

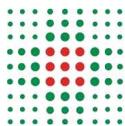


# Giornata Regionale SIDS, SIUD & ALTE

LA SPEZIA\_27 NOVEMBRE 2010

## Stillbirth & SIUD

*Prof. Giovanni PIANTELLI | Dott.ssa Ilaria IODURI*



Università degli Studi di Parma | Facoltà di Medicina e Chirurgia  
Clinica Ginecologica ed Ostetrica  
Direttore: Prof. Alberto Bacchi Modena

# STILLBIRTH WHO

1995: 4,3 MILIONI

2000: 3,3 MILIONI

2004: 3 MILIONI

DATI SOTTOSTIMATI

% STILLBIRTH



INDICATORE DELLA QUALITA' DELLE CURE  
OFFERTE ALLA POPOLAZIONE GRAVIDA



## NATIMORTALITA': MEF

nati morti / totale nati (vivi + morti) x 1000

## \*\*MORTALITA' PERINATALE:

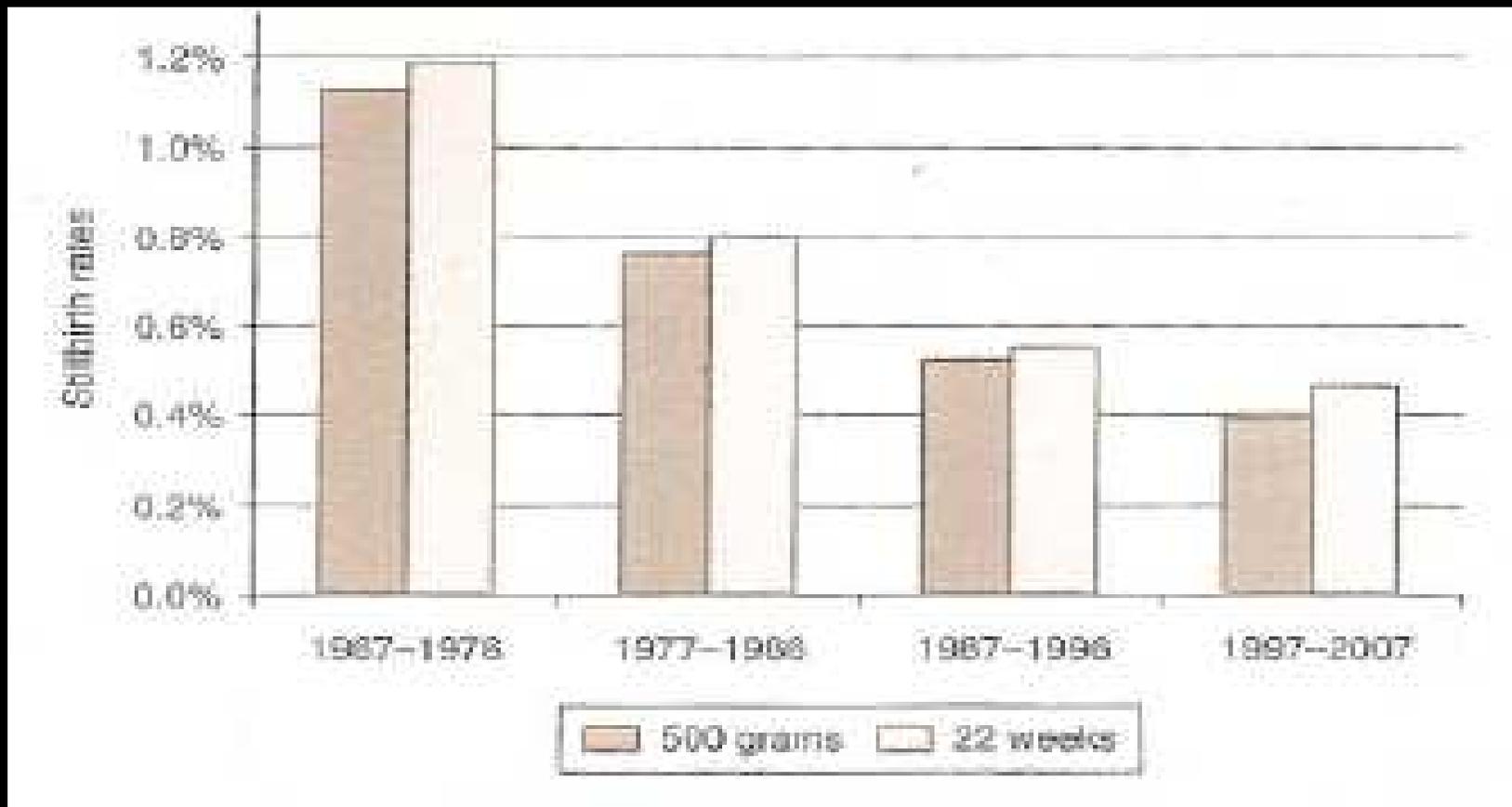
nati morti + morti primi 7 gg / totale nati (vivi + morti) x 1000

## MORTALITA' NEONATALE:

morti primi 28 gg / nati vivi x 1000

**\*\* World Health Organization: Stillbirths = Mortalità perinatale**



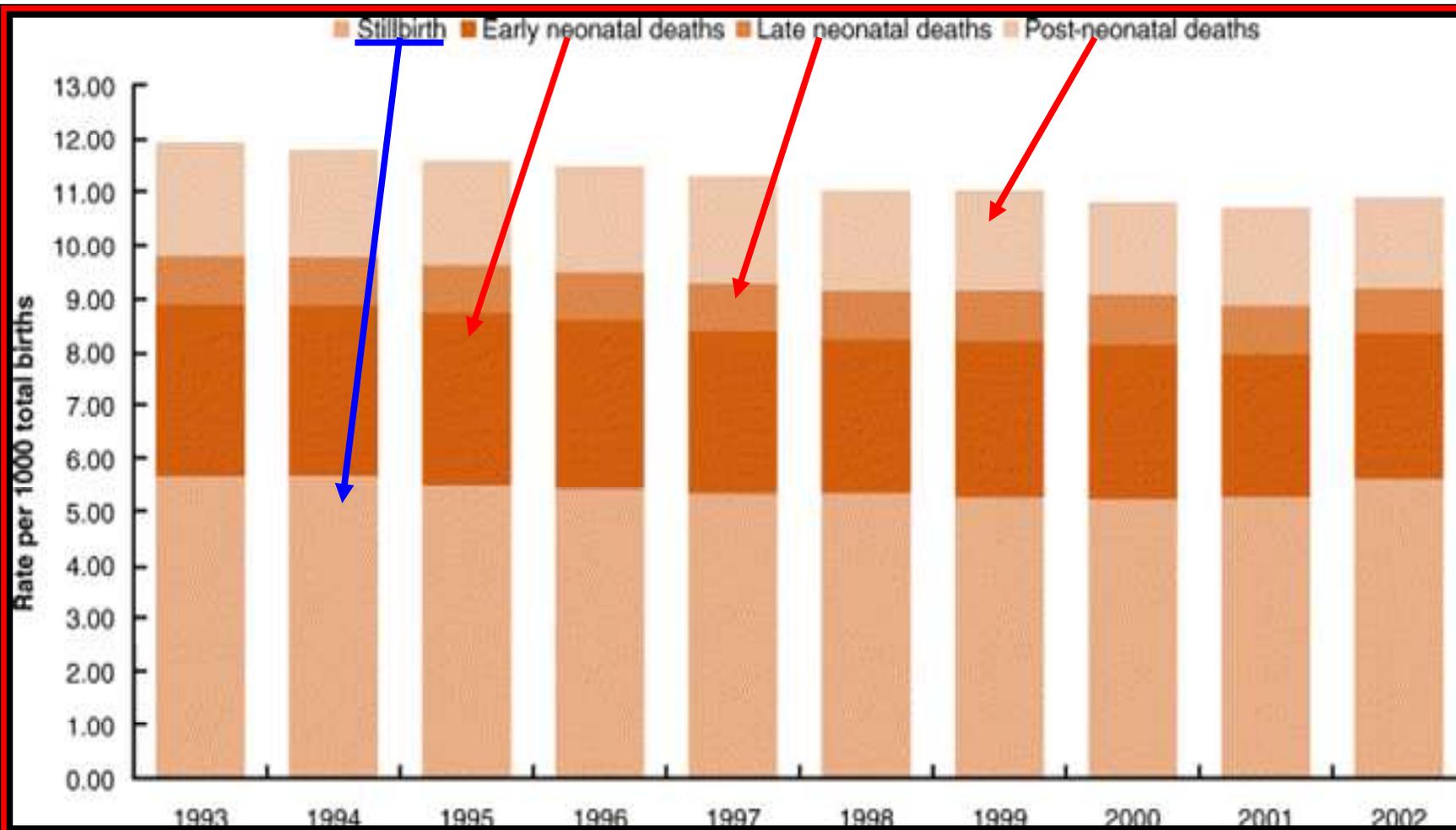


Percentuali di MEF dal 1967 al 2007 rispetto ai due aspetti della definizione (peso fetale/settimana gestazionale)

- *solo il 4% delle MEF con peso >500gr avvengono < 22sett*
- *solo il 19% delle MEF dopo la 22<sup>a</sup> sett. presentano un peso <500gr*



# Perinatal and post-neonatal mortality in England and Wales 1993→2002



*Maternal and Child Health Consortium: CESDI 8th Annual Report 2004*



Am J of Obstet & Gyn (2005) 192, 1475-7

## A review of intrapartum fetal deaths, 1982 to 2002

Fiona Mattatall, MD, \*Collen M. O'Connell, PhD, Thomas F. Baskett, MB

**121.659 nati: 835 MEF**

**MEF**

**7 casi su 1000 nati**

**ANTEPARTUM**

**6.3 / 1000**

**INTRAPARTUM**

**0.7 / 1000**



Am J of Obstet & Gyn (2005) 192, 1475-7

## A review of intrapartum fetal deaths, 1982 to 2002

Fiona Mattatall, MD, \*Collen M. O'Connell, PhD, Thomas F. Baskett, MB

121.659 nati: 835 MEF



**7 CASI SU 1000 nati**



**2,5‰ (36%)**

**< 28 SETTIMANE**



**4,5‰ (64%)**

**> 28 SETTIMANE**



# MIEF

## SPIEGABILE STILLBIRTH

Giustificata dall'esame **autoptico** del feto e degli annessi; dall'esame **istologico** del cordone ombelicale, della placenta, delle membrane e del feto "**midollo allungato**" e/o attraverso lo studio dei disordini metabolici.

## INSPIEGABILE : **SIUD**

**S**udden **I**ntrauterine **U**nexplained **D**eath

Morte endouterina prima del parto di un feto con età gestazionale  $\geq$  di 22 settimane complete o con un peso di almeno 500 grammi, che sia **inaspettata** in base alla storia clinica della paziente e della gravidanza, e per la quale l'**autopsia** del feto insieme con l'esame macroscopico e istologico del cordone ombelicale, della placenta e delle membrane, **non sia in grado di dimostrare la causa di morte.**



# FATTORI DI RISCHIO PER LA MEF

- ✓ **Età materna**
- ✓ **Fumo**
- ✓ **Nulliparità**
- ✓ **Etnia**
- ✓ **Bassi fattori socio-economici**
- ✓ **Sovrappeso e Obesità**
- ✓ **IUGR**
- ✓ **Complicanze in gravidanze precedenti**
- ✓ **Gravidanze multiple**
- ✓ **Età gestazionale avanzata, soprattutto oltre il termine**

Età materna	OR
< 30	1.0
30 - 34	1.3
35 - 39	1.9
> 40	3.7

Rasmussen S. Early Human Development. 2003; 71: 39-52

Smith G.C.S., Min.Gin. 2005; 57:397-410



OBSTETRICS

# Risk factors for antepartum and intrapartum stillbirth: a population-based study

Darios Getahun, MD, MPH; Cande V. Ananth, PhD, MPH; Wendy L. Kinzler, MD

**JUNE 2007** American Journal of Obstetrics & Gynecology

**M**

**E**

**F**

**Razza  
Bianca**

*Antepartum 3.4 / 1000*  
*Intrapartum 0.5 / 1000*

**Razza  
Nera**

*Antepartum 5.6 / 1000*  
*Intrapartum 1.1 / 1000*



# Is Race a Determinant of Stillbirth Recurrence?

*Puza P. Sharma, MD, MPH, Hamisu M. Salihu, MD, PhD, Yinka Oyelese, MD, Cande V. Ananth, MPH, PhD, and Russell S. Kirby, PhD*

*Obstet Gynecol 2006; 107:391-7*

**Donne con  
pregressa MEF**

**OR 4.7**

**di avere nuova MEF (22.7 / 1000)**

**Nelle pazienti di razza nera OR 2.6, in più, per ricorrenza MEF rispetto alle donne di razza bianca**



## Pre-pregnancy weight and the risk of stillbirth and neonatal death

Janni Kristensen,<sup>a</sup> Mogens Vestergaard,<sup>a</sup> Kirsten Wisborg,<sup>a</sup>  
Ulrik Kesmodel,<sup>b</sup> Niels Jørgen Secher<sup>c</sup>

**L'obesità materna ( BMI > 30 ) aumenta di 3 volte il rischio di MEF**

Maternal BMI	No. of births	Stillbirth					Neonatal death				
		No. of deaths	Unadjusted		Adjusted <sup>a</sup>		No. of deaths	Unadjusted		Adjusted <sup>a</sup>	
			OR	95% CI	OR	95% CI		OR	95% CI	OR	95% CI
<18.5	1812	10	1.3	0.7–2.6	1.3	0.7–2.6	7	1.4	0.6–3.0	1.3	0.5–2.9
18.5–24.9	19,169	79	1.0	–	1.0	–	54	1.0	–	1.0	–
25.0–29.9	2573	12	1.1	0.6–2.1	1.2	0.6–2.2	7	1.0	0.4–2.1	1.0	0.4–2.2
30.0+	951	11	2.8	1.5–5.3	3.1	1.6–5.9	7	2.6	1.2–5.8	2.7	1.2–6.1

<sup>a</sup> Odds ratio adjusted for maternal age, height, parity, smoking, years of schooling, working status, alcohol and caffeine intake, cohabitation with partner and gender of the child.



OBSTETRICS

## Maternal obesity and risk of stillbirth: a metaanalysis

Susan Y. Chu, PhD, MSPH; Shin Y. Kim, MPH; Joseph Lau, MD; Christopher H. Schmid, PhD; Patricia M. Dietz, DrPH; William M. Callaghan, MD, MPH; Kathryn M. Curtis, PhD

American Journal of Obstetrics & Gynecology SEPTEMBER 2007

9 studi pubblicati tra il 2000 e il 2006

**MEF**

**OR 1.47 sovrappeso vs normale**

**OR 2.07 obesità vs normale**



# PREVALENZA SIUD vs MEF %

1954 → 2004

CLASSIFICAZIONE	%
ABERDEEN (Baird and Thomson, J of Ob & Gyn British Empire 1954)	67
WIGGLESWORTH (Lancet 1980)	66
RE.CO.DE (Gardosi J., BMJ 2005;331:1113-1117)	15



# PREVALENZA SIUD vs MEF %

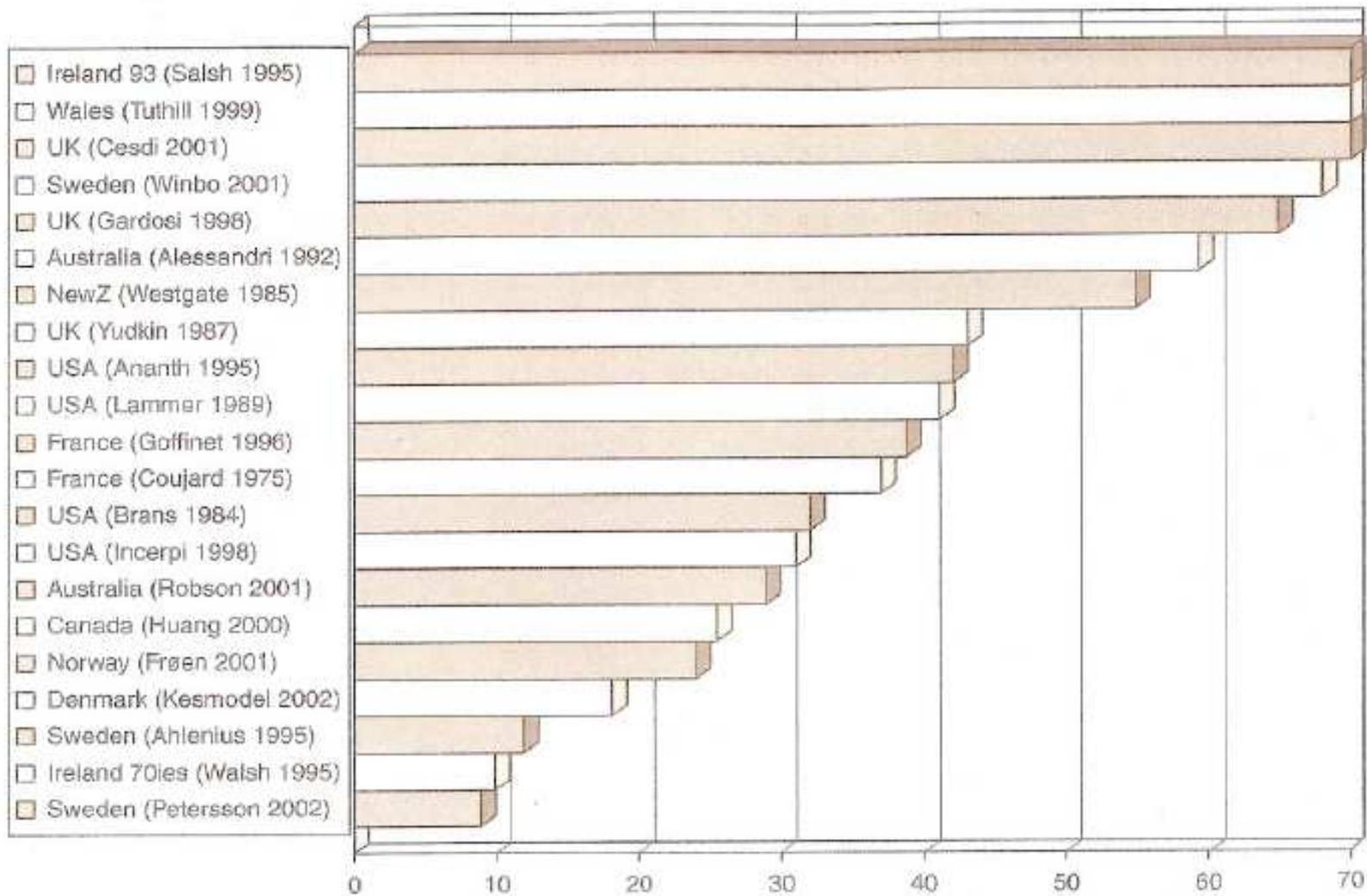


Figure 1.8 Percentage of stillbirths reported as "unexplained" 1975–2002. Reproduced with permission from reference 69.



# PREVALENZA **SIUD** (%)

1983 → 2006

<b>TRIALS</b>	<b>%</b>
<b>SCANDINAVIAN</b> (BJOG 1983)	12
<b>WHITFIELD'S STUDY</b> (BJOG 1986)	22
<b>SCANDINAVIAN</b> (Acta Ob & Gyn Scandinavica 1995)	9
<b>MONTREAL</b> (Ob & Gyn 2000)	27
<b>FROEN JF</b> (Arch dis child fetal neonatal ed, 2002)	13
<b>FROEN JF, GARDOSI J</b> (Acta Ob & Gyn Scandinavica 2004)	25



# Perinatal mortality and fetal growth restriction

Sue M. Kady

Perinatal Research Fellow

Jason Gardosi\*

Professor

West Midlands Perinatal Institute, Crystal Court, Aston Cross, Birmingham B6 5RQ, UK

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Stillbirths are the largest component of perinatal mortality. Most are currently classified as 'unexplained', which is not helpful for counselling and individual care or for setting priorities for maternity services. The new ReCoDe classification reduces the number of stillbirths categorized as 'unexplained' from 66 to 14%. Both stillbirths and neonatal deaths are strongly associated with fetal growth restriction, and increased awareness of intrauterine growth is essential for any strategies which seek to avoid adverse perinatal outcome.

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Best Practice & Research Clinical Obstetrics and Gynaecology

Vol. 18, No. 3, pp. 397-410, 0000

doi:10.1016/j.bp-obgyn.2004.02.009

available online at <http://www.sciencedirect.com>

**ReCoDe : Relevant Condition at Death**



**Table 2.** The ReCoDe system: Relevant Condition (s) at Death.

<b>A. Fetus</b>	<ol style="list-style-type: none"> <li>1. Lethal congenital anomaly</li> <li>2. Infection:               <ol style="list-style-type: none"> <li>2.1 Chronic, e.g. TORCH</li> <li>2.2 Acute</li> </ol> </li> <li>3. Non-immune hydrops</li> <li>4. Iso-immunization</li> <li>5. Fetomaternal hemorrhage</li> <li>6. Twin-twin transfusion</li> <li>7. Cervical cerclage</li> <li>8. Fetal growth restriction<sup>a</sup> !!</li> <li>9. Other</li> </ol>
<b>B. Umbilical cord</b>	<ol style="list-style-type: none"> <li>1. Prolapse</li> <li>2. Constricting loop or knot<sup>b</sup></li> <li>3. Velamentous insertion</li> <li>4. Other</li> </ol>
<b>C. Placenta</b>	<ol style="list-style-type: none"> <li>1. Abruptio</li> <li>2. Praevia</li> <li>3. Vasa praevia</li> <li>4. Placental infarction</li> <li>5. Other placental insufficiency<sup>c</sup></li> <li>6. Other</li> </ol>
<b>D. Amniotic fluid</b>	<ol style="list-style-type: none"> <li>1. Chorionamnionitis</li> <li>2. Oligohydramnios<sup>b</sup></li> <li>3. Polyhydramnios<sup>b</sup></li> <li>4. Other</li> </ol>
<b>E. Uterus</b>	<ol style="list-style-type: none"> <li>1. Rupture</li> <li>2. Uterine anomalies</li> <li>3. Other</li> </ol>
<b>F. Mother</b>	<ol style="list-style-type: none"> <li>1. Diabetes</li> <li>2. Thyroid diseases</li> <li>3. Essential hypertension</li> <li>4. Hypertensive diseases in pregnancy</li> <li>5. Lupus/antiphospholipid syndrome</li> <li>6. Cholestasis</li> <li>7. Drug abuse</li> <li>8. Other</li> </ol>
<b>G. Trauma</b>	<ol style="list-style-type: none"> <li>1. External</li> <li>2. Iatrogenic</li> </ol>
<b>H. Unclassified</b>	<ol style="list-style-type: none"> <li>1. No relevant condition identified</li> <li>2. No information available</li> </ol>

<sup>a</sup> Defined as < 10th customized weight-for-gestational age percentile.

<sup>b</sup> If severe enough to be considered relevant.

<sup>c</sup> Histological diagnosis.



# Restricted fetal growth in sudden intrauterine unexplained death

J. FREDERIK FRØEN<sup>1,2</sup>, JASON O. GARDOSI<sup>3</sup>, ANNE THURMANN<sup>1</sup>, ANDRÉ FRANCIS<sup>3</sup> AND BABILL STRAY-PEDERSEN<sup>1</sup>

From the <sup>1</sup>Department of Obstetrics and Gynecology, <sup>2</sup>Department of Pediatric Research, Rikshospitalet University Clinic, University of Oslo, Oslo, Norway and <sup>3</sup>West Midlands Perinatal Institute, Birmingham, UK

*Acta Obstet Gynecol Scand* 2004; **83**: 801–807. © Acta Obstet Gynecol Scand 83 2004

**Background.** Unexplained antepartum stillbirth is a common cause of perinatal death, and identifying the fetus at risk is a challenge for obstetric practice. Intrauterine growth restriction (IUGR) is associated with a variety of adverse perinatal outcomes, but reports on its impact on unexplained stillbirths by population-based birthweight standards have been varying, including both unexplained and unexplored stillbirths.

**Aim.** We have studied IUGR, assessed by individually adjusted fetal weight standards, in antepartum deaths that remained unexplained despite thorough postmortem investigations.

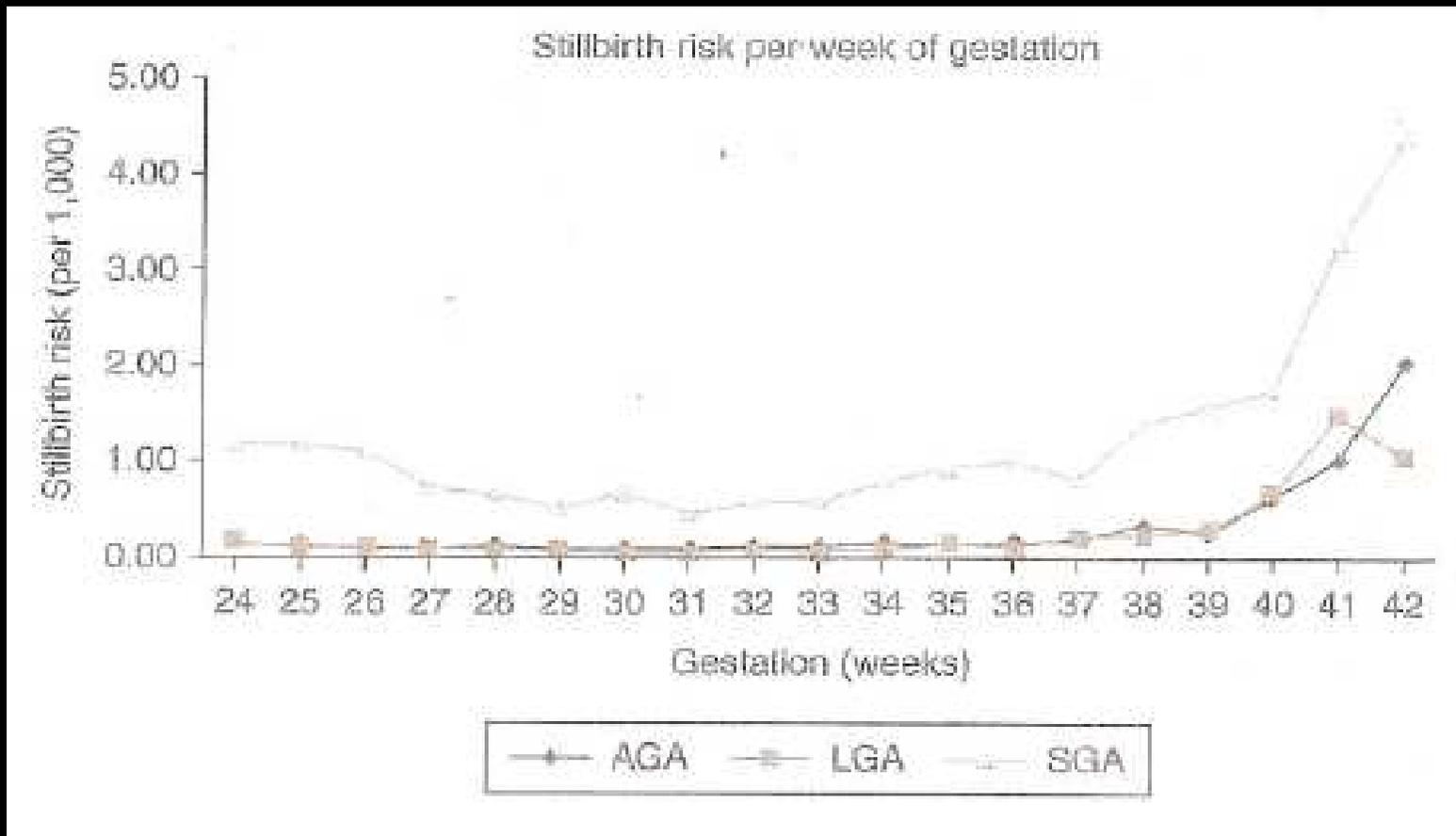
**Methods.** Antenatal health cards from a complete population-based 10-year material of 76 validated sudden intrauterine unexplained deaths were compared to those of 582 randomly selected liveborn controls. Birthweight <10th percentile of the individualized standard adjusted for gestational age, maternal height, weight, parity, ethnicity, and fetal gender was defined as growth restriction.

**Results.** 52% of unexplained stillbirths were growth restricted, with a mean gestational age at death of 35.1 weeks. Suboptimal growth was the most important fetal determinant for sudden intrauterine unexplained death (odds ratio 7.0, 95% confidence interval 3.3–15.1).

Concurrent maternal overweight or obesity, high age, and low education further increase the risk. Overweight and obesity increase the risk irrespective of fetal growth, and while high maternal age increases the risk of the normal weight fetus, it is not associated to growth restriction as a precursor of sudden intrauterine unexplained death.

**Conclusion.** IUGR is an important risk factor of sudden intrauterine unexplained death, and this should be excluded in pregnancies with any other risk factor for sudden intrauterine unexplained death.





## Rischio MEF → settimana di gestazione SGA, AGA & LGA

Australian-New Zealand Obstetric Gynaecol 2007; 47: 302-6



<i>Condizione</i>	<i>OR</i>
Pregressa parto con IUGR nato a termine	2.1
Pregresso parto pretermine >32 <36 sett con feto IUGR	3.4
Pregresso parto pretermine <32 con feto IUGR	5.0

**Anamnesi ostetrica:  
parto pretermine + IUGR  
= ↑ rischio MEF**



# Diagnostic evaluation of intrauterine fetal deaths in Stockholm 1998–99

PETERSSON KARIN<sup>1</sup>, BREMME KATARINA<sup>2</sup>, BOTTINGA ROGER<sup>3</sup>, HOFJÖ ALEXANDRA<sup>2</sup>, HULTHÉN-VARLI INGELA<sup>4</sup>, KUBLICKAS MARIUS<sup>1</sup>, NORMAN MARGARETA<sup>5</sup>, PAPADOGIANNAKIS NIKOS<sup>6</sup>, WANGGREN KJELL<sup>5</sup> and WOLFF KERSTIN<sup>1, \*</sup>

From the Departments of Obstetrics and Gynecology at <sup>1</sup>Huddinge University Hospital, <sup>2</sup>Karolinska Hospital, <sup>3</sup>Södertälje Hospital, <sup>4</sup>Söder Hospital, <sup>5</sup>Danderyds Hospital and the <sup>6</sup>Department of Pathology, Huddinge University Hospital, Stockholm, Sweden.

*Acta Obstet Gynecol Scand* 2002; 81: 284–292. © Acta Obstet Gynecol Scand 2002

**188 MEF**

**MEF SPIEGATA 90 %**

**SIUD 10 %**

## CAUSE

Infezioni **24 %**

Insufficienza placentare / IUGR **22%**

Distacco di placenta **19 %**

Patologie materne **12 %**

Malformazioni fetali **10 %**

Patologie del cordone **9 %**



## Identification of the causes of intrauterine death during 310 consecutive autopsies

Lars-Christian Hom<sup>a,\*</sup>, Andrea Langner<sup>a</sup>, Peter Stiehl<sup>a</sup>,  
Christian Wittekind<sup>a</sup>, Renaldo Faber<sup>b</sup>

European Journal of Obstetrics & Gynecology and  
Reproductive Biology 113 (2004) 134–138

### Causes of death in stillborn infants

	Number	Percent
Placental or umbilical cord pathology <sup>a</sup>	191	61.6
Congenital malformations <sup>a</sup>	53	17.1
Intrauterine infections <sup>b</sup>	7	2.2
Traumatic lesions <sup>c</sup>	4	1.3
Others <sup>d</sup>	8	2.6
Unexplained death	47	15.2

# Etiology and prevention of stillbirth

Ruth C. Fretts, MD, MPH\*

American Journal of Obstetrics and Gynecology (2005) 193, 1923–35

All'aumentare dell'epoca gestazionale, vi è un aumento della SIUD

<u>24-27 weeks</u>	<u>28-36 weeks</u>	<u>37 + weeks</u>
Infection (19%)	<u>Unexplained</u> (26%)	<u>Unexplained</u> (40%)
Abruptio placenta (14%)	Fetal malnutrition (19%)	Fetal malnutrition (14%)
Anomalies (14%)	Abruptio placenta (18%)	Abruptio placenta (12%)



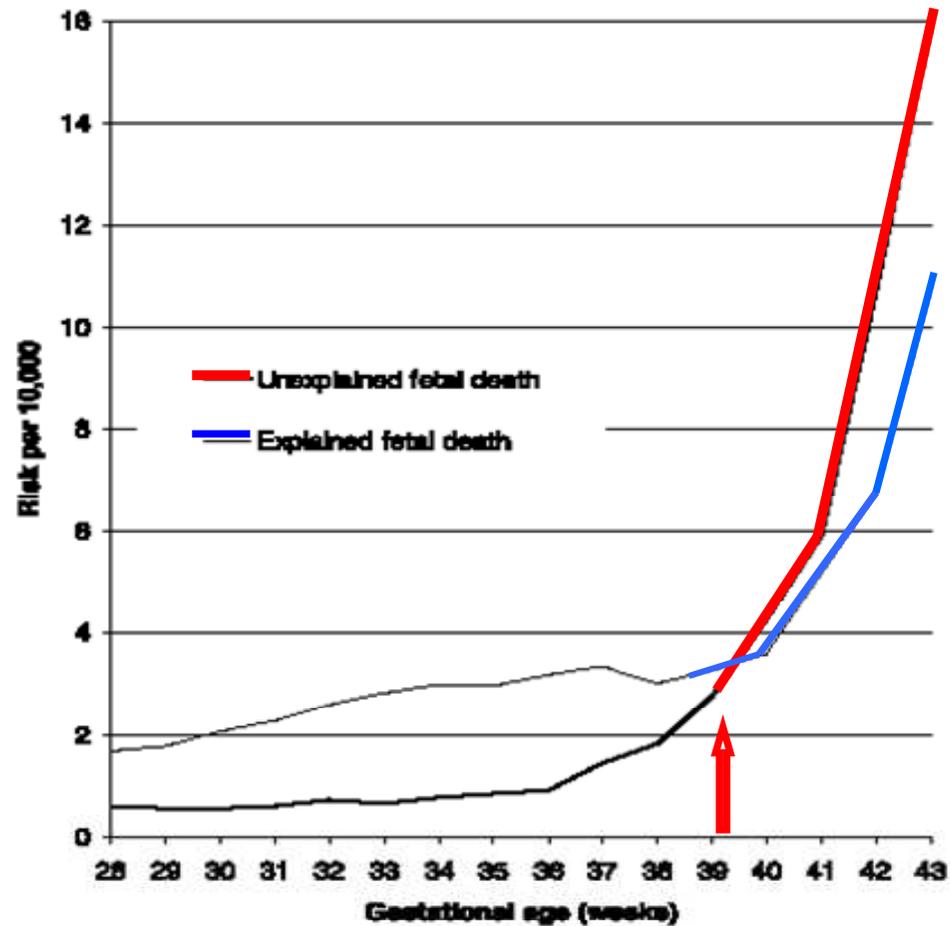


Fig. 4. Rate of unexplained and explained fetal (28 weeks+) mortality (per 10,000 undelivered pregnancies) by gestational age in Norway 1967-1998.

**Rasmussen S. Early Human Development (2003); 71: 39-52**



# Unexpected Perinatal Death and Sudden Infant Death Syndrome (SIDS)

## *Anatomopathologic and Legal Aspects*

*Luigi Maturri, MD, PhD,\* Giulia Ottaviani, MD, PhD,\* Giulio Benedetti, LD,†  
Emanuela Agosta, MD,‡ and Anna Maria Lavezzi, MD\**

*(Am J Forensic Med Pathol 2005; 6: 155–160)*

**Late fetal death: EG > 25 Settimane o feto > 1000 gr**

**MEF**

5 – 12 casi su 1000

**SIUD**

50-80 % delle MEF



## Trends in the cause of late fetal death, 1982–2000

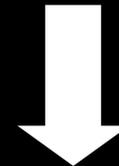
Ruth Bell,<sup>a</sup> Louise Parker,<sup>b</sup> Sheila MacPhail,<sup>c</sup> Chris Wright<sup>d</sup>



**Gravidanze gemellari (15.748)**



**Late fetal death > 28 sett.**



**12.8 / 1000**

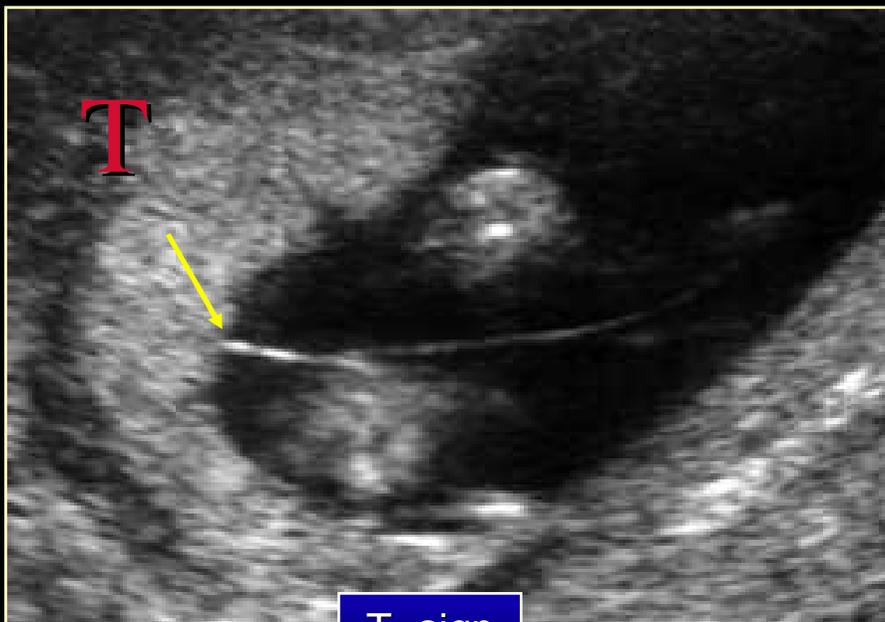
PLoS Medicine, (2005), vol.2; issue 6: 521, 527.

## High risk of unsuspected late fetal death in monochorionic twins despite intensive ultrasound surveillance: a cohort study

O. Barigye, L. Pasquini, P. Galea, H. Chambers, L. Chappel, Nicholas M.Fisk

Gravidanze Gemellari Monocoriali  
**non complicate**

No TTTS, No IUGR, LA  
regolare, Doppler regolare  
(ecografie ogni 2 sett.)



T- sign

Late fetal death > 32 sett.  
**43 / 1000**

17  
TTTS

26  
**SIUD**

( Diagnosi autoptica )



# Prospective risk of intrauterine death of monochorionic-diamniotic twins

Teresinha Simões, MD,<sup>a</sup> Njila Amaral, MD,<sup>a</sup> Rita Lerman, MD,<sup>a</sup> Filipa Ribeiro, MD,<sup>a</sup> Elsa Dias, MD,<sup>a</sup> Isaac Blickstein, MD<sup>b,c,\*</sup>

American Journal of Obstetrics and Gynecology (2006)

**Gravidanze Gemellari Monocoriali**  
*Complicate e non complicate*



**Late fetal death > 32 sett.**  
**26 / 1000**

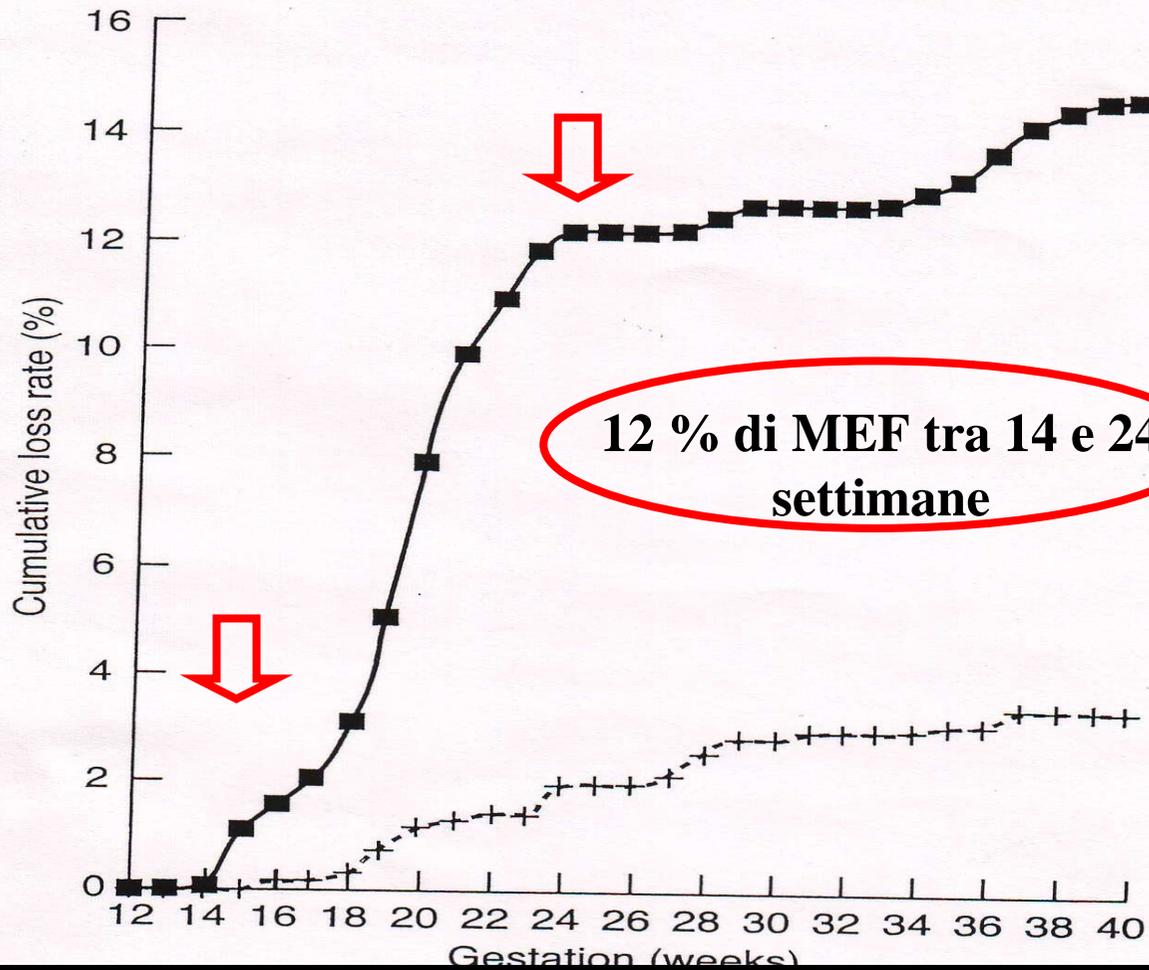
**Nelle gravidanze  
gemellari  
monocoriali  
bianniotiche è  
consigliato  
l'espletamento del  
parto con taglio  
cesareo a 36  
settimane gest.**



Br J Obstet Gynaecol. 1997 Oct;104(10):1203-7. Links

## The hidden mortality of monochorionic twin pregnancies.

[Sebire NJ](#), [Snijders RJ](#), [Hughes K](#), [Sepulveda W](#), [Nicolaides KH](#)



# Intrauterine growth restriction in monochorionic twins

Zoi Russell, Rubén A. Quintero\*, Eftichia V. Kontopoulos

Seminars in Fetal & Neonatal Medicine 2007;12:439-449

**Gravidanze Gemellari  
Monocoriali**

**12.5-25% IUGR selettivo**

**25 % va incontro a MEF**

**Il gemello con crescita regolare, dopo la morte del gemello IUGR, va incontro a MEF o irreversibile danno d'organo in più del 26% casi**



# TRANSLUCENZA NUCALE & MEF



*...Il capo...la nuca piatta è ricoperta da cute lassa, color giallo sporco e priva di elasticità apparendo sovrabbondante rispetto al corpo.....“Collo di gatto”*

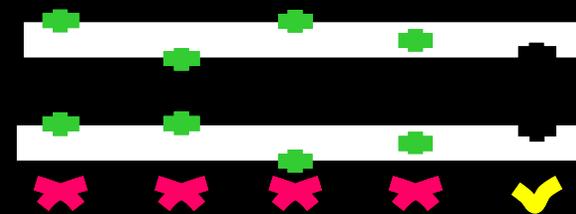
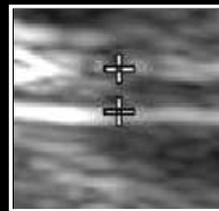
Langdon Down (1866) Observations on an ethnic classification of idiots

# TRANSLUCENZA NUCALE & MEF

American Journal of Obstetrics and Gynecology (2005) 192, 1005-21

## Increased nuchal translucency with normal karyotype

Athena P. Souka, MD,<sup>a,b</sup> Constantin S. von Kaisenberg, MD,<sup>a,b</sup> Jonathan A. Hyett, MD,<sup>a</sup>  
 Jiri D. Sonek, MD,<sup>c</sup> Kypros H. Nicolaides, MD<sup>a,\*</sup>



**Table I** Relation between nuchal translucency thickness and prevalence of chromosomal defects, miscarriage, or fetal death and major fetal abnormalities

Nuchal translucency	Chromosomal defects <sup>2</sup>	Fetal death <sup>8-10</sup>	Major fetal abnormalities <sup>8-10</sup>	Alive and well
< 95th centile	0.2%	1.3%	1.6%	97%
95th-99th centiles	3.7%	1.3%	2.5%	93%
3.5-4.4 mm	21.1%	2.7%	10.0%	70%
4.5-5.4 mm	33.3%	3.4%	18.5%	50%
5.5-6.4 mm	50.5%	10.1%	24.2%	30%
> 6.5 mm	64.5%	19.0%	46.2%	15%

In the last column is the estimated prevalence of delivery of a healthy baby with no major abnormalities.

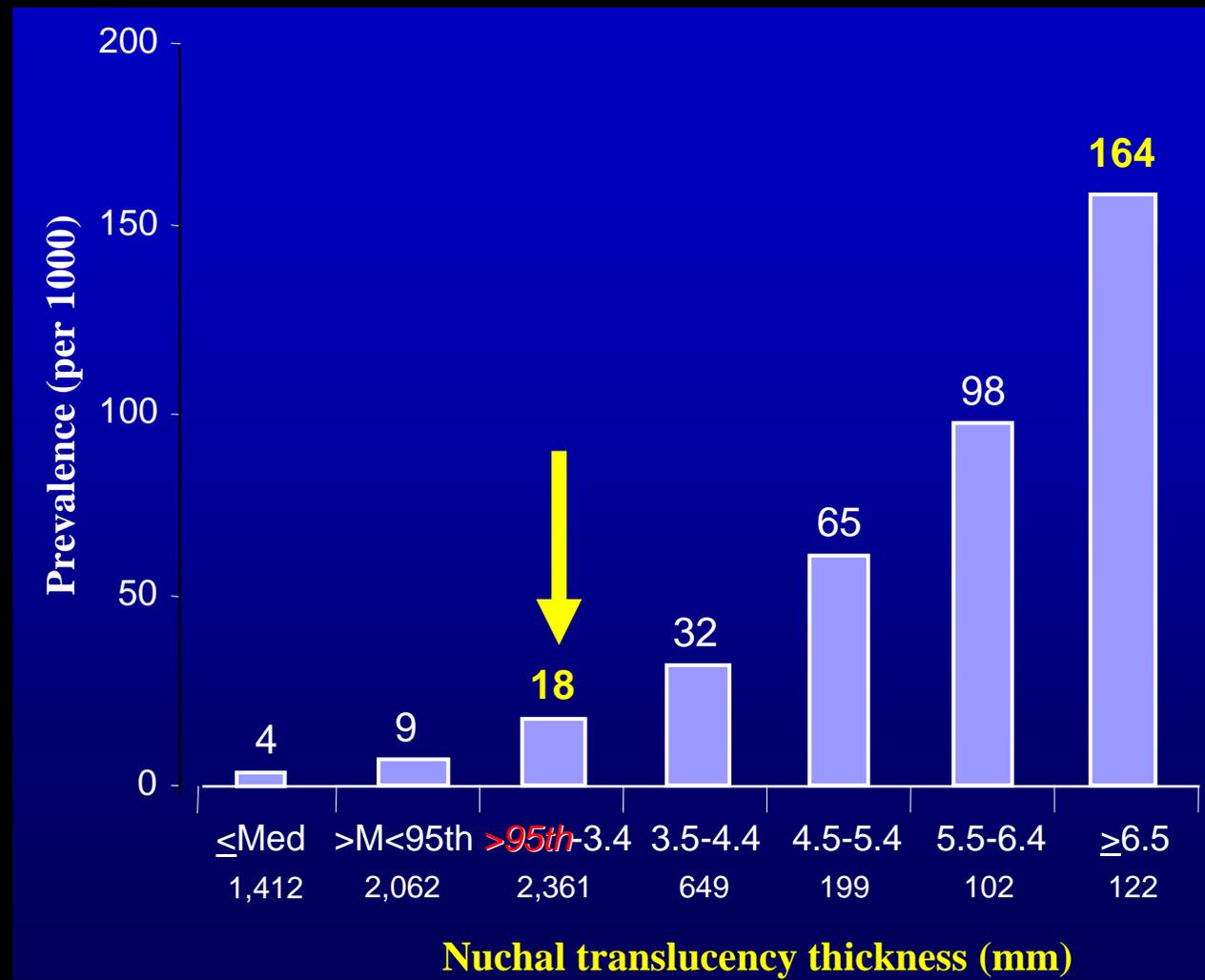


# Cardiac defects in **chromosomally normal** fetuses

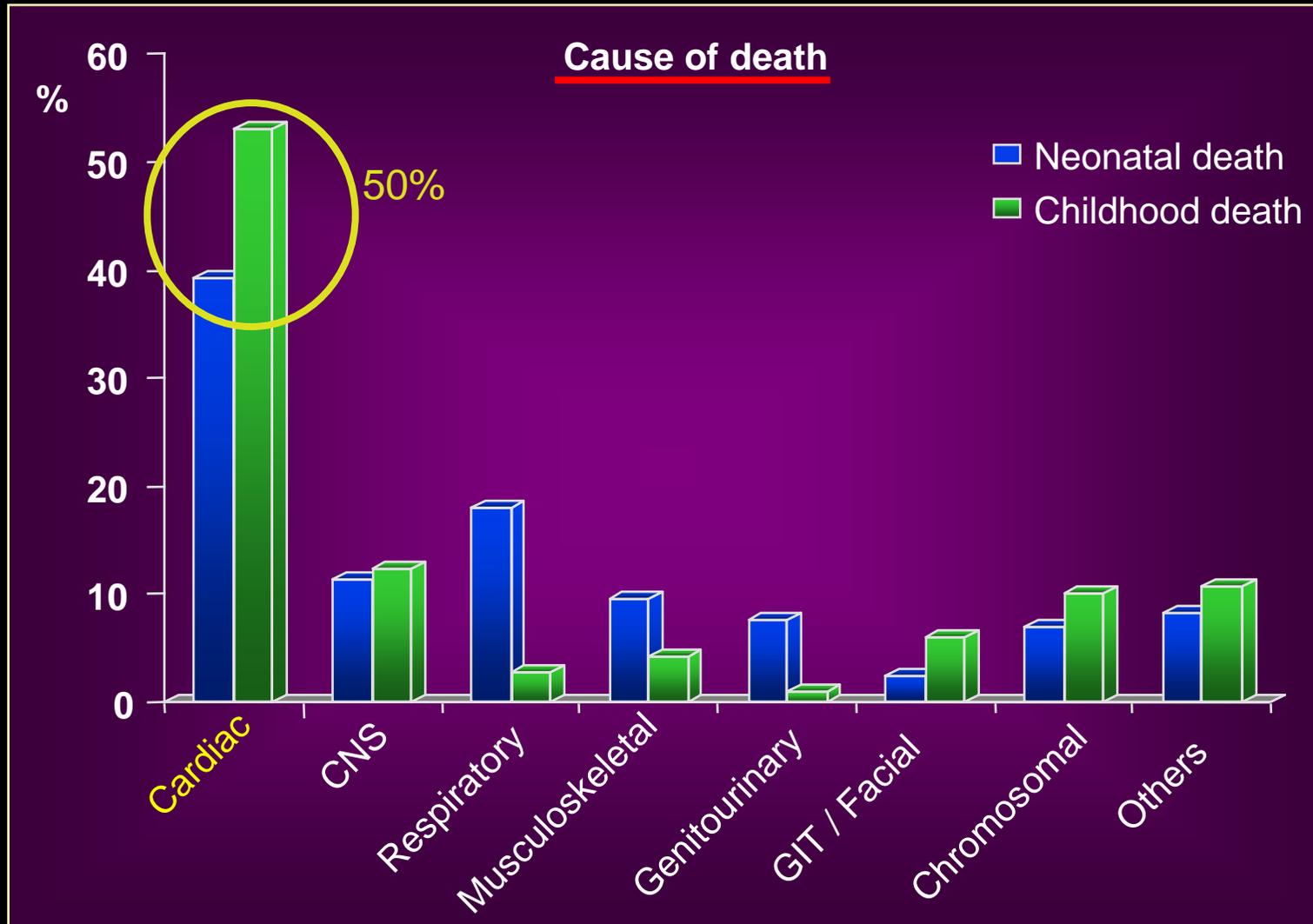
**Prevalenza: 8-12/1000**

- N = 6,907
- GA 12 (11-13) wks
- CRL 62 (45-84) mm
- Fetal echocardiography  
12-15 wks  
16-22 wks

Atzei et al 2004



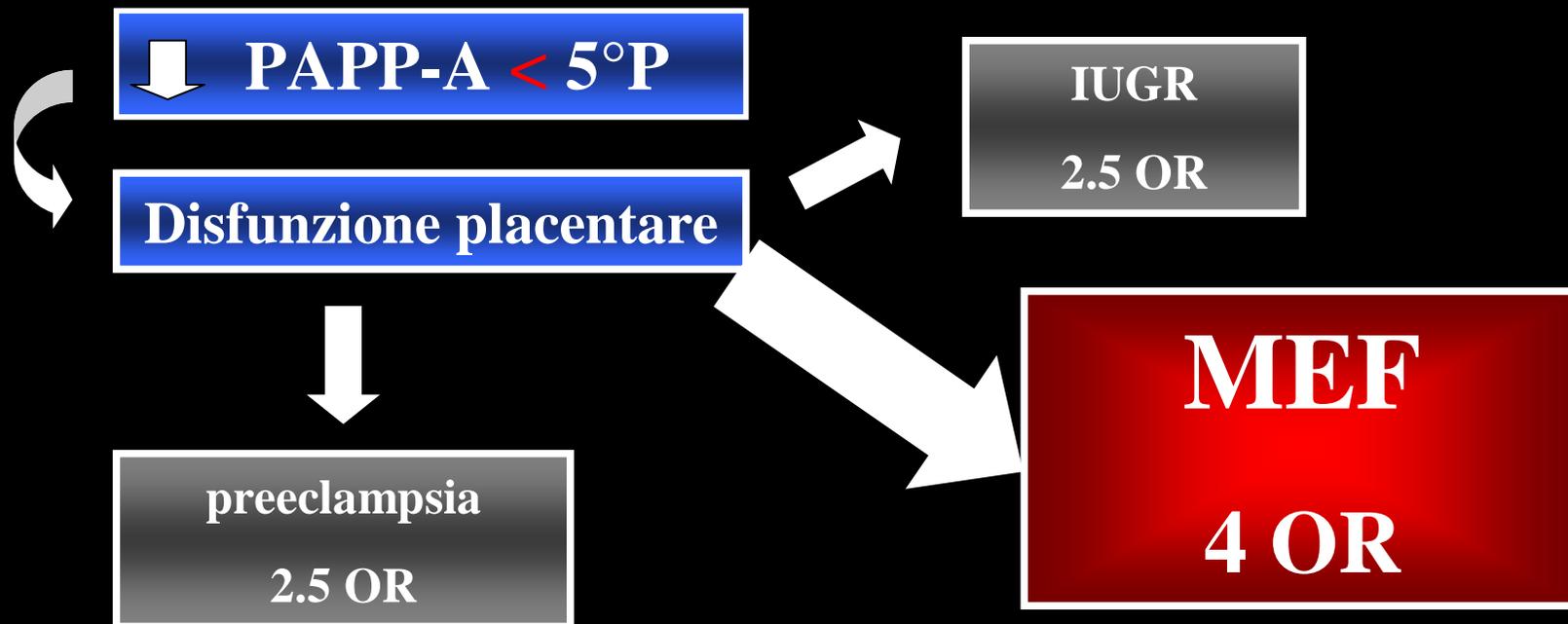
# Congenital defects & death



# PAPP-A & MEF

## PAPP-A: Pregnancy Associated Plasma Protein A

- ✓ proteina prodotta dal sinciziotrofoblasto ( IGF: Insuline like Growth Factor)
- ✓ I° trimestre di gravidanza (dosata a 12 settimane)



Smith G.C., JAMA. 2004 Nov 10;292:2249-54



# msAFP & MEF

## msAFP: maternal serum Alpha-FetoProtein

- ✓ prodotta da sacco vitellino e poi da fegato fetale > intestino fetale > urine fetali > LA > placenta > membrane amniotiche > sangue materno
- ✓ misurata tra 15 e 19 settimane di gravidanza

**↑ msAFP > 3 MoM**

**6.7 OR preeclampsia**

**9.7 OR IUGR**

**↑ 11 OR di MEF**

Gordon C.S., New England J of  
Medicine 2004; 351: 978:86

Chitayat D. Am J Ob Gyn 2002;87:758-763

Smith G.C.S., JAMA 2004; 292:2249



# TROMBOFILIA & MEF

Trombofilia congenita



Ipercoagulabilità gest.

Trombosi Vasi Placentari

Insufficienza utero-placentare

**MEF**

- ✓ Aborto ricorrente
- ✓ Preeclampsia
- ✓ IUGR
- ✓ Distacco di placenta

**AJOG 2004; 191: 412-24**

**Trombophilia and pregnancy complications**

**Jody L. Kujovich, MD**



# TROMBOFILIA & MEF

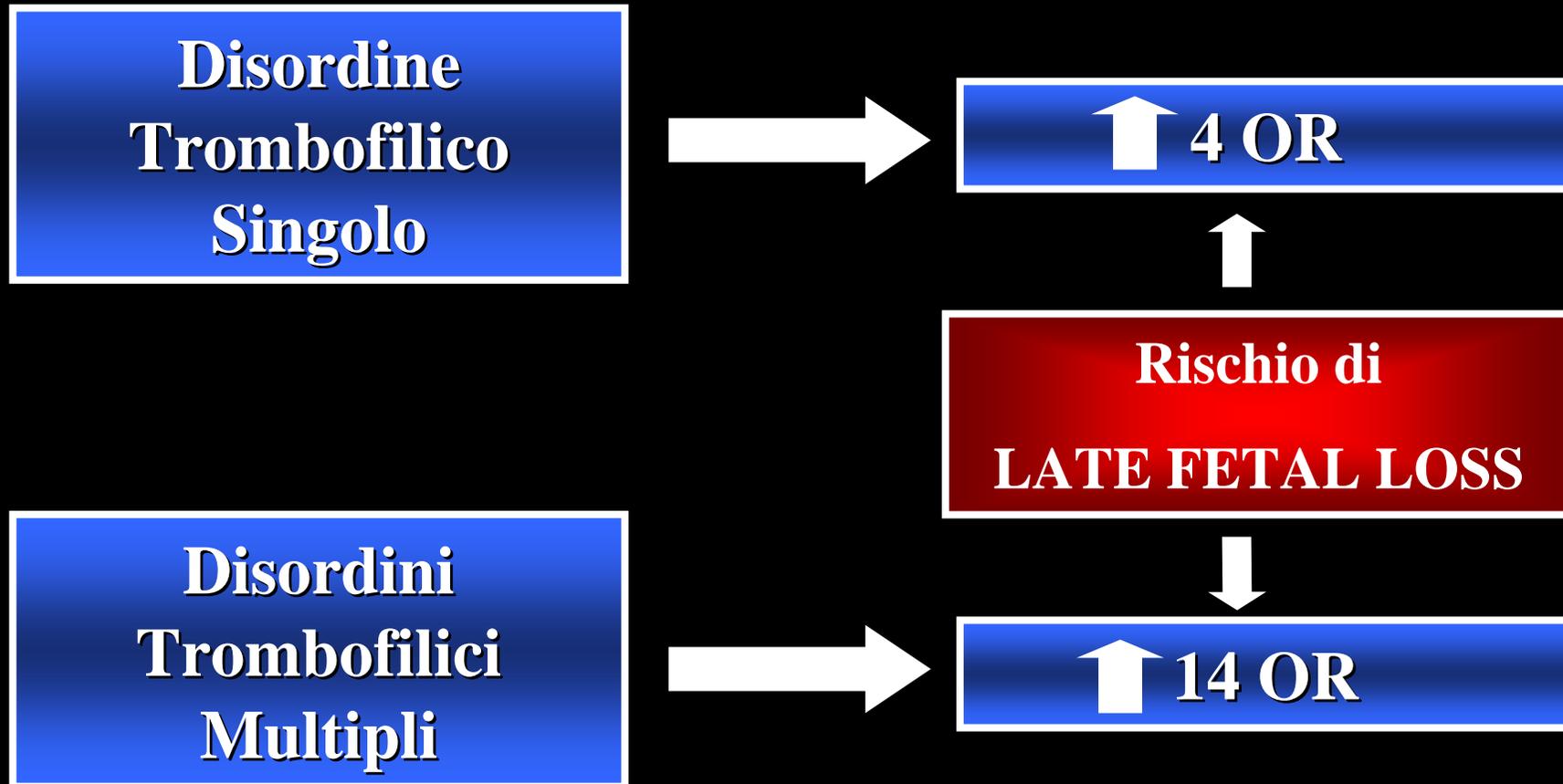
DISORDINI TROMBOFILICI	FETAL LOSS (OR)*
FATTORE V LEIDEN	2 - 5
RESISTENZA PROTEINA C ATTIVATA	3 - 4
MUTAZIONE GENE PROTROMBINA	2 - 9
DEFICIENZA ANTITROMBINA III	2 - 5
DEFICIENZA PROTEINA C	2 - 3
DEFICIENZA PROTEINA S	3 - 40
OMOZIGOSI MTHFR C677T	0.4 - 3
IPEROMOCISTEINEMIA	3 - 7
<b>DISORDINI MULTIPLI</b>	<b>5 - 14</b>

\* Sia precoce che tardiva

*Jody L. Kujovich Trombophilia and pregnancy complications AJOG 2004; 191: 412-24.*



# TROMBOFILIA & MEF

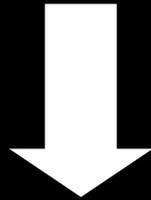


*Jody L. Kujovich Trombophilia and pregnancy complications AJOG 2004; 191: 412-24.*



# SINDROME DI SJOGREN & MEF

Gravidanza (+) Anticorpi S.  
Sjogren (Ro-SSA/La-SSB)



**BLOCCO ATRIO -  
VENTRICOLARE completo**  
nel 2 - 5 % dei feti

ECOCARDIO FETALE  
tra 16-32 settimane



PR Index (QT all'ECG)



> 0,15 sec (vn 0.12+/-0.02 sec)



BAV I° grado



Andrew H. Van Bergen, MD, Bettina, Cuneo, Davis, MA Prospective echocardiographic evaluation of AV conduction in fetus with maternal Sjogren's antibodies. AJOG 2004; 191: 1014-8  
P Bujon 2007



# SINDROME DA ANTIFOSFOLIPIDI (APL) & MEF



## Sindrome da APL:

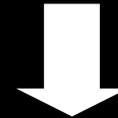
- ✓ Anticorpi Anticardiolipina
- ✓ Lupus Anticoagulant
- ✓ in anamnesi trombosi a-v
- ✓ poliabortività

Clinical Ob & Gyn 2001; 44: 11-19

Mechanism of pregnancy Loss in Antiphospholipid Syndrome

Azzudin, Gharavi, Nigel Harris

Trombosi Vasi Placentari



Insufficienza utero-placentare



Ipossia fetale



IUGR, oligoidramnios,  
alterazioni cardiache



**MEF: OR 6-20**

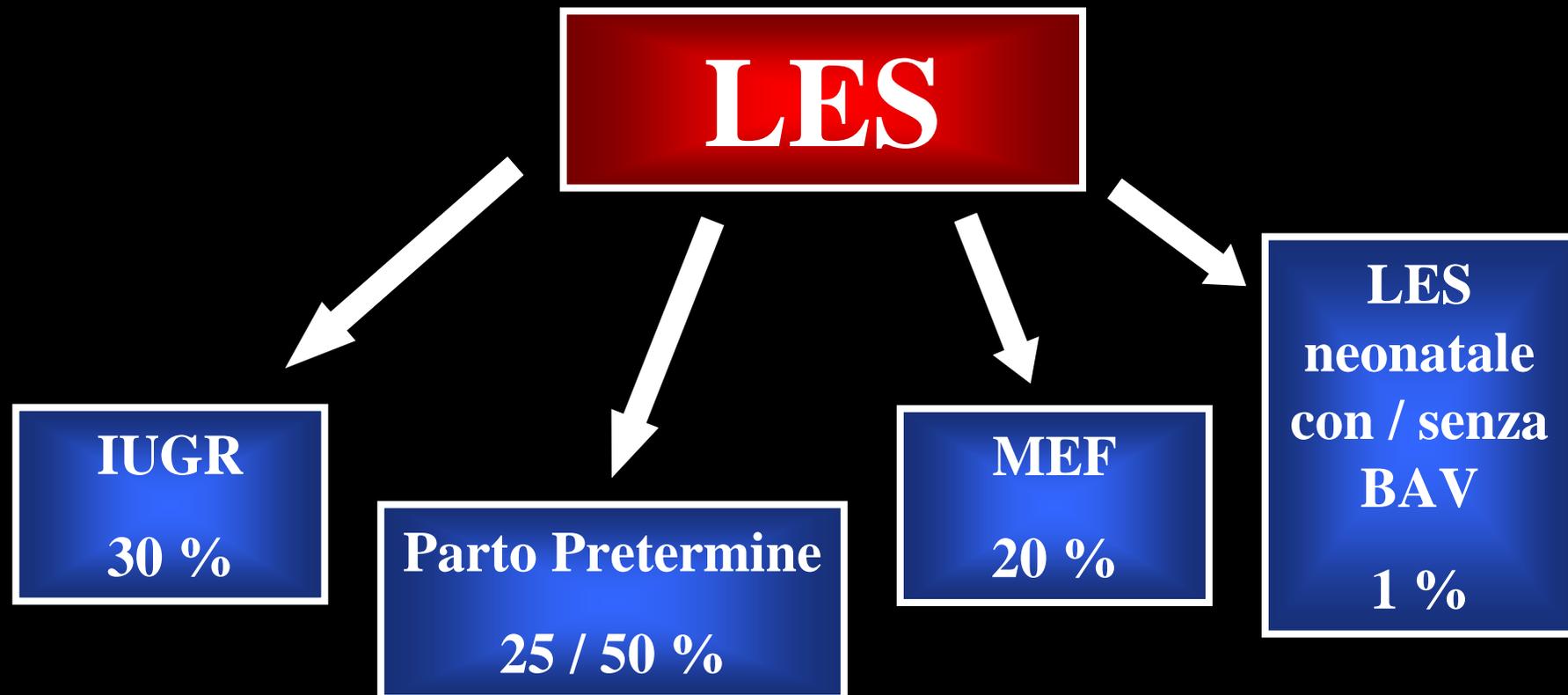


# Making pregnancy safer for patients with lupus

Olivier Meyer

*Rheumatology department, Hôpital Bichat, 46, rue Henri-Huchard, 75018 Paris, France*

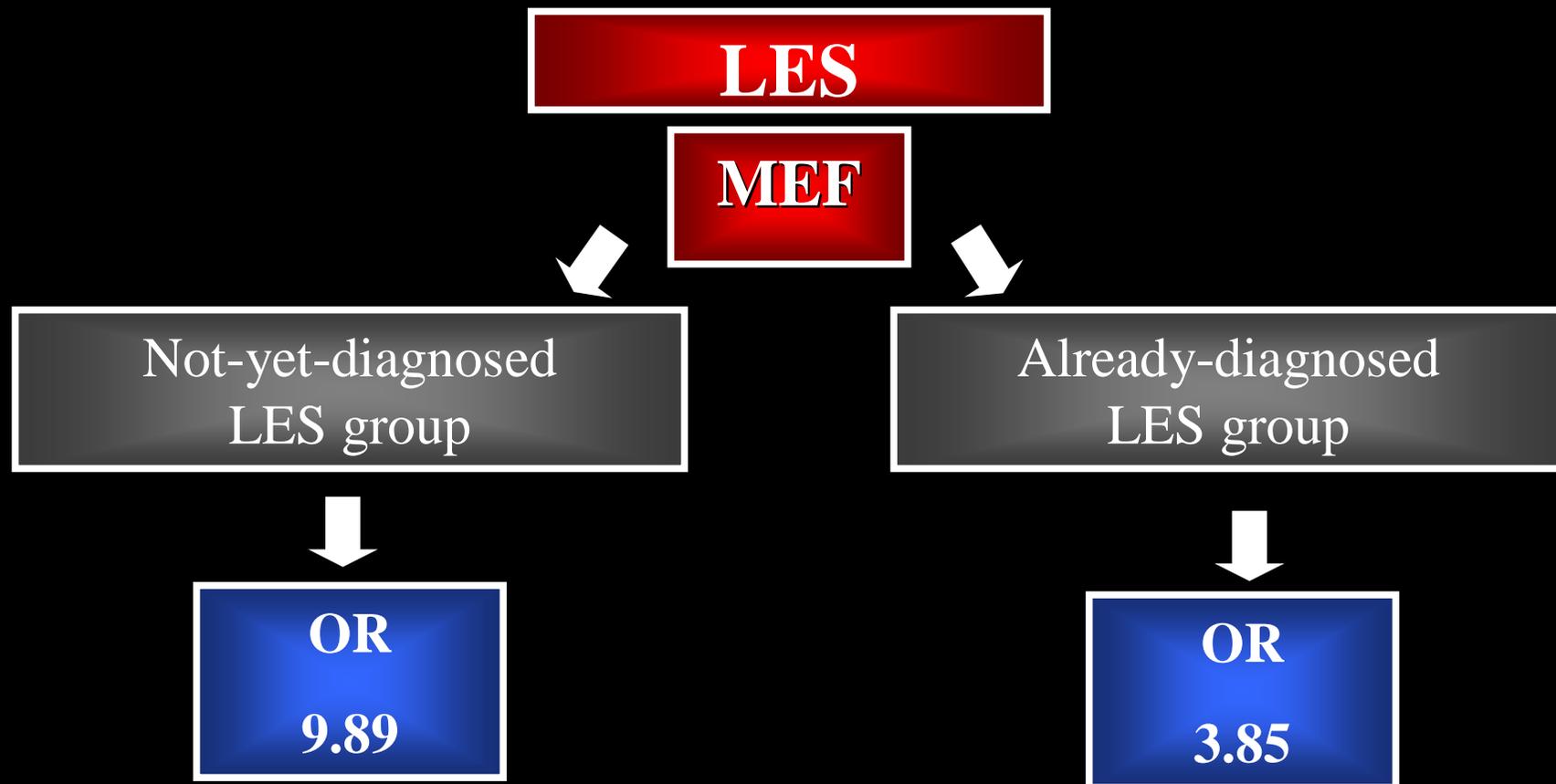
Received 22 April 2003; accepted 13 June 2003



# Pregnancy outcomes before and after a diagnosis of systemic lupus erythematosus

J. Patricia Dhar, MD,<sup>a,b,c,d,\*</sup> Lynnette M. Essenmacher, BS,<sup>e</sup> Joel W. Ager, PhD,<sup>c</sup>  
Robert J. Sokol, MD<sup>c,d,g</sup>

American Journal of Obstetrics and Gynecology (2005) 193, 1444–55



# INFEZIONI & MEF

## BATTERI

- ✓ Escherichia Coli
- ✓ Streptococco gr. B
- ✓ Ureaplasma Urealyticum
- ✓ Listeria monocytogenes
- ✓ Mycoplasma hominis
- ✓ Bacterioides
- ✓ Treponema pallidum

## MALARIA

## VIRUS

- ✓ Parvovirus
- ✓ Coxackievirus
- ✓ Citomegalovirus

## PROTOZOI

- ✓ Toxoplasma gondii
- ✓ Leptospirosis

Infection and Stillbirth. Seminars in Fetal & Neonatal Medicine. 2009;14:182-189



# INFEZIONI & MEF

% di MEF dovute a infezioni

Paesi sviluppati

10 – 20 %

Paesi in via di sviluppo

40 - 70 %

MEF attraverso infezione materno-fetale diretta (via ascendente, ematogena), danno placentare, corionamniotite

*Robert L., The infectious origins of stillbirth. AJOG - 2003*

*Moyo S.R., Stillbirths and intrauterine infection, histologic chorioamnionitis and microbiological findings. Int J Gyn Ob. 1996; 54: 115-123*



ESAMI PER	ABORTO ABITUALE e MEF	ECLAMPSIA PRE ECLAMPSIA	DISTACCO DI PLACENTA
ANTICORPI ANTI: DNA	●	●	
ENA (Ro-SSA / La-SSB)	●	●	
NUCLEO	●	●	
MITOCONDRI	●	●	
TIROIDE	●	●	
MUCOSA GASTRICA	●	●	
MUSCOLO LISCIO	●	●	
GLIADINA	●	●	●
ENDOMISIO	●	●	●
TRANSGLUTAMINASI	●	●	●
CARDIOLIPINA	●	●	
FOSFOLIPIDI	●	●	
BETA 2 GLICOPROTEINA	●	●	●
PROTEINA C	●	●	●
PROTEINA S	●	●	●
RESISTENZA PROT. C ATTIVA	●	●	●
DOSAGGIO OMOCISTEINA	●	●	●
GENETICA FATTORE V	●	●	●
GENETICA FATTORE II	●	●	●
GENETICA FATTORE MTHFR	●	●	●
ANTIGENI D'ISTOCOMPATIBILITA'	● *		
MAPPA CROMOSOMICA	● *		
CURVA DA CARICO DI GLUCOSIO	●		

\*PRENDERE ACCORDI CON LA GENETICA

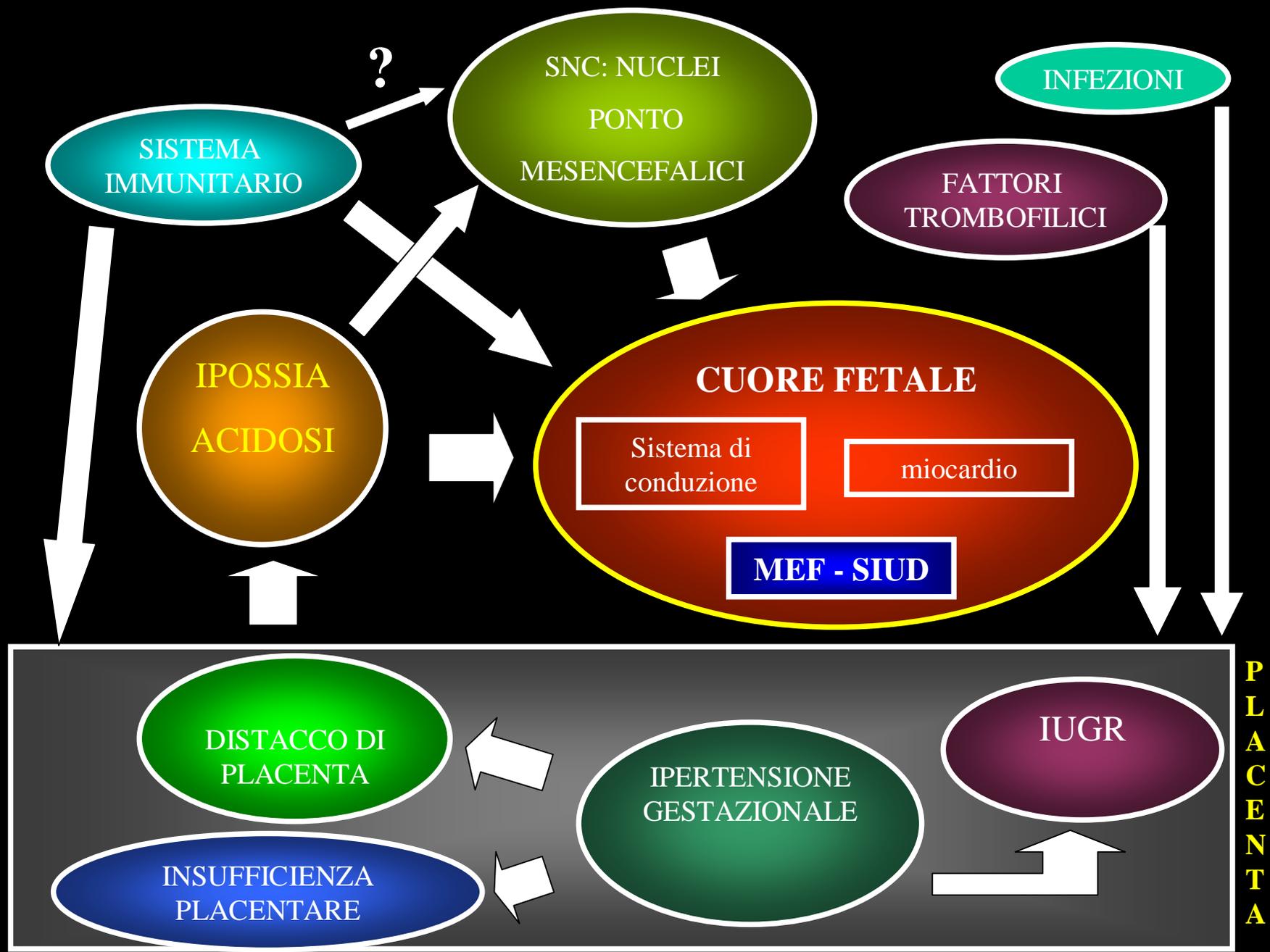
IL NOSTRO  
PROTOCOLLO DI  
ESAMI PER LE  
GRAVIDANZE A  
RISCHIO,  
ATTUALE O  
ANAMNESTICO

**Table II** Estimates of maternal risk factors and risk of stillbirth

Condition	Prevalence	Estimated rate of stillbirth	OR*
All pregnancies		6.4/1000	1.0
Low-risk pregnancies	80%	4.0-5.5/1000	0.86
Hypertensive disorder			
Chronic hypertension	6%-10%	6-25/1000	1.5-2.7
Pregnancy-induced hypertension			
Mild	5.8%-7.7%	9-51/1000	1.2-4.0
Severe	1.3%-3.3%	12-29/1000	1.8-4.4
Diabetes			
Treated with diet	2.5%-5%	6-10/1000	1.2-2.2
Treated with insulin	2.4%	6-35/1000	1.7-7.0
SLE	<1%	40-150/1000	6-20
Renal disease	<1%	15-200/1000	2.2-30
Thyroid disorders	0.2%-2%	12-20/1000	2.2-3.0
Thrombophilia	1%-5%	18-40/1000	2.8-5.0
Cholestasis of pregnancy	<0.1%	12-30/1000	1.8-4.4
Smoking > 10 cigarettes	10%-20%	10-15/1000	1.7-3.0
Obesity (prepregnancy)			
BMI 25-29.9 kg/m <sup>2</sup>	21%	12-15/1000	1.9-2.7
BMI > 30	20%	13-18/1000	2.1-2.8
Low educational attainment (<12 y vs. 12 y+)	30%	10-13/1000	1.6-2.0
Previous growth-restricted infant (<10%)	6.7%	12-30/1000	2-4.6
Previous stillbirth	0.5%-1.0%	9-20/1000	1.4-3.2
Multiple gestation	2%-3.5%		
Twins	2.7%	12/1000	1.0-2.8
Triplets	0.14%	34/1000	2.8-3.7
Advanced maternal age (reference < 35 y)			
35-39 y	15%-18%	11-14/1000	1.8-2.2
40y +	2%	11-21/1000	1.8-3.3
Black women compared with white women	15%	12-14/1000	2.0-2.2

Etiology and prevention of stillbirth AJOG 2005; 193:1923-35







# Stillbirth & SIUD

Dipartimento Materno-Infantile - ASL-5 Spezzino  
Direttore: Prof. L. Marino

Prof. Giovanni PIANTELLI

S.C. Pediatria e Neonatologia  
Presidio Ospedaliero del Levante Ligure  
Direttore: Prof. S. Parmigiani

# Grazie...

## Giornata Regionale SIDS, SIUD & ALTE



LA SPEZIA, 27 NOVEMBRE 2010  
Sala Conferenze C.R.D.D. - Piazza D'Armi  
La Spezia

### Patrocinato da

Società Italiana di Pediatria (SIP)  
Società Italiana di Neonatologia (SIN)  
Società Italiana di Medicina Perinatale (SIMP)  
Società Italiana Emergenza e Urgenza Pediatrica (SIMEUP)  
Associazione Pediatri Extraospedalieri Liguri (APEL)

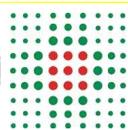
Si ringrazia la Marina Militare Italiana  
per la collaborazione



La Spezia - Corso Cavour e Piazza Mercato.



La Spezia - Viale Umberto.



Università degli Studi di Parma | Facoltà di Medicina e Chirurgia  
Clinica Ginecologica ed Ostetrica  
Direttore: Prof. Alberto Bacchi Modena