitrification	35.9 ± 4.2	31.9 ± 5.1
Mean age at warming	38.1 ± 2.8	36.1 ± 6.1
Nº oocytes warmed	250 (7.0 ± 3.5)	88 (6.0 ± 0.7)
Survival rate	92.3	88.6
Nº embryos transferred	2 ± 0.7	2 ± 0.1
Nº patients with surplus embryos	22 (62.9)	5 (35.7)
CPR/patient	15 (42.8)	5 (35.7)
OPR/patient	11 (31.4)	5 (35.7)
Live birth	8	4
Ongoing pregnancies	3	-

Updated 5-years experience of applying oocyte vitrification for Fertility Preservation at IVI.

WHAT IS THE ESTIMATE NUMBER OF OOCYTES NEEDED FOR EFFICIENT FP?

Live birth according to the number of oocytes consumed.

Kaplan-Meier plotting. N=40741 oocytes



N° oocytes consumed	LBR%	95% CI
12	39.4	37.5 - 41.3
15	67.5	65.4 - 69.7
20	75.9	73.8 - 78.1
30	88.7	86.4 - 90.9
40	97.3	94.9 - 99.7

Fertility preservation in women with cancer

	Ovarian Cortex	Vitrification
FP Procedures	689 (25)	489
Attempts to Pregnancy	18	10
Clinical pregnancies (%)	5 (28%)	6 (60%)*
Ongoing/Term Pregnancies (%)	4 (22.2%)	4 (40%)*

**From Garcia-Velasco 2013*

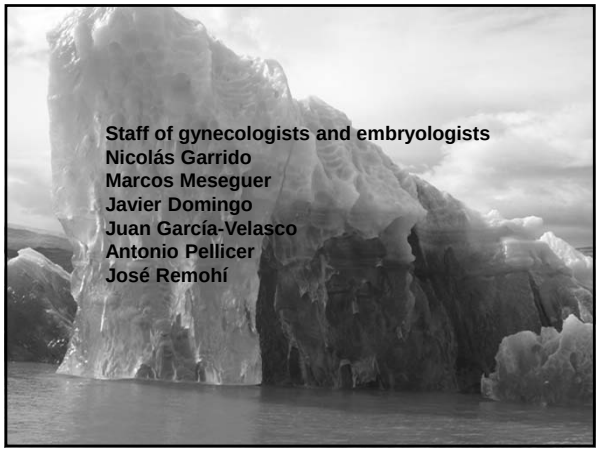
Take home messages

FP in Males

- Sperm cryopreservation prior to antitumoral treatment is the strategy of choice.
- Prepubertal: Testicular tissue cryopreservation offers good expectations.

FP in Females

- Oocyte vitrification is an efficient an standardized option whose expectations of success are similar to those of ART.
- If time and oncologyts allows COH.
- 15 oocytes stored provide around 65% chance of LBR.
- Also useful for social reasons.
- Orthotopic ovarian grafting: Ovarian function recovers in >90% after 4 months. Pregnancy rates around 30% (natural+IVF)



1. Brydoy, M., Fossa, S. D., Dahl, O. and Bjoro, T. (2007) Gonadal dysfunction and fertility problems in cancer survivors. *Acta Oncol*, **46**, 480-489.
2. Wallace, W. H., Anderson, R. A. and Irvine, D. S. (2005) Fertility preservation for young patients with cancer: who is at risk and what can be offered? *Lancet Oncol*, **6**, 209-218.
3. Gandini, L., Sgro, P., Lombardo, F., Paoli, D., Culasso, F., Toselli, L., Tsamatropoulos, P. and Lenzi, A. (2006) Effect of chemo- or radiotherapy on sperm parameters of testicular cancer patients. *Hum Reprod*, **21**, 2882-2889.
4. Meseguer, M., Molina, N., Garcia-Velasco, J. A., Remohi, J., Pellicer, A. and Garrido, N. (2006) Sperm cryopreservation in oncological patients: a 14-year follow-up study. *Fertil Steril*, **85**, 640-645.
5. Fossa, S. D., Magelssen, H., Melve, K., Jacobsen, A. B., Langmark, F. and Skjaerven, R. (2005) Parenthood in survivors after adulthood cancer and perinatal health in their offspring: a preliminary report. *J Natl Cancer Inst Monogr*, 77-82.

6. Jahnukainen, K. and Stukenborg, J. B. (2012) Clinical review: Present and future prospects of male fertility preservation for children and adolescents. J Clin Endocrinol Metab, 97, 4341-4351.

7. Donnez, J., Silber, S., Andersen, C. Y., Demeestere, I., Piver, P., Meirow, D., Pellicer, A. and Dolmans, M. M. (2011) Children born after autotransplantation of cryopreserved ovarian tissue. a review of 13 live births. Ann Med, 43, 437-450.

8. Donnez, J., Jadoul, P., Pirard, C., Hutchings, G., Demylle, D., Squifflet, J., Smitz, J. and Dolmans, M. M. (2012) Live birth after transplantation of frozen-thawed ovarian tissue after bilateral oophorectomy for benign disease. Fertil Steril, 98, 720-725.

9. Donnez, J., Dolmans, M. M., Pellicer, A., Diaz-Garcia, C., Sanchez Serrano, M., Schmidt, K. T., Ernst, E., Luyckx, V. and Andersen, C. Y. (2013) Restoration of ovarian activity and pregnancy after transplantation of cryopreserved ovarian tissue: a review of 60 cases of reimplantation. Fertil Steril, 99, 1503-1513.

10. Cobo A, Garcia-Velasco JA, Domingo J, Remohi J, Pellicer A. Is vitrification of oocytes useful for fertility preservation for age-related fertility decline and in cancer patients? Fertil Steril 2013;99:1485-95.

11. Cobo A, Meseguer M, Remohi J, Pellicer A. Use of cryo-banked oocytes in an ovum donation programme: a prospective, randomized, controlled, clinical trial. Hum Reprod 2010;25:2239-46.

12. Cobo, A., Domingo, J., Perez, S., Crespo, J., Remohi, J. and Pellicer, A. (2008) Vitrification: an effective new approach to oocyte banking and preserving fertility in cancer patients. *Clin Transl Oncol*, **10**, 268-273

13. Cobo A, Garrido N, Crespo J, Jose R, Pellicer A. Accumulation of oocytes: a new strategy for managing low-responder patients. Reprod Biomed Online 2012;24:424-32.

14. Cobo A, Kuwayama M, Perez S, Ruiz A, Pellicer A, Remohi J. Comparison of concomitant outcome achieved with fresh and cryopreserved donor oocytes vitrified by the Cryotop method. Fertil Steril 2008;89:1657-64.

15. Oktay, K., Hourvitz, A., Sahin, G., Oktem, O., Safro, B., Cil, A. and Bang, H. (2006) Letrozole reduces estrogen and gonadotropin exposure in women with breast cancer undergoing ovarian stimulation before chemotherapy. *J Clin Endocrinol Metab*, **91**, 3885-3890.

16. Domingo, J., Guillen, V., Ayllon, Y., Martinez, M., Munoz, E., Pellicer, A. and Garcia-Velasco, J. A. (2012) Ovarian response to controlled ovarian hyperstimulation in cancer patients is diminished even before oncological treatment. *Fertil Steril*, **97**, 930-934.

17. Garcia-Velasco, J. A., Domingo, J., Cobo, A., Martinez, M., Carmona, L. and Pellicer, A. (2013) Five years' experience using oocyte vitrification to preserve fertility for medical and nonmedical indications. *Fertil Steril*, **99**, 1994-1999.

18. Sanchez-Serrano, M., Crespo, J., Mirabet, V., Cobo, A. C., Escriba, M. J., Simon, C. and Pellicer, A. (2010) Twins born after transplantation of ovarian cortical tissue and oocyte vitrification. Fertil Steril, 93, 268 e211-263.

19. Titus, S., Li, F., Stobezki, R., Akula, K., Unsal, E., Jeong, K., Dickler, M., Robson, M., Moy, F., Goswami, S. et al. (2013) Impairment of BRCA1-related DNA double-strand break repair leads to ovarian aging in mice and humans. *Sci Transl Med*, **5**, 172ra121.

Travelling patients: the business of cross-border

T.Mardesic
Sanatorium Pronatal, Prague

Disclosure

I declare that I have no commercial and /or financial relationships with manufacturers of pharmaceuticals, laboratory supplies and/or medical devices

Learning objectives

- Introduction
- CBRC- a growing phenomenon
- Reasons for cross-border reproductive care (CBRC)
- Risks of cross-border reproductive care
- Ethical problems regarding CBRC
- Economic consequences od CBRC
- ESHRE´s good practice guide for CBRC
- Recommendations

- Despite international calls for the prevention and appropriate treatment of infertility, this condition is becoming more and more common in the developed world (United Nations 1994)
- EU parliament ackowledged that infertility is one of the causes of demographic decline throughout the Europe (European Parliament 2008)
- These health and social considerations mean that the number of infertility cases is growing resulting in progressive increase in the need for assisted reproductive technology

Europe- the continent with the lowest fertility


Human Reproduction Update, Vol.16, No.6 pp. 590–602, 2010
Advanced Access publication on July 4, 2010 doi:10.1093/humupd/dmq023

human reproduction update

Europe the continent with the lowest fertility

The ESHRE Capri Workshop Group[*,‡]

*Correspondence address. P.G. Crosignani, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Via M. Fanti, 6, Milano 20122, Italy. E-mail: piergiorgio.crosignani@unimi.it

Submitted on January 15, 2010; resubmitted on May 11, 2010; accepted on May 17, 2010

Indications and possibilities of ART for infertile patients and couples

- Tubal infertility
- Male infertility (ICSI, MESA-TESE in azoospermia)
- Endometriosis, imunologic infertility, infertility of unknown origine (transfer of blastocysts, freezing of embryos)
- Sperm donation, oocyte donation, embryo donation
- Social freezing
- Preimplantation genetic screening and diagnosis (PGS, PGD)
- Surrogate motherhood

Accessibility of ART for infertile couples

- Due to different reasons the access to fertility treatment is not equal in Europe
- Apparent increase in people travelling outside their home country to obtain ART
- Cross-border reproductive care (CBRC)

Cross-border reproductiva care (definition)

- Cross-border reproductive care (CBRC) refers to a widespread phenomenon where infertile patients or collaborators (such as egg donors or potential surrogates) cross international borders in order to obtain or provide reproductive treatment outside their home country

Cross border medical care is a growing phenomenon

- The number of persons seeking CBRC abroad is difficult to estimate even inside Europe
- According to ESHRE data, there is a minimum estimate of 24.000- 30.000 cycles / year (Shenfield 2010)

Main causes of cross-border reproductive care

- Required type of treatment is forbidden by law (egg donation, sex selection)
- Certain patients and couples are not eligible for ART (lesbian couples, single women, reproductive age)
- Waiting lists are too long in home country (egg donation)
- Out-of-pocket costs are too high (absence of insurance)
- Required type of treatment is not available because of lack of expertise (PGD, PGS)
- Expecting a higher quality of provided healthcare (several treatment failures)
- Personal whishes (privacy considerations)

Main causes of cross-border reproductive care

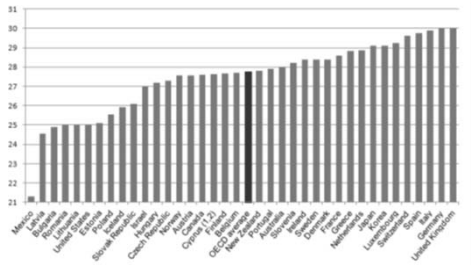
- Legal restrictions

and/or

- Availability

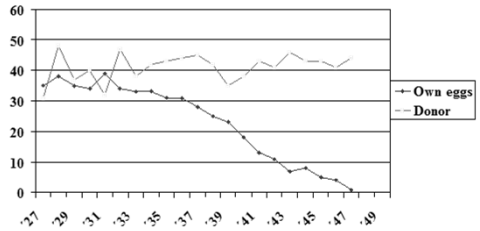
Mean age of women at the birth of the first child, 2009

Sources: Eurostat, 2012, and United Nations Statistical Division, 2011, and National Statistical Offices, 2011



Live births per transfer for fresh embryos from own and donor eggs.

ART succes rates. US departement of Health and Human services,CDC



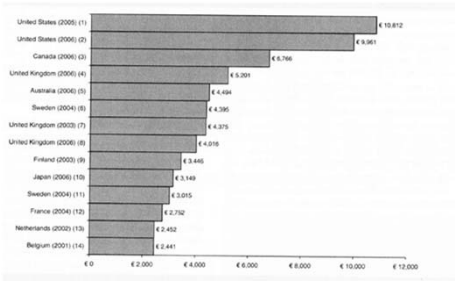
Age of the women crossing borders from the seven most represented countries

(Sheenfield,F., Human Reproduction 2010)

Women´s age (total)	<35 (%)	35-39 (%)	40-44 (%)	>45 (%)
37,3 ± 5,1	29,5	35,6	26,8	8,1

Estimates of direct cost of one fresh IVF treatment cycle (€)

Conolly,M.P., Human Reproduction, 2010)



General reasons for travelling (%)

(Shenfield,F., Human Reproduction 2010)

Legal reasons	Access difficulty	Better quality	Previous failure
54,8	7,0	43,2	29,1

There is a clear correlation between certain legal prohibitions in the patient´s country of origin and the number of patients who travel abroad
(Pennings,G., Human Reproduction 2009)

Seeking cross-border reproductive care

⟹ local limitation of rights to access reproduction care

(All citizens have a right to access to decent health care, including reproductive health care in affluent societies:

ESHRE Task Force on Ethics nad Law 14,2008)

⟹ CBRC is a solution that enhances patient´s autonomy

- Since countries in democratic world commited to the free movement of persons can do little to restrict such movements, restrictive legislation appears meaningless, except in a very powerful symbolic sense.

Risks of CBRC

Cross border reproductive treatment has provoked extensive commentary, ethical debate and media speculation, often presenting spectacular cases

Risks of CBRC

- There is evidence showing that couples who have obtained reproductive services abroad requiring extensive pre- and post-natal care upon their return can place a strain on national health services
  (McKelvey at al.,BCOG 2009)
- 91,4% of all patients obtained informations in their language and considered satisfactory and 93,7% received information on cost
  (Shenfield,F., Human Reproduction 2010)

Ethical considerations

Resource poor countries:

- CBRC may have undesirable implications for the the health care system in these countries and for the local patients
- Danger of exploitation (oocyte donation and surrogacy)

Ethical considerations

Physician:

- Ina case of permissive law, it is morally allowed (taking into account the reproductive autonomy) to refer to a center abroad

(However, required treatment must be supported from national and international professional societies)

- Proffesional responsibility of reffering physician is to make sure that patients are treated well by the clinic to which she/he referrs

CBRC - effect on legislation?

- Growing numbers of patients going abroad for ART can be seen as a form of civil disobedience intending to change the existing legislation
- Politicians may accept these movements as a „safety valve“ decreasing the pressure for law reform internally

What do we know about socio-demographic characteristics of CBRC patients ?

Received little attention in the literature so far:

- Probably only wealthy patients are able to access CBRS

  (Hudson et al., Reprod Biomed Online 2011)

- CBRC could allow less wealthy patients to have access to cheaper treatments that they cannot afford at home

  (Pennings,G., Human Reproduction 2004)

Broader economic consequences of ART-conceived children

Few studies tried to to quantify the economic impact of IVF children to the society

- IVF children (like any other individual) will engage in economic activities that influence financial transfers between the state and the citizen in the form of education, healthcare and future tax payments

Broader economic consequences of ART-conceived children

- Discounted net tax revenue paid over the lifitime of a singleton IVF child born in 2005 are rougly £ 110.000
- Costs to achieve an IVF child are approximately £ 13.000

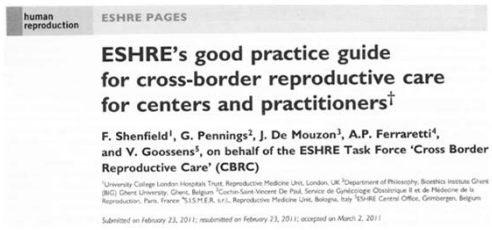
8-fold return of investment for government

(Conolly,M.P. et all, Hum Reprod Update 2010, Svensson,A. et al., Scand J Public Health, 2008)

Broader economic consequences of ART-conceived children

Even more important:

Age structure of population, whereby the proportion of working-aged cohort relative to economically inactive cohorts is more relevant for economic growth



human reproduction ESHRE PAGES

ESHRE's good practice guide for cross-border reproductive care for centers and practitioners†

F. Shenfield[1], G. Pennings[2], J. De Mouzon[3], A.P. Ferraretti[4], and V. Goossens[5], on behalf of the ESHRE Task Force 'Cross Border Reproductive Care' (CBRC)

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Submitted on February 23, 2011; resubmitted on February 23, 2011; accepted on March 2, 2011

The ideal is fair access to fertility treatment at home for all patients.

ESHRE´s good practice guide for cross-border reproductive care for centers and practitioners

Relevant principles for patients, donors, future children, surrogates and professionals:

- Equity
- Safety
- Efficiency
- Effectiveness
- Timeliness
- Patient centeredness

ESHRE´s good practice guide for cross-border reproductive care for centers and practitioners

- **Equity:** similar protocols, fees, information and counseling for foreign as for national patients
- **Quality, safety and evidence-based care provision:** minimal risks with maximum chance of pregnancy. For gamete donation it is essential to follow the recommendations of EU tissue directive
- **For donors:** stimulation that minimizes the health risks for the oocyte donors

ESHRE´s good practice guide for cross-border reproductive care for centers and practitioners

- **Surrogacy:** single embryo transfer is the only acceptable option
- **Children:**
  restrictive embryo transfer policy
  for egg donation embryo transfer must be limited to two embryos
- **Professionals:** collaboration between the home practitioner and the receiving center

Summary and recommendations

- While all European countries have reached the final stage of demographic transition characterized by low (or even lowest-low) fertility and high life expectancy, there are large groups of patients with no access to required infertility treatments at home who are forced to seek the medical help abroad.

Summary and recommendation

- As a result of clear inequality of access to fertility treatments in Europe leading to growing number of cross-border patients and couples, broad social, ethical, medical and political problems may arise.
- Solution can be found only through coordinate efforts from various stakeholders like patient´s organizations, professional societies and policy makers both on national and international levels.

Recommendation

Professional society should gather information and:

- Inform the law makers, media and public of the benefits of ART for infertile people and couples
- Explain the negative consequences of restrictive laws
- Explain the responsibility of referring professionals
- Defend respect for different opinions

Recommendation

Legislation:

- Provide at least partial reimbursement for treatment to ensure equitable access for all citizens
- Adopt a less restrictive laws not to force large groups of patients to travel abroad
- Systems of control and verification should be installed

Different models of family thus different types of ART patient

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I declare no commercial or financial conflict of interest

Learning objectives

This is an overview of the different types of ART patients that are currently in fertility units, as a consequence of the social changes in the family models and the necessity to be updated and prepared for these situations:

- Evolution of family models in the society
- Progress of motivation for using ART
- Evolution of types of ART patients
- Evolution of ART procedures

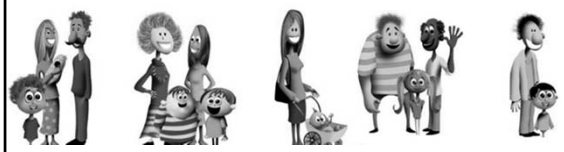
What is a family?

Family:
A group of people who are related to each other, such as a mother a father and their children
(Cambridge dictionary)

PÁG.4

Evolution of family model

- But the structure of the traditional family has changed along the time



- Consequently, the motivation for using ART has also changed

PÁG.5

Evolution of family model

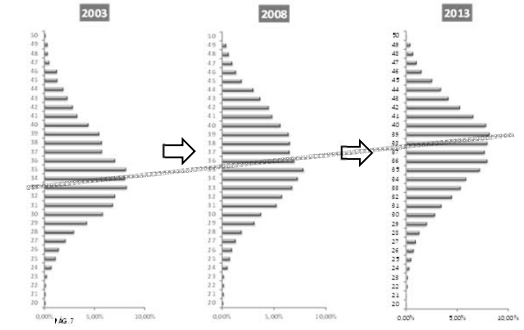
- The extension of stay in the parents' household, postpones the transition to adulthood and thus the creation of one's own family

- This change in the type of intended parents directly influences the activity of infertility units

PÁG.6

IVI- evolution of patients types

Patients age distribution (20 to 50 years in their first visit). All patient types

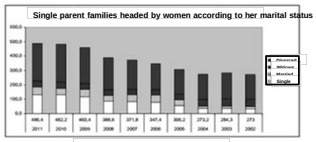


PÁG.7

Evolution of family model

Different family characteristics → Different ART patients

- Maternal advanced age is the 1st ART indication in Europe
- Women having more economical and social independence increase their decision of single motherhood
- Greater acceptance of the rainbow families, increases the demand of ART together with the absence of male partner and woman advanced age



Source: Spanish Woman Institute. Units in thousands

PÁG.8

Motivation for using ART

<u>In the past</u> people were motivated to use ART to have a child when they couldn't spontaneously…

- Couples in which one person is infertile (or both)
- Single women

PÁG.9

Motivation for using ART

Currently people are motivated to use ART to have a child, genetically related if possible, in a variety of circumstances:

- Couples in which one person is infertile (or both)
- Couples/women with repeated abortion
- Lesbian couples
- Homosexual male couples
- Couple in which one or both partners are transgender
- Single man/woman
- Homosexual or transgender man/woman
- Women undergoing chemotherapy
- Women who want to delay childbearing
- Couples who need/want to use pre-implantation genetic diagnosis (PGD)

Moreover, as genetic screening becomes more popular, affordable, and able to test for a greater number of characteristics, it is possible that more people who are not infertile will use ART and PGD in order to minimize the risk of transmitting genetic diseases.

Ombelet W, Campo R. Reprod Biomed Online 2007;15:257-65.

It is necessary to be updated about the reproductive wishes of different types of patient to be prepared and avoid looking confused

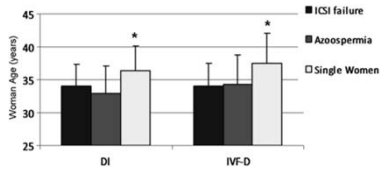
- Knowledge of legal frame in each country
  - To offer appropriate ART alternatives
  - For filiation of the new born
- Adapted informed consents and informative documents
- Adapted database
- Special paperwork for certain cases
- Ethical and legal consultation organ
- Psychological specialized support

Amato P, Jacob MC. Sex Reprod Menopause 2004;2:83-7.

It is also necessary to analyze the characteristics of these specific groups of patients in order to optimize their success chances…

Single women

Single women can be considered as a subfertile group, probably due to their significantly higher age.

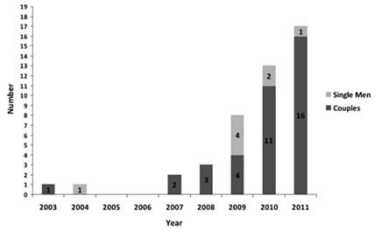


Viloria T. et al. Fertil Steril 2011;96:1134–7

PÁG.13

Single men and male couples

Analysis of assisted reproduction in same-sex male couples and single men



Grover S et al. Reprod Biomed online 2013;27:217–221

PÁG.14

Patients who need fertility preservation

Five years' experience using oocyte vitrification to preserve fertility for medical and nonmedical indications

12 babies.

Fertility and Sterility®

	Non oncological	Oncological
Nº patients FP	907	361
Nº Patients using their vit. oocytes	35	14
Mean age at vitrification	35.9 ± 4.2	31.9 ± 5.1
Mean age at warming	38.1 ± 2.8	36.1 ± 6.1
Nº oocytes warmed	250 (7.0 ± 3.5)	88 (6.0 ± 0.7)
Survival rate	92.3	88.6
Nº embryos transferred	2 ± 0.7	2 ± 0.1
Nº patients with surplus embryos	22 (62.9)	5 (35.7)
CPR/patient	15 (42.8)	5 (35.7)
OPR/patient	11 (31.4)	5 (35.7)
Live birth	8	4
Ongoing pregnancies	3	-

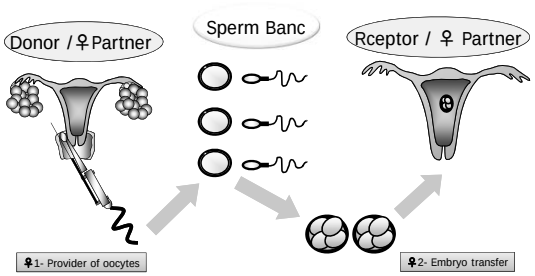
PÁG.15

Updated 5-years experience of applying oocyte vitrification for Fertility Preservation at IVI.

IVI

Women couples

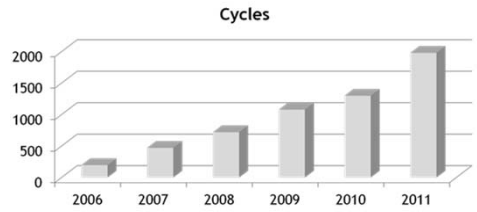
Reception of Oocytes from Partner ROPA



PÁG.16

IVI

Reception of Oocytes from Partner ROPA



2005	2006	2007	2008	2009	2010	2011
198	472	721	1018	1079	1300	1982

PÁG.17

(IVI database)

IVI

Reception of Oocytes from Partner ROPA

Couples (n)	**45**
Cycles (n)	50
Donor-partner age ($\bar{X}$ ± SD)	33.8 ± 3.1
Receptor-partner age ($\bar{X}$ ± SD)	34.8 ± 4.2
% cycles with aditional frozen emb.	71.1%
Nº Embriones obtenidos ($\bar{X}$ ± SD)	8.2 ± 2.5 embriones
Implantation rate	43.3%
Pregnancy rate/oocyte retrieval	54% (27/50)
Pregnancy rate/embryo transfer	60% (27/45)

PÁG.18

(IVI database)

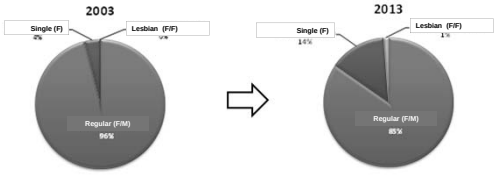
Evolution of types of patients

PÁG.19

Evolution of main types of patients

n

Patient Type	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Regular (F/M)	5.652	6.293	8.256	9.339	10.447	10.914	11.631	13.483	13.820	15.301	16.208	121.344
Single (F)	235	233	312	424	688	848	1.132	1.597	1.739	2.095	2.707	12.010
Homosexual (F/F)	1	1	2	2	7	12	54	99	94	159	230	661
Total	5.888	6.527	8.570	9.765	11.142	11.774	12.817	15.179	15.653	17.555	19.145	134.015



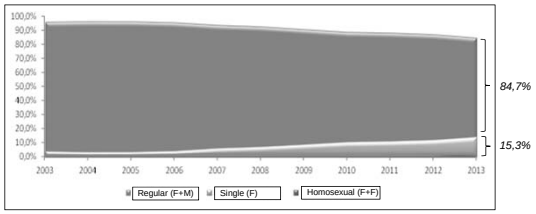
PÁG.20

(IVI database)

Evolution of main types of patient

%

Patient Type	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Regular (F/M)	96,0%	96,4%	96,3%	95,6%	93,8%	92,7%	90,7%	88,8%	88,3%	87,2%	84,7%
Single (F)	4,0%	3,6%	3,6%	4,3%	6,2%	7,2%	8,8%	10,5%	11,1%	11,9%	14,1%
Homosexual (F/F)	0,0%	0,0%	0,0%	0,0%	0,1%	0,1%	0,4%	0,7%	0,6%	0,9%	1,2%
SubTotal(F+F/F)	**4,0%**	**3,6%**	**3,7%**	**4,4%**	**6,2%**	**7,3%**	**9,3%**	**11,2%**	**11,7%**	**12,8%**	**15,3%**
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%



PÁG.21

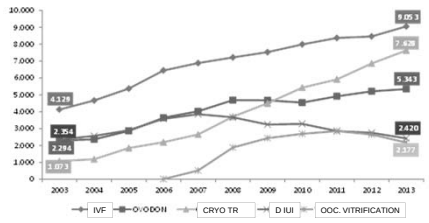
(IVI database)

Evolution of Assisted Reproduction procedures in different types of patient

PÁG.22

AR procedures & patient types

AR procedures evolution by patient type. ***Regular patients F/M***

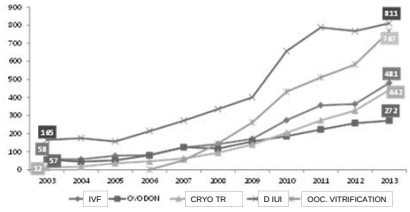


PÁG.23

(IVI database)

AR procedures & patient types

AR procedures evolution by patient type. ***Single patients F***

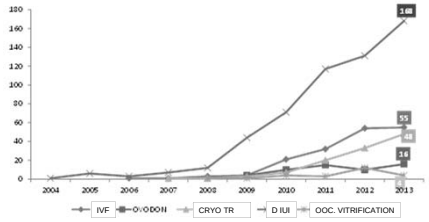


PÁG.24

(IVI database)

AR procedures & patient types

AR procedures evolution by patient type. ***Lesbian F+F.***

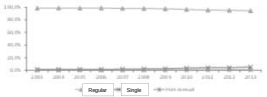


PÁG.25

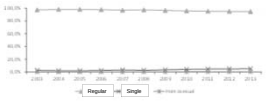
(IVI database)

Distribution of each AR procedure/patient type

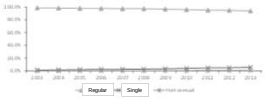
Distribution of IVF, Oocyte-DON and Cryo-Tr. of different patient types remains similar in the last years



IVF



Ooc.Don



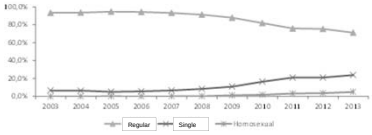
CryoTr

PÁG.26

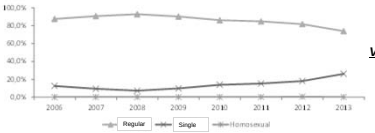
(IVI database)

Distribution of each AR procedure/patient type

Distribution of Donor Insemination and oocyte vitrification has changed in the last years



DI



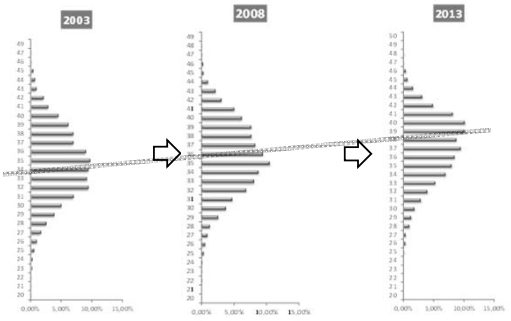
Vitrification

PÁG.27

(IVI database)

Evolution of patient age in each AR procedure

IVF

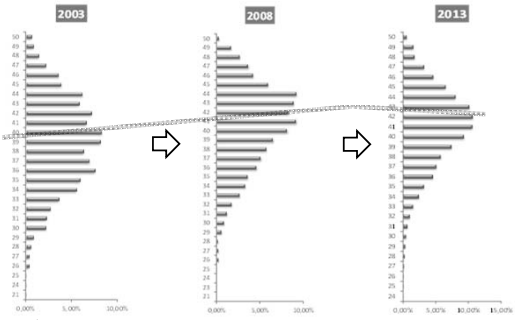


PÁG.28

(IVI database)

Evolution of patient age in each AR procedure

OOCYTE DONATION

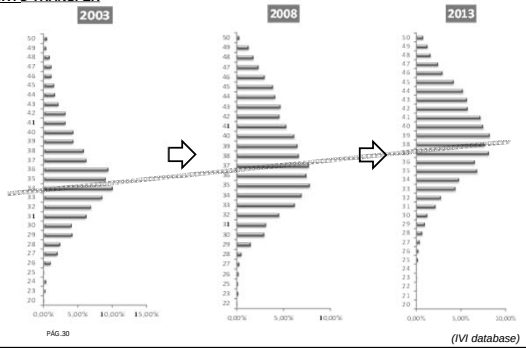


PÁG.29

(IVI database)

Evolution of patient age in each AR procedure

CRYO TRANSFER

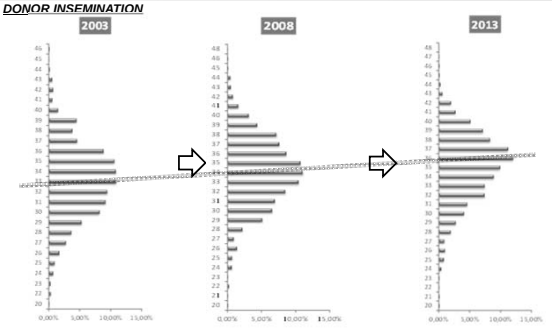


PÁG.30

(IVI database)

Evolution of patient age in each AR procedure

DONOR INSEMINATION

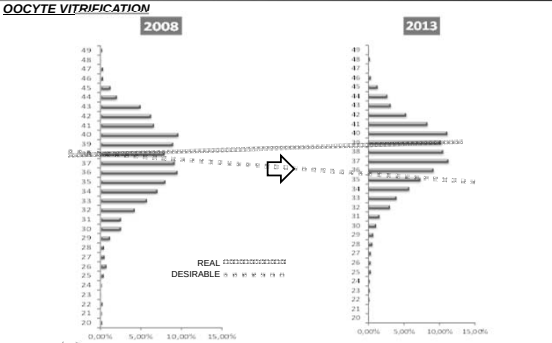


PÁG.31

(IVI database)

Evolution of patient age in each AR procedure

OOCYTE VITRIFICATION



PÁG.32

(IVI database)

Fertility preservation

Year	Non Oncologic	Oncologic	Total
2008		48	48
2009	2	64	66
2010	136	157	293
2011	121	191	312
2012	156	231	387
2013	356	215	571
Total	**771**	**906**	**1.677**

Women

Año	No oncológico	Oncológico	Total
2008		26	26
2009	1	33	34
2010	130	107	237
2011	110	130	240
2012	150	155	305
2013	343	152	495
Total	**734**	**603**	**1.337**

Men

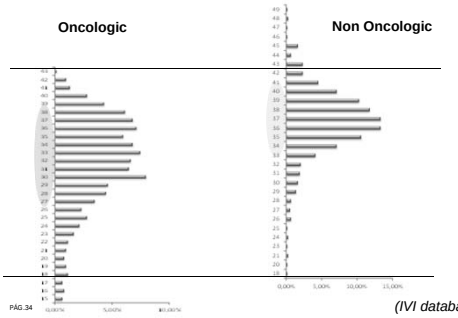
Año	No oncológico	PF Oncológico	Total
2008		22	22
2009	1	31	32
2010	6	50	56
2011	11	61	72
2012	6	76	82
2013	13	63	76
Total	**37**	**303**	**340**

PÁG.33

(IVI database)

Fertility preservation

Age of women for fertility preservation 2008-2013.

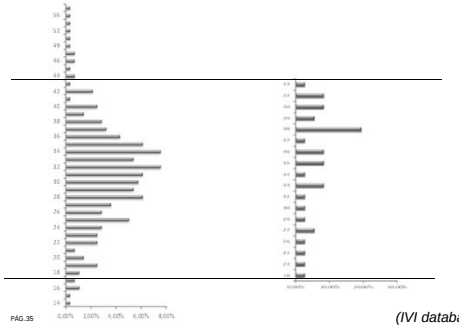


PÁG.34

(IVI database)

Evolución Tipo Paciente . Preservación Fertilidad.

Age of men for fertility preservation 2008-2013.



PÁG.35

(IVI database)

Conclusion

It is a fact that there are a variety of patients types who require appropriate reproductive solutions, mainly:

- Single woman
  - Treatment with sperm donation
- Single men and same-sex men couples
  - Subrogation
- Lesbian couples
  - Sperm donation / ROPA
- Patients who need/want to postpone motherhood
  - Fertility preservation

An adequate medical care, technical development and legal coverage is necessary to serve present and future needs of all patients

PÁG.36

Take home messajes

- Know the social evolution of your environment.
- Take into account the possible types of patients in your clinic.
- Know the legal conditions in the place you perform fertility treatments.
- Study your dates for each group of patients and inform properly about the success probabilities.
- Adapt all documents and database.
- Go one step forward developing solutions for future possible situations.

Acknowledgements

Data management

- Goyo Iniesta. *Assistant Management Control, Strategy and Operations Equipo IVI*
- Carlos Blanes. *Director Management Control, Strategy and Operations Equipo IVI*

Clinical data

- Marcos Meseguer. *Senyor embryologist. Laboratory Up-Dater. IVI Valencia*
- Ana Cobo. *Director of Cryo preservation. IVI Valencia*
- Antonio Requena. *General Medical Director. Equipo IVI*

References & recomended lectures

- OmbeletW, Campo R. Affordable IVF for developing countries. Reprod Biomed Online 2007;15:257-65.
- Amato P, JacobMC. Providing fertility services to lesbian couples: the lesbian baby boom. Sex Reprod Menopause 2004;2:83-7
- Viloria T, Garrido N, Minaya F, Remoh: J, Muñoz M, Meseguer M. Fertil Steril 2011;96:1134-7
- Grover S, Shmorgun Z, Moscovtsev S, Baratz A. Reprod Biomed online 2013;27:217-221
- Wischmann et al. A 10-year follow-up study after infertility treatment. Hum Reprod 2012;27:3226-3232
- Human Rights Campaign. Maps of state laws & policies. Available at: http://www.hrc.org/resources/entry/maps-of-state-laws-policies.
- The Ethics Committee of the American Society for Reproductive Medicine. Fertil Steril 2013;100:1524-7
- Research on Families and Family policies in Europe. State of the Art. Final Report. 2010 www.familyplatform.eu
- Emily Galpern. Assisted reproductive technologie: Overview and perspective using a reproductive justice framework. http://geneticsandsociety.org/downloads/ART.pdf


Thank you
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E-patients: from Dr. Google to Telemedicine

Karoline Jeane Steckley
Freelance Consultant, International Communications
IVF Success Story
Trieste, Italy

Learning Objectives

Understanding the modern e-patient.

Embracing new technology.

Advice on becoming "Dr. Google," but BETTER!

"Friending" social media.

Creating a value-based approach to fertility treatment and and online reputation.

Disclaimer 1:
This talk is not about what you think it is.
Experiment: Try it! Do a Google Search: "Advice for Doctors, Fertility"

Here is what you get:

The for magically becomes from
A list of eastern European clinics pop up giving advice on what to expect, geared towards patients.
After 3-4 pages patients give advice to patients

NOTE:
There is no reference for doctors on what to expect from patients

Realistic Feedback is impossible

Where can doctors get this information? Can a fertility doctor REALLY ask a fertility patient for Feedback? Sure, you could, but what would you get?

Scenario 1: Patient got pregnant under your care:
You are a genius. You did a GREAT JOB! 5 stars!

Scenario 2: Patient didn't get pregnant:
You are a jerk, and a lousy doctor. 1/2 star!

Scenario 3: No results. Clock is ticking. Patient changes doctors and is never to be heard from again. 0 stars.

Disclaimer 2: I am a real life Case Study.

Disclaimer 3: I work in communications.

Disclaimer 4: I had a good outcome

But… I still have my horror stories that I tell about my experience.

1. *The cell phone my doctor answered during my visit.*
2. *The witch doctor counting her money.*
3. *Don't pay now… I will get you later.*
4. *How doctors talk about each other.*

Here is what else I noticed:

1. *Every visit was like starting from scratch.*
2. *The patient is a science experiment.*
3. *We are bombarded with false information outside the clinic.*
4. *There is a lack of information for patients within the clinic.*

The problem of patient loyalty and incongruency

Patients change doctors on average about three times during treatment.

Every patient is a "free agent".

Patients are well informed by the time they arrive at the clinic.

Patients do not look at a Dr.'s results because they know they are manipulated by refusing patients who have a low risk of pregnancy.

A patient's idea of "expert" may be different than the doctor's.

The patient has "nothing to lose".

Choice is based on word of mouth and results of friends.

Fertility doctors have a terrible reputation for being cold, money-hungry, forgetful and focused on research.

Making the Process Bearable takes courage

The fertility treatment process is a tough one psycologically and physically. Many of us try new things as a result of the mental stress. We all have different ways of dealing with our situation.

Spend a lot of time on the internet

Talk to other people in the same situation

Run a marathon

Get a drastic haircut

Start a blog

Destination IVF

"If you want to be in the top 5% you have to do what the other 95% do not want to do."

Robin Sharma

To be the Best of the Best , Aim to be a DESTINATION and a resource for what patients are really looking for:

A doctor/team who is human.

The doctor who listens to and understands and respects the modern patient can make a real difference.

Transparency on information, pricing, expectations.

Exercise empathy.

You, too, can become "Dr. Google"

Pay attention to your online reputation.

What are they saying about you?

Spend at least as much time doing something about it as you do reading abou it.

Define your values and practice them every day and online

If they are sincere and your decisions are firmly rooted in these values, you will create a solid and positive reputation in spite of "results".

Listen.

Understand where your patients are getting their information. Stay updated on the latest online trends. Keep an eye on the most popular sites and blogs.

Do not be defensive or intimidated by technology.

Embrace the real opportunity to be heard through social media.

Share your thoughts and ideas with your patients.

Changing the Culture from top to bottom

Going back to our learning objectives:

Understanding the modern e-patient.
Embracing new technology.
Advice on becoming "Dr. Google," but BETTER!
"Friending" social media.
Creating a value-based approach to fertility treatment and and online reputation.

Conclusion:

Considerations
Pros
Cons
Questions.

Thank you!
Karolinesteckley@gmail.com

How to communicate with new generation patients?

SOFIA GAMEIRO, PHD

ESHRE Pre-Congress Course 14
Munich, 29th June 2014

Cardiff Fertility Studies Research Group
www.CardiffFertilityStudies.com

Conflict of interest (past three years)

- Nothing to declare

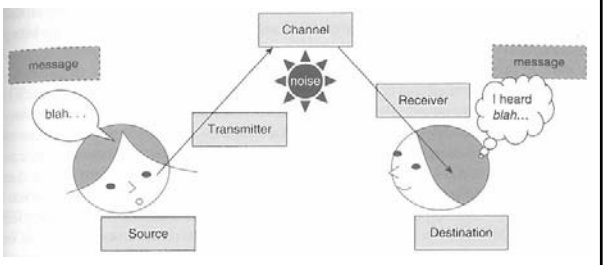
Cardiff Fertility Studies

Learning objectives

1. Understand the functions of health communication in fertility care
2. Profile new generation patients and their communication needs
3. Discuss how to ensure the effectiveness of health communication in fertility care

Cardiff Fertility Studies

Health communication



Marks et al, 2011. *Health Psychology: theory, research and practice*. Sage.

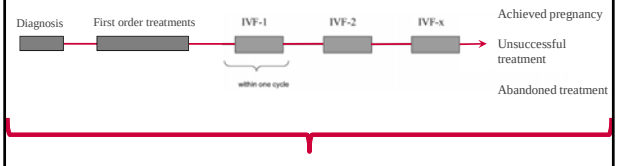
Cardiff Fertility Studies

Functions of health communication

	Six function model of medical communication	Goals	Immediate endpoints	Intermediate (and/or surrogate) endpoints	Long term endpoints
1	Fostering the relationship(s)	Good and effective relationship	e.g., + eye contact + patient participation - physiological stress measure	e.g., + trust + sense of rapport + satisfaction with consultation	+ patient satisfaction + patient health - physician stress and burn out
2	Gathering information	Adequate diagnosis and/or interpretation of symptoms	e.g., + explorative behavior + expression of patient concerns	e.g., + adequate diagnosis / treatment plan - diagnostic test ordering - medical errors	+ patient health + physician satisfaction
3	Providing information	Good information provision	e.g., + check understanding / explore prior knowledge - used of jargon	e.g., + recall + understanding	e.g., - patient uncertainty + patient autonomy
4	Decision making	Decision based on information and preferences	e.g., check decision making preference / patient values + provide information	e.g., - decisional conflict + satisfaction with decision	+ satisfaction with decision + health
5	Enabling disease & treatment related behavior	Adequate and feasible disease and treatment related behavior	e.g., address patient motivation and efficacy	e.g., + illness related behavior + treatment adherence + life style ? costs	+ patient health
6	Responding to emotions	Supporting the patient, enhancing the communication and referral where needed	e.g., + clinician explorative skills / silence + patient expression of emotions ? time constraints	e.g., + patient sense of support + treatment of psychopathology	+ patient emotional adjustment - psychological distress ? costs

de Haes & Bensing, 2009. *Patient Education and*

Communication at fertility clinics



Fostering the relationship
Enabling disease & treatment related behaviour

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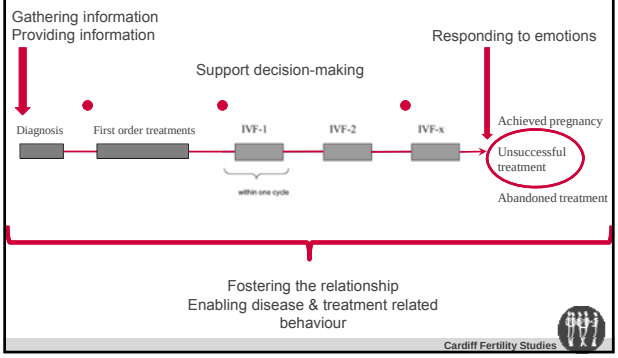
Communication at fertility clinics



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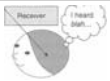
New Generation Patients



- Digital native

Table 11.3 Empowering and disempowering aspects of health on the Internet (Korp, 2006)

Empowering	Disempowering
Enabling of advanced information and knowledge retrieval	A shift towards the expert control and evaluation of sources of health information
Anonymity and convenience in accessing information	Widens the gap between 'information rich' and 'information poor' users, thus reproducing existing social divisions
Creation of social contacts and support independent of time and space	The increase in 'lexicalization' and 'healthism' results in increased anxiety and poorer health
Challenging the expert–lay actor relationship	

- Peter Pan generation

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Use of internet & email for health care

- 4764 individuals with internet access & 5 chronic conditions (70%RR)
  - 40% information or advice
  - 6% communicate with doctor or health provider
  - 26% communicate with family/friends about health
  - 11% communicate with other people with health concerns
  - 67% improved understanding of disease & treatment
  - 30% improves ability to manage disease
  - 16% affected treatment used
  - 30% improved ability to manage other health needs
  - 7% led to seek another health provider

Baker et al, 2013. *JAMA*.

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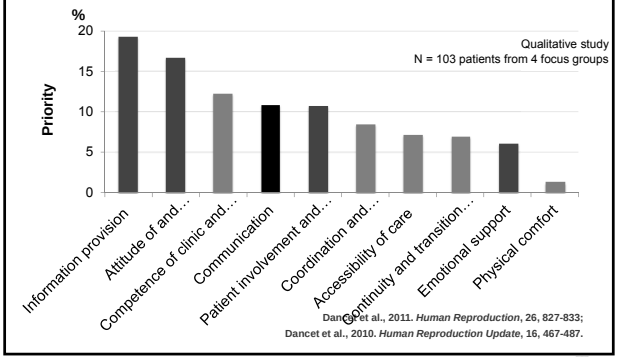
Importance of communication for patients



Dancet et al., 2011. *Human Reproduction*, 26, 827-833;
Dancet et al., 2010. *Human Reproduction Update*, 16, 467-487.

Patients' experiences of communication

Dimensions	Important issues (problematic or non-problematic)
Information, communication & education	Written information Information on alternatives Information on helping themselves Known plan for future General information Information on diagnosis Time for discussion Sufficiency of information
Respect for patient's values, preferences & needs	Personalized care Involvement in D-M Respect/courtesy
Emotional support & alleviation of fear and anxiety	Organize contact with (prior) patients Emotional support during medical care Provision of support groups
Continuity & transition	Attitude office staff Relationship with fertility clinic staff & doctors Trust/sensitivity/attitude of fertility staff Attitude doctors

Dancet et al., 2010. *Human Reproduction*

1. Fostering the relationship

	Six function model of medical communication	Goals	Immediate endpoints	Intermediate (and/or surrogate) endpoints	Long term endpoints
1	Fostering the relationship(s)	Good and effective relationship	e.g., + eye contact + patient participation - physiological stress measure	e.g., + trust + sense of rapport + satisfaction with consultation	+ patient satisfaction + patient health - physician stress and burn out

- Respect, empathy, courtesy, readiness in any situation
- Presentation & groomi
  - At the clinic & on-line

- TEAM - patient communication

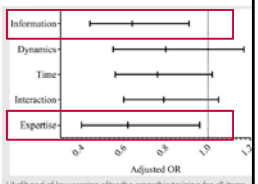
Cardiff Fertility Studies

Training in communication & interaction skills

Training in empathic skills improves the patient-physician relationship during the first consultation in a fertility clinic

Désirée García, B.S.,[a] Olga Bautista, B.S.,[a] Laura Veneros, B.S.,[a] Oriol Coll, M.D., Ph.D.,[a] Rita Vassena, D.V.M., Ph.D.,[a] and Valeria Vernaeve, M.D., Ph.D.[a,b]
[a] Fundació EUGIN, and Departments of [a] Clinical Psychology and [b] Assisted Reproduction, Clínica EUGIN, Barcelona, Spain

- 13 physicians evaluated by 2146 patients
- Training:
  - 2 days = 14 hours
  - Theoretic classes, audio visual materials & practical workshops
  - Empathy, emotional intelligence, verbal and nonverbal communication, active listening, and



Likelihood of low scoring after the empathic training for all items. x-axis: adjusted odds ratio (OR) for low scoring; y-axis: items in the questionnaire. OR (95% CI): Information: 0.64 (0.44–0.93); Dynamics: 0.8 (0.55–1.17); Time: 0.76 (0.56–1.17); Interaction: 0.79 (0.6–1.05); Expertise: 0.62 (0.4–0.96).

Garcia et al., 2013. *Fertility & Sterility*.

2. Enabling disease & treatment related behaviour

	Six function model of medical communication	Goals	Immediate endpoints	Intermediate (and/or surrogate) endpoints	Long term endpoints
S	Enabling disease & treatment related behavior	Adequate and feasible disease and treatment related behavior	e.g., address patient motivation and efficacy	e.g., + illness related behavior + treatment adherence + life style ? costs	+ patient health

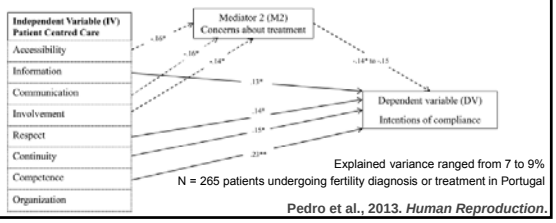
- Empowering patients
  - Self-care resources, disease related skills
  - Agency, control over disease
  - Motivation, compliance
  - Patient involvement
  - Patient-staff communication

Cardiff Fertility Studies

human reproduction ORIGINAL ARTICLE *Psychology and counselling*

Positive experiences of patient-centred care are associated with intentions to comply with fertility treatment: findings from the validation of the Portuguese version of the PCQ-Infertility tool

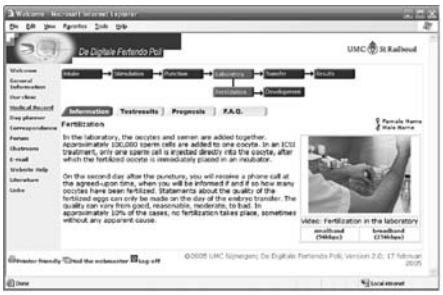
Juliana Pedro[1], Maria Cristina Canavarro[1], Jacky Boivin[2], and Sofia Gameiro[2,*]



Explained variance ranged from 7 to 9%
N = 265 patients undergoing fertility diagnosis or treatment in Portugal

Pedro et al., 2013. *Human Reproduction*.

Online personal medical record



Tuil et al. 2006. *Human Reproduction*; Tuil et al 2007, *Fertility & Sterility*

Online personal medical record

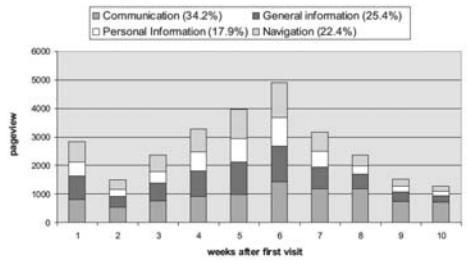


Figure 2. The number of page-views per week after a patient-couples' first visit to the website.

n = 51 first IVF/ICSI couples

Tuil et al. 2006. *Human Reproduction*; Tuil et al 2007, *Fertility & Sterility*

3. Gathering information

	Six function model of medical communication	Goals	Immediate endpoints	Intermediate (and/or surrogate) endpoints	Long term endpoints
2	Gathering information	Adequate diagnosis and/or interpretation of symptoms	e.g., + explorative behavior + expression of patient concerns	e.g., + adequate diagnosis / treatment plan - diagnostic test ordering - medical errors	+ patient health + physician satisfaction

- Pre online assessment?
- Centralize/share info with patient
  - Screening
  - History of fertility
  - Sensitive issues (e.g., life-style)
  - Issues patients would like to discuss at the consultation
  - DOES NOT REPLACE consultation at clinic

4. Providing information

	Six function model of medical communication	Goals	Immediate endpoints	Intermediate (and/or surrogate) endpoints	Long term endpoints
3	Providing information	Good information provision	e.g., + check understanding / explore prior knowledge - used of jargon	e.g., + recall + understanding	e.g., - patient uncertainty + patient autonomy

- Addressing concerns and misconceptions
- Clear and thorough knowledge/understanding about
  - Health status
  - Different options and related outcomes
  - Practical procedures (daily plan)

Information provision in fertility care

- Only 57% of patients receive information according to fertility guidelines
- Main determinants of receiving information
  - Use of checklists
  - Presence of obstetrics/gynaecology residents
  - Presence of specialized nursing personnel
  - Higher patient anxiety scores

Mourad et al., 2009. *Human Reproduction*, 24, 1420-1426.

How do patients want to receive information?

- Treatment related information, not clear which
- Customized is better than general
- Men and women want info about treatment options & results
- Women value more than men information about psychosocial support
- Preferences about how information is presented can be known & staff could try to provide in preferred format

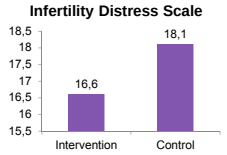
Lancet et al 2010. *Human Reproduction* Update; Hope 2010. *Fertility & Sterility*; Mourad et al 2011, *Human Reproduction*; Schmidt et al 2003, *Human Reproduction*.

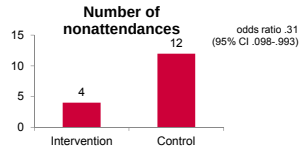
Preparatory information results in better tr outcomes

250 infertile men applying for fertility workup

Intervention group (n = 125) : 2 - pages leaflet

Control group (n = 125) : no intervention





odds ratio .31 (95% CI .098-.993)

t (202) = 1.71, *p* < .05, *d* = .24

Pook & Krause, 2005. ***Fertility and Sterility***, 83, 68-73.

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5. Decision-Making

	Six function model of medical communication	Goals	Immediate endpoints	Intermediate (and/or surrogate) endpoints	Long term endpoints
4	Decision making	Decision based on information and preferences	e.g., check decision making preference / patient values + provide information	e.g., - decisional conflict + satisfaction with decision	+ satisfaction with decision + health

- 'High quality' decisions
  - well informed
  - consistent with individual values and preferences and
  - made with minimal decisional conflict and anxiety

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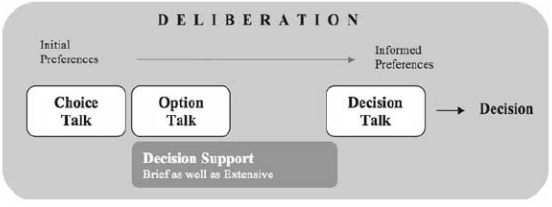
How to support patients in DM?



Elwyn et al, 2012, *Journal of General Internal Medicine.*

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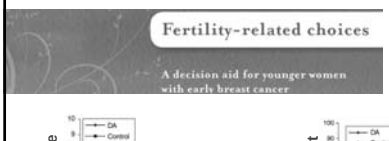
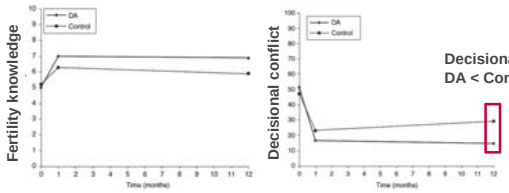
AmnioDex – DM about amniocentesis

Durand et al, 2012. *International Journal of Person Centered Medicine.*

Fertility preservation decisional-aid



120 Early breast cancer patients
72 Control: Usual care
48 DA: Decisional Aid



Decisional regret
DA < Control

Paete et al., 2012. *British Journal of Cancer*, 106, 1053-1061.

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6. Responding to emotions

	Six function model of medical communication	Goals	Immediate endpoints	Intermediate (and/or surrogate) endpoints	Long term endpoints
6	Responding to emotions	Supporting the patient, enhancing the communication and referral where needed	e.g., + clinician explorative skills / silence + patient expression of emotions ? time constraints	e.g., + patient sense of support + treatment of psychopathology	+ patient emotional adjustment - psychological distress ? costs

- Use defined protocol to break bad news
- Promote contact with other patients
  - Social support
  - Role models
  - Normalization of emotional reactions
-

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Identifying distressed patients

- Active listening: look for verbal, physical cues and somatization
  - 'I guess a lot of people feel down when they get cancer'
- Avoid distancing techniques
- Prompt patients for information
  - Do not assume patients will express all their needs
- Use words with emotional content
- Use screening/ quality of life tools

Ryan et al, 2005. *European Journal of Cancer Care*.

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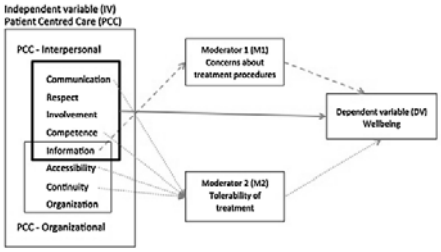
Supporting distressed patients



Explained variance ranged from 6 to 20%
N = 265 patients undergoing fertility diagnosis or treatment in Portugal

Gameiro et al., 2013. *Patient Education and*

Conclusions

1. Communicate to meet ≠ goals at ≠ tr stages
2. New Generation Patients
   - Use technologies to complement their communication with health professionals
   - Value information provision & other communication functions
3. ≠ responsibility & techniques ➔ ≠ goal(s) of communication

ALL STAFF should

- Undergo communication & empathy skills training
- Facilitate patient access to information materials & communication tools

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Effective communication associated with better outcomes for patients and staff

Benefit	Shown in fertility care	Shown in health care
↑ Patient satisfaction	✓	✓
↑ Health outcomes	✓	✓
↑ Treatment compliance	✓ (Intentions)	✓ (Behaviour)
↑ Patients perceptions of staff competence	✓	✓
↓ Staff burnout		✓
↓ Consultation times		✓

Additional information

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References 1/2

Baker L, Wagner TH, Singer S, Bunford MK. Use of the internet and e-mail for health care communication. JAMA 2003;289(18):2400-2406.

Dancet EAF, Nelen WLDM, Sermeus W, De Leeuw L, Kremer JAM, D'Hooghe TM. The patients' perspective on fertility care: A systematic review. Human Reproduction Update 2010;16:467-487.

Dancet EAF, van Empel IWH, Rober P, Nelen WLDM, Kremer JAM, D'Hooghe T. Patient-centred infertility care: A qualitative study to listen to the patient's voice. Human Reproduction 2011;26(4):827-833.

de Haes H, Bensing J. Endpoints in medical communication research, proposing a framework of funtions and outcomes. Patient Education and Counseling 2009;74:287-294.

Durand M-A, Boivin J, Elwyn G. Stakeholder field-testing of amnioDex, a person-centered decision support intervention for amniocentesis. The International Journal of Person Centered Medicine 2012;2(3):568-576.

Elwyn G, Lloyd A, Joseph-Williams N, Cording E, Thoms R, Durand M-A, et al. Option grids:shared decision making made easier. Patient Education and Counseling 2012;90(2):207-212.

Gameiro S, Canavarro MC, Boivin J. Patient centred care in infertility health care: Direct and indirect associations with wellbeing during treatment. Patient Education and Counseling 2013;93(3):646-654.

Garcia D, Bautista O, Venereo L, Coll O, Vassena R, Vernaeve V. Training in empathic skills improves the patient physician relationship during the first consultation in a fertility clinic. Fertility and Sterility 2013;99:1413-1418.

Hope N. Can an educational DVD improve the acceptability of elective single embryo transfer? A randomized controlled study. Fertility and Sterility 2010;94(2):489-495.

References 2/2

Marks DF, Murray M, Evans B, Estacio EV. Health Psychology: Theory, research and practice. 3rd ed. Los Angeles: Sage; 2011.

Mourad SM, Hermens RPMG, Cox-Witbraad T, Grol RPTM, Nelen WLDM, Kremer JAM. Information provision in fertility care: A call for improvement. Human Reproduction 2009;24(6):1420-1426.

Mourad SM, Hermens RPMG, Liefers J, Akkermans RP, Zielhuis GA, Adang E, et al. A multi-faceted strategy to improve the use of national fertility guidelines; a cluster-randomized controlled trial. Human Reproduction 2011;26:817-826.

Peate M, Meiser B, Cheah BC, Saunders C, Butow P, Thewes B, et al. Making hard choices easier: A prospective, multicentre study to assess the efficacy of a fertility-related decision aid in young women with early-stage breast cancer. British Journal of Cancer 2012;106:1053-1061.

Pedro J, Canavarro MC, Boivin J, Gameiro S. Postive experiences of patient-centred care are associated with intentions to comply with fertility treatment: Findings from the validation of the Portuguese version of the PCQ-Infertility. Human Reproduction 2013;28(9):2462-2472.

Pook M, Krause W. Stress reduction in male infertility patients: A randomized, controlled trial. Fertility and Sterility 2005;83:68-73.

Ryan H, Schofield P, Cockburn J, Butow P, Tattersall M, Turner J, et al. How to recogniza and manage psychological distress in cancer patients. European Journal of Cancer Care 2005;14:7-15.

Schmidt L, Holstein BE, Boivin J, Sångren H, Tjørnhøj-Thomsen T, Blaabjerg J, et al. Patients' attitudes to medical and psychosocial aspects of care in fertiity clinics: Findings from the Copenhagen Multi-centre Psychosocial Infertility (COMPI) Research Programme. Human Reproduction 2003;18:628-637.

Tuil WS, Hoopen AJt, Braat DDM, de Vries Robbé PF, Kremer JAM. Patient-centred care: Using online personal medical records in IVF practice. Human Reproduction 2006;21(11):2955-2959.

Tuil WS, Verhaak CM, Braat DDM, de Vries Robbé PF, Kremer JAM. Empowering patients undergoing in vitro fertilization by providing Internet access to medical data. Fertility and Sterility 2007;87:1361-1366.

UPCOMING ESHRE EVENTS

// ESHRE CAMPUS EVENTS

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www.eshre2014.eu

Munich, Germany
29 June - 2 July 2014

Epigenetics in reproduction

www.eshre.eu/lisbon

Lisbon, Portugal
26-27 September 2014

Endoscopy in reproductive medicine

www.eshre.eu/endoscopyoct

Leuven, Belgium
15-17 October 2014

Making OHSS a complication of the past: State-of-the-art use of GnRH agonist triggering

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Thessaloniki, Greece
31 October-1 November 2014

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7-8 November 2014

Controversies in endometriosis and adenomyosis

www.eshre.eu/liege

Liège, Belgium
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www.eshre.eu/copenhagen

Copenhagen, Denmark
11-12 December 2014

An update on preimplantation genetic screening (PGS)

www.eshre.eu/rome

Rome, Italy
12-13 March 2014

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