CESAREAN SECTION

A CRITICAL APPRAISAL

Postgraduate Training Course in Reproductive Health

Geneva, Switzerland, March 2004

GFMER, IAMANEH and WHO

J. G. Cecatti

Brazil

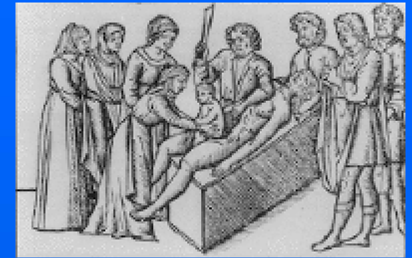
Historical and social focus

- Historical, cultural and socially in the past to deliver was a familiar event dominated by women
- End XIX century in Europe - advances in Medicine and scientific discoveries
- XX Century – institutionalization of delivery – male dominance and instrumentalization - CESAREAN
- XXI Century– the birth process being rescued by women (gender, social, humanistic and even technical event) and focused with EBM

Attitudes regarding C-section

- Indications supported by EBM (like CPD, breech, two previous CS, etc.)
- Request of women (EBM X women's opinion)
- Region, country, resource differences
- High X Low risk populations
- Knowledge/experience of physician
- Facilities available in each place
- Sterilisation procedures associated
- Fear of pelvic floor damage, sexual life alteration
- True information given to women about C-section
- Medico legal questions

RATIONALE



- C-section can be a life-saving operation
  - Done to save mother and/or baby
  - Historically performed after mother died to save baby's soul
- As safety improved, done for a wider range of indications, including increasingly on maternal request
- Knowledge of potential sequelae and risks involved is important, especially when C-section is not absolutely indicated

Situation in the world

High rates of Cesarean sections

Low rates of induction of labor

People prefer Cesarean section?

Lack of access in some places

- Rates relatively stable in developed countries
- Increasing rates in developing countries

No cost effectiveness analysis

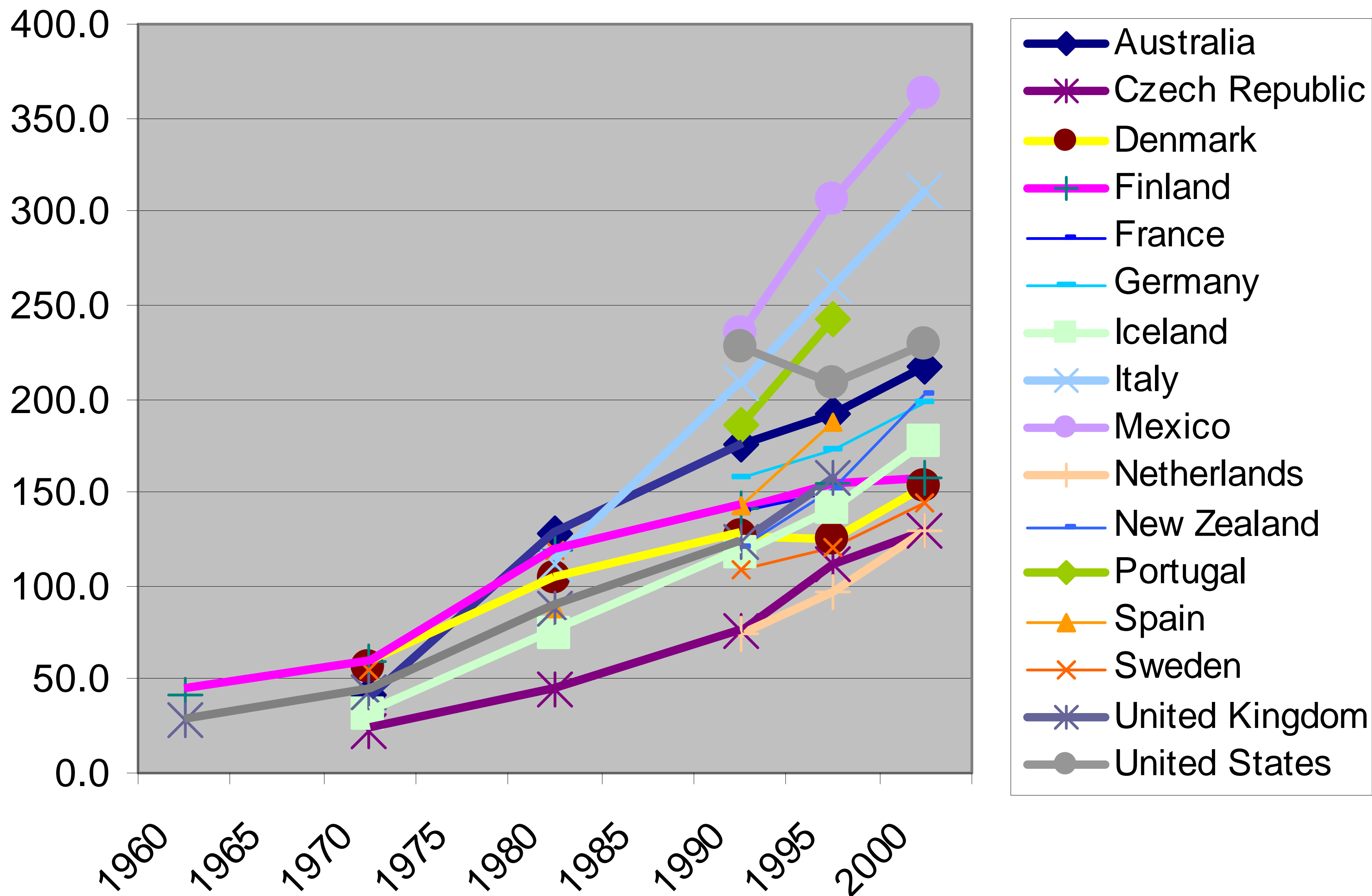
No EBM management

No medical indication

No woman's opinion

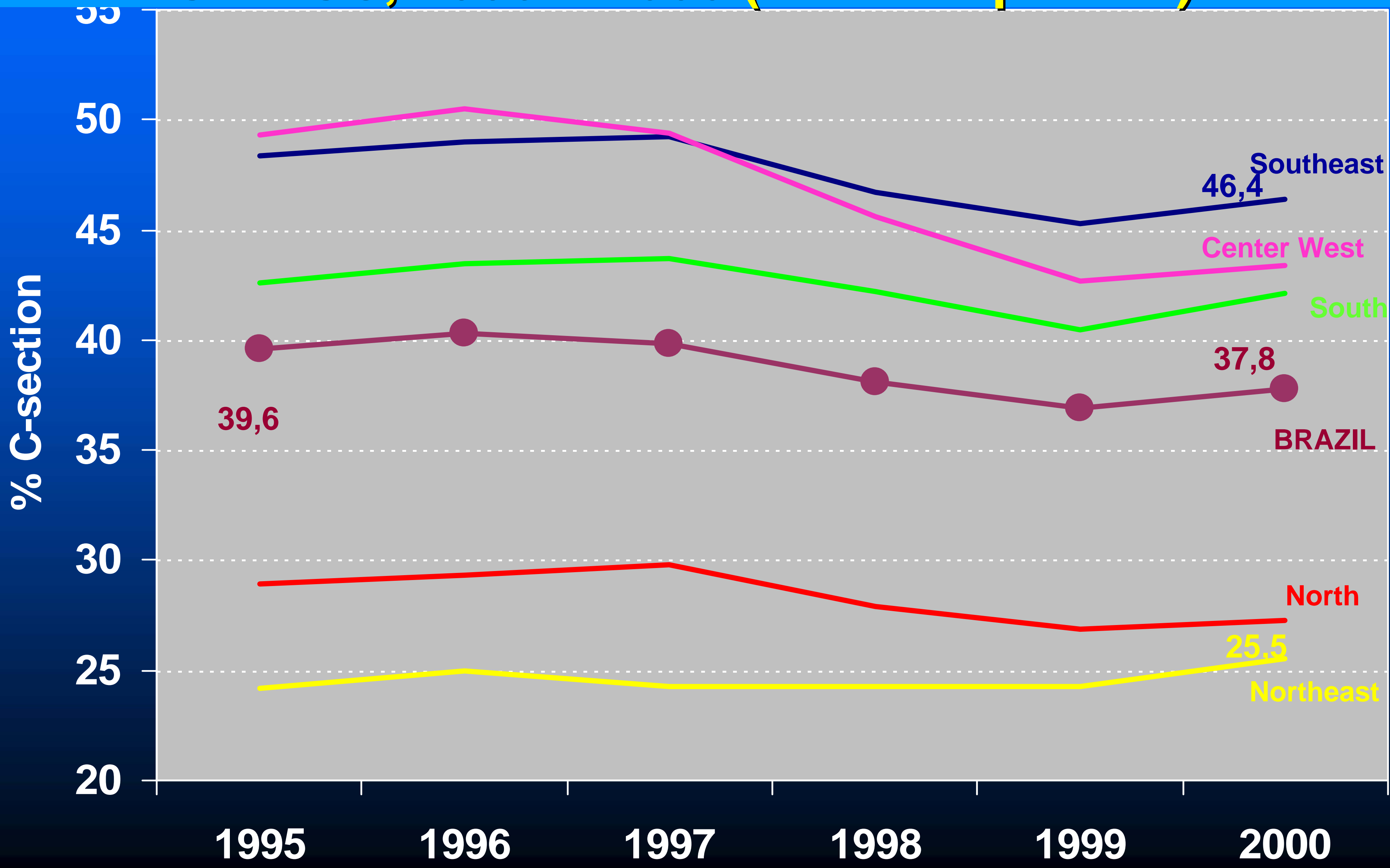
Situation in Developing countries

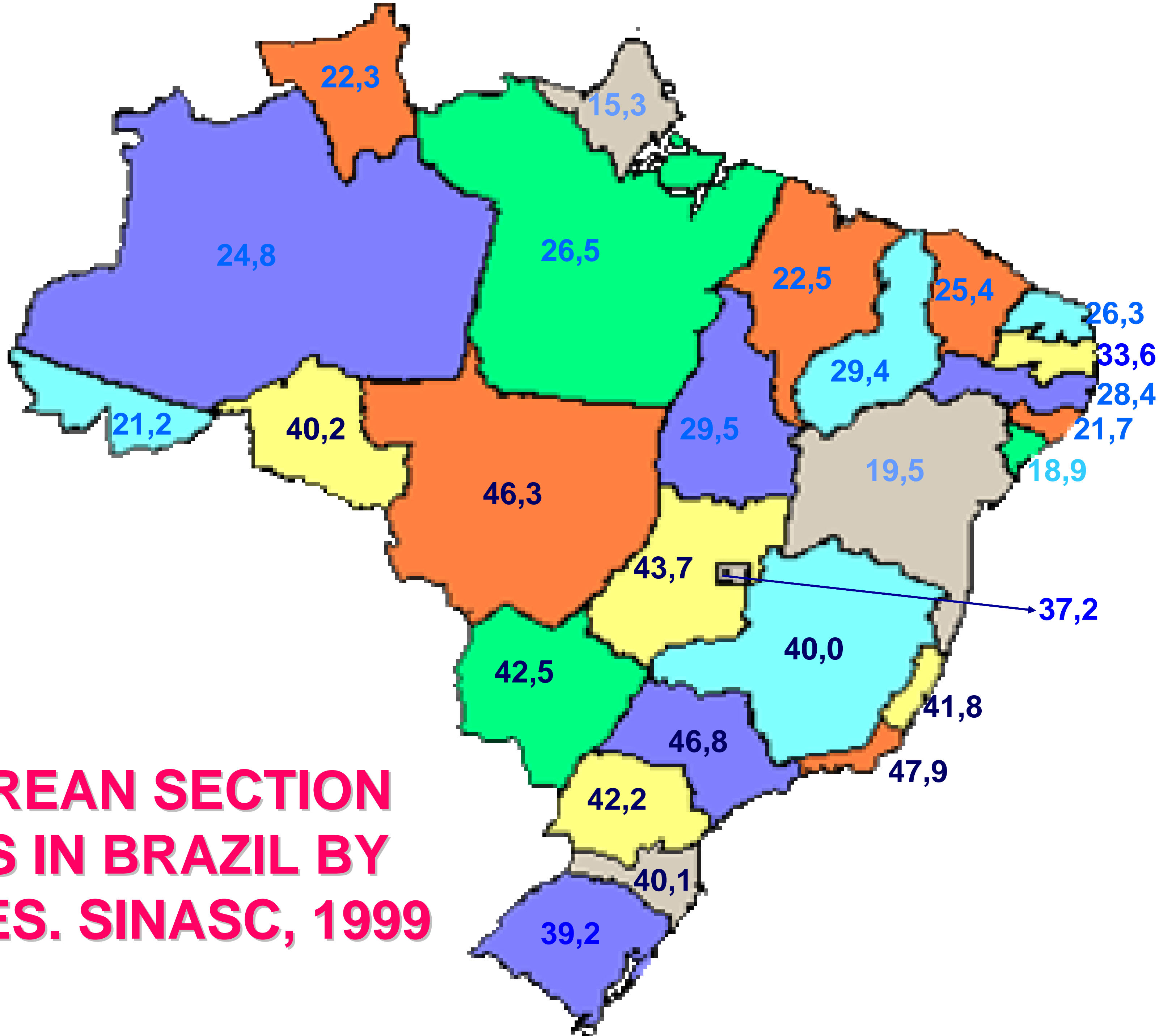
Caesarean sections per 1 000 live births.



RECENT EVOLUTION OF CESAREAN SECTION RATES IN BRAZIL AND REGIONS

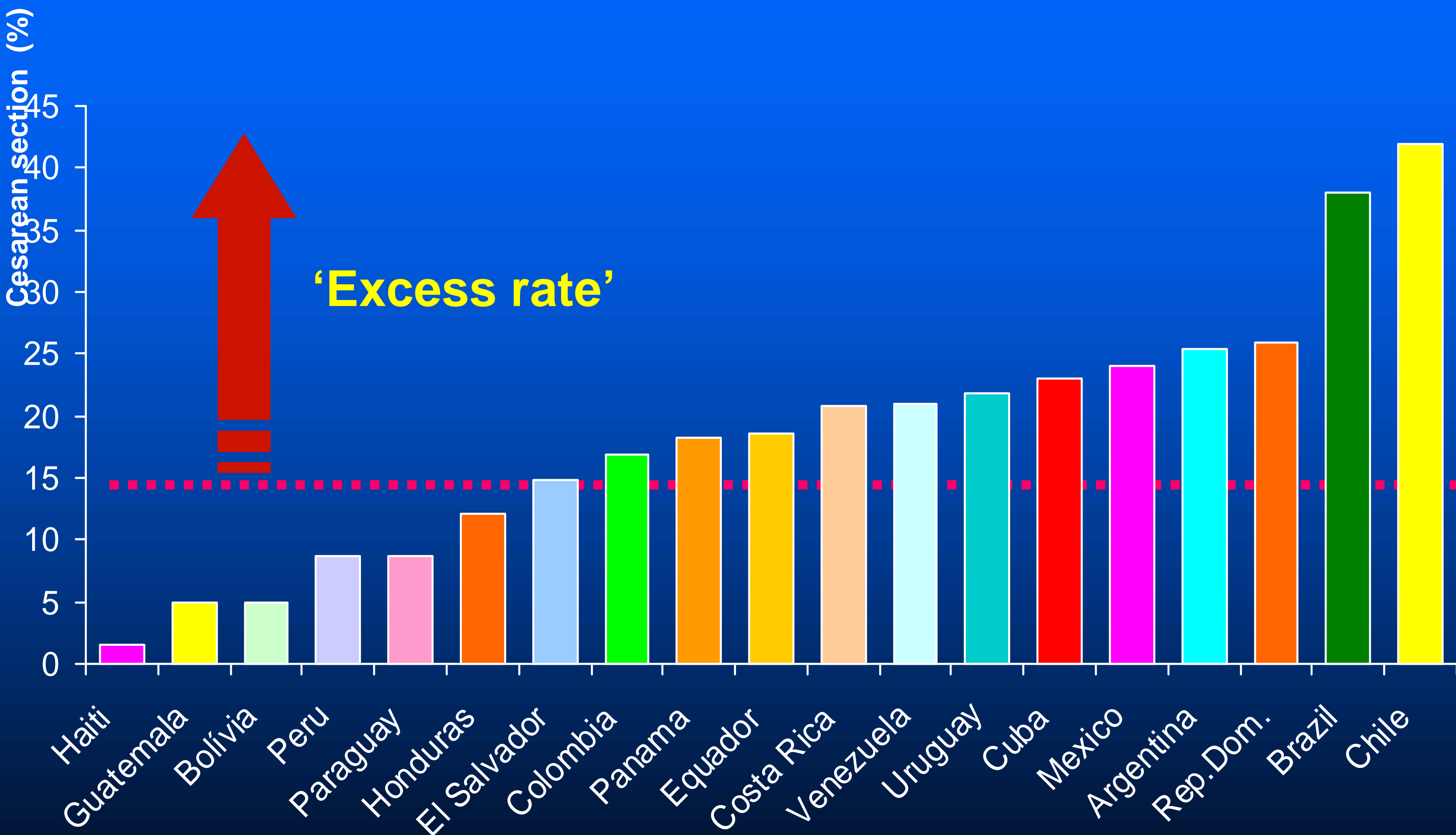
SINASC, 1995 – 2000 (Public + private)





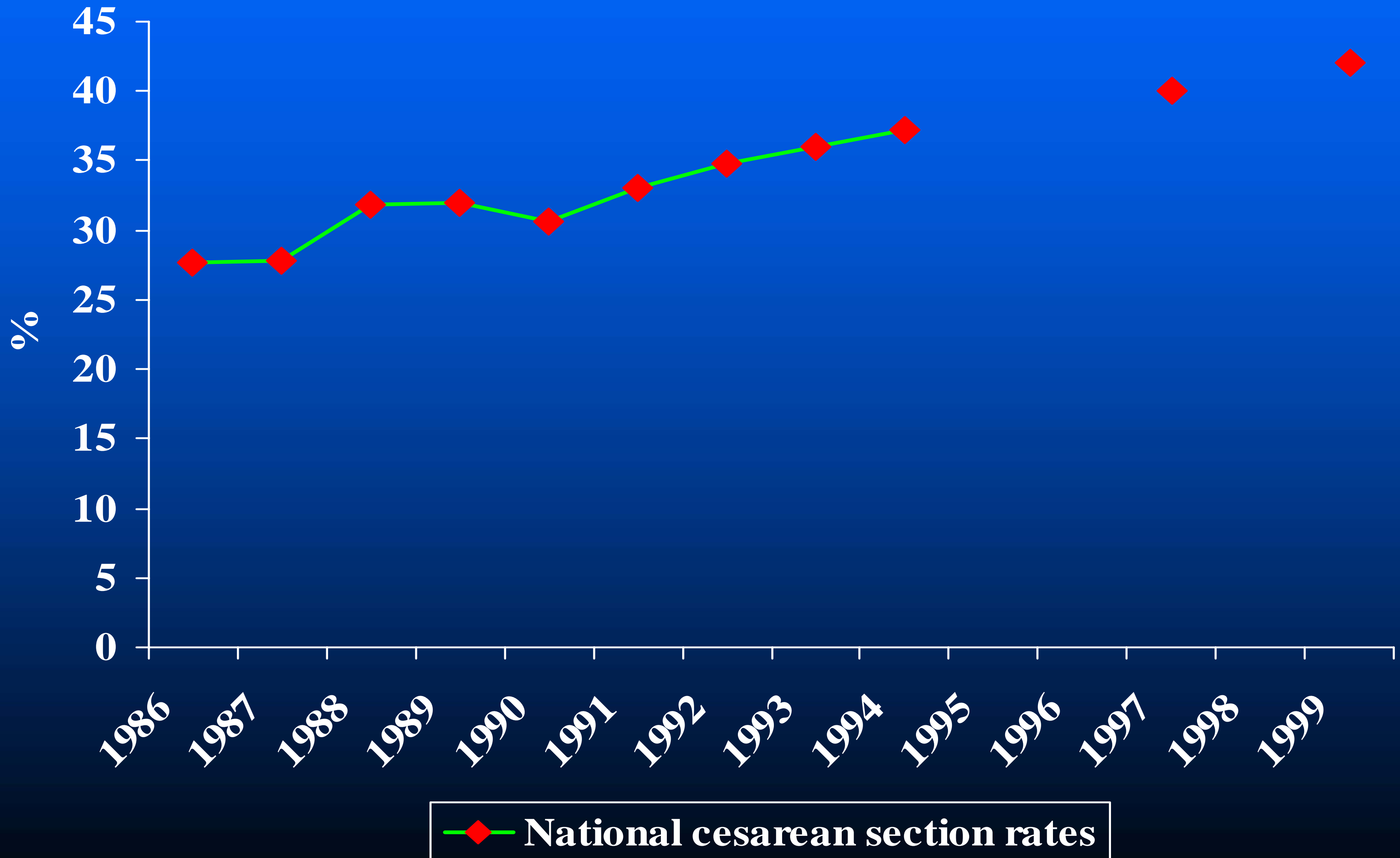
CESAREAN SECTION RATES IN BRAZIL BY STATES. SINASC, 1999

ESTIMATED NATIONAL CESAREAN SECTION RATES FOR LATIN AMERICAN COUNTRIES

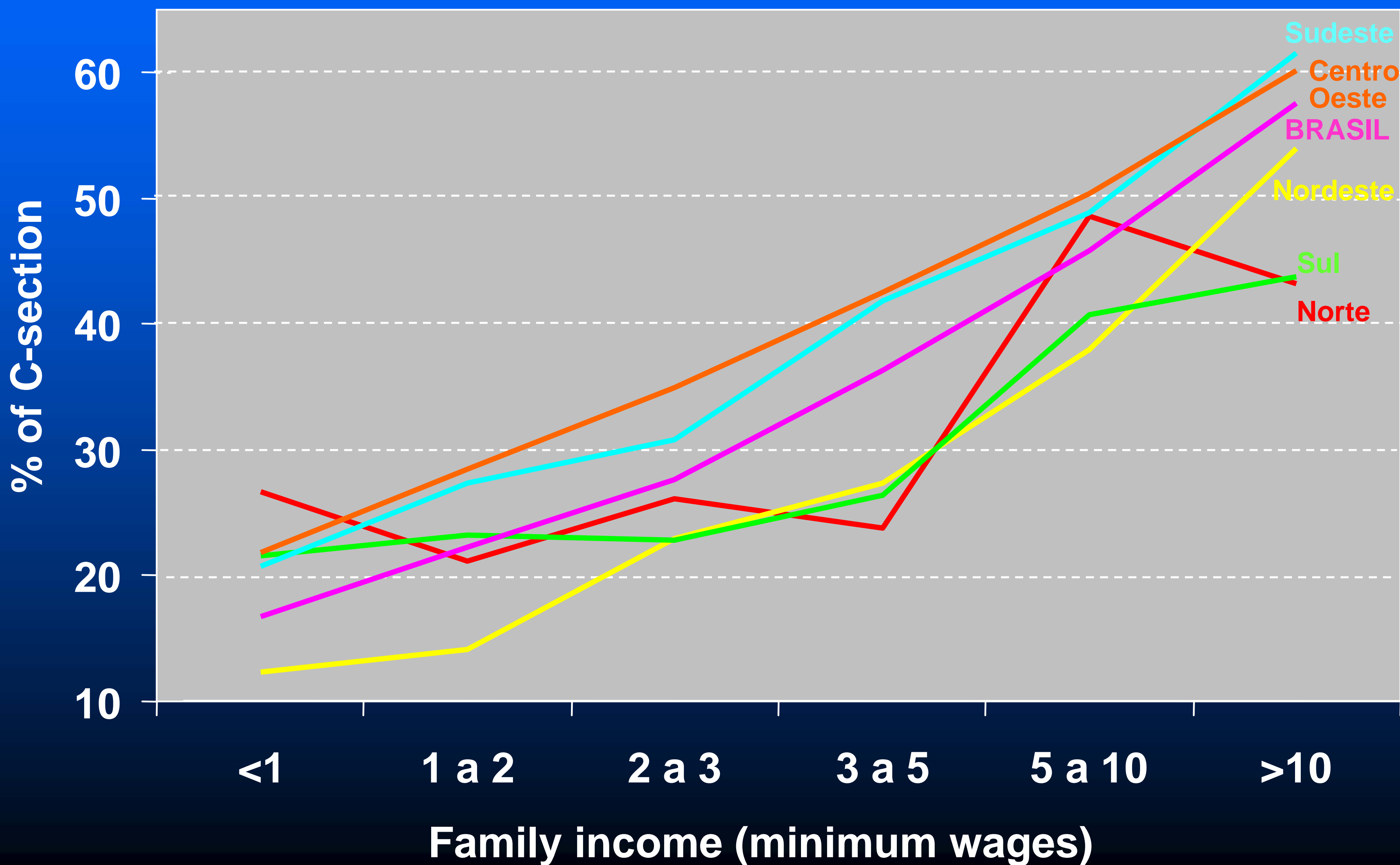


Source: Belizan et al., 1999

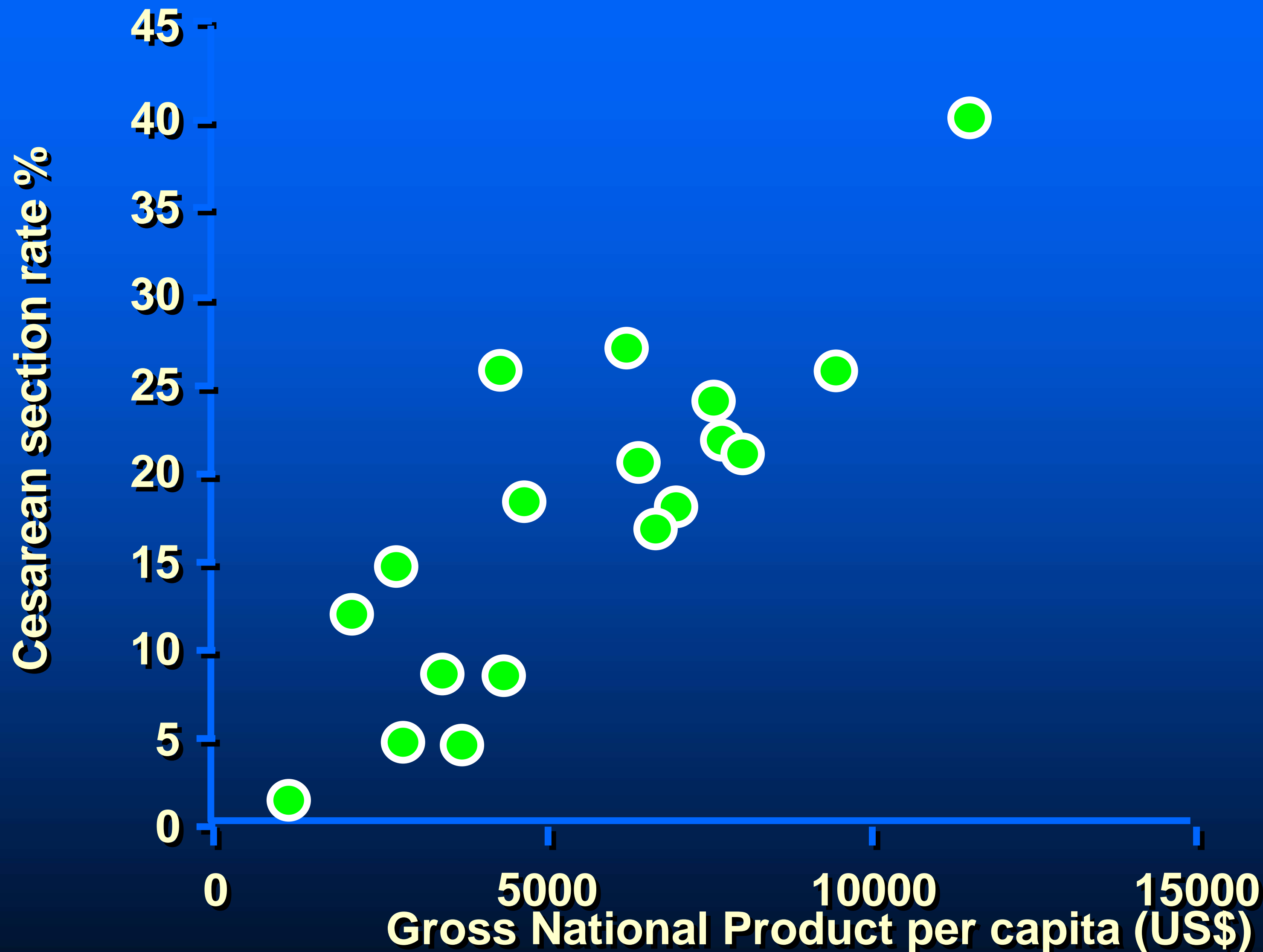
Cesarean Section rates in Chile 1986-1999 Source: Ministry of Health



Cesarean section in Brazil by regions and family income. IBGE, PNAD, 1982



CORRELATION BETWEEN CESAREAN SECTION RATES AND ECONOMICAL STATUS – LA COUNTRIES



Source: Belizan et al., 1999

Cesarean Section

In this context of increasing Cesarean section rates worldwide, IS IT A RIGHT TO PERFORM IT unnecessarily?

- Preference? Is this a matter of choice?
- From the doctor? From the woman?

Cesarean Section

It is necessary to consider some key points:

- Woman’s right – Autonomy - Gender
- Decision based on real information regarding risks and benefits
- Doctor’s right and mission
- Ethics
- EBM

Adverse outcomes linked to mother

- **Maternal Mortality (risk 2 – 10 times)**
- Haemorrhage
- Thrombo-embolic disease (pulmonary embolism & dvt)
- Air and amniotic fluid embolism
- **Subsequent placental abnormalities:** previa; accreta, hemorrhage
- **Infections:** serious morbidity; endometritis, wound infection, UTI, fever
- Anaemia
- Urinary tract damage; incontinence
- Gastrointestinal damage, ileus
- Minor complaints e.g. backache
- Depression
- Reduced sexuality
- Subsequent C-section
- **Subsequent reduced fertility**
- **Psychosocial outcomes:** less interaction with baby, breastfeeding and satisfaction with delivery

Adverse outcomes linked to child

- Intrapartum and early neonatal mortality
- Prematurity
- Transient tachypnoea
- Respiratory Distress Syndrome
- Fetal laceration
- Stress
- Subsequent child hospitalization
- Breastfeeding
- Bonding to child

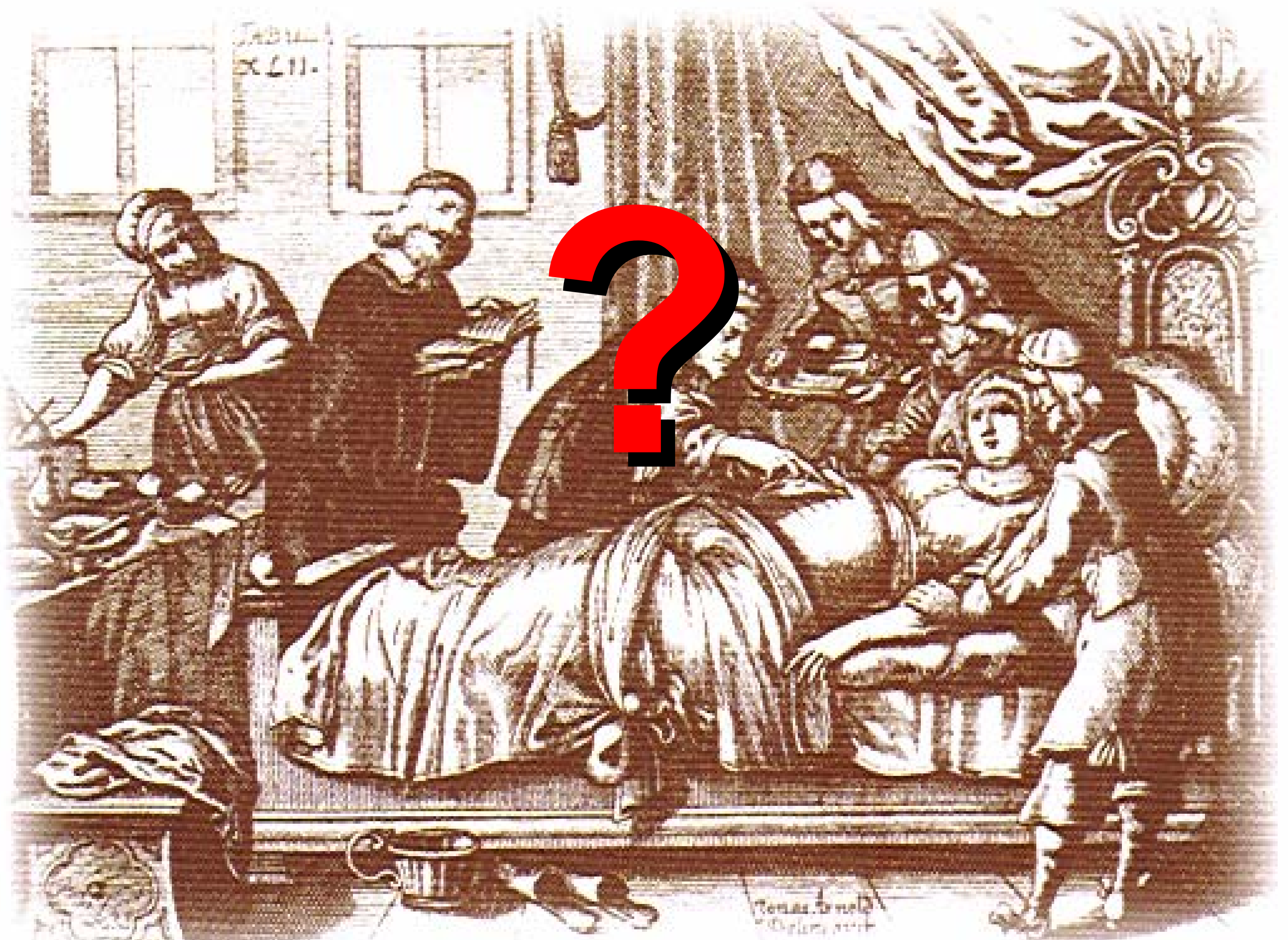
Women's choice X women's voice

What women really think about?

Preference for mode of delivery – Latin America

	ARGENTINA		BRAZIL		CUBA		GUATEMALA		MEXICO	
	n	%	n	%	n	%	n	%	n	%
CESAREAN	107	(14.0)	123	(18.8)	163	(20.5)	83	(9.9)	92	(16.7)
VAGINAL	531	(69.4)	474	(72.4)	510	(64.2)	743	(88.7)	435	(78.9)
IS THE SAME	33	(4.3)	15	(2.3)	36	(4.5)	8	(1.0)	15	(2.7)
DO NOT KNOW	94	(12.3)	43	(6.6)	86	(10.8)	4	(0.5)	9	(1.6)
TOTAL	765	(100.0)	655	(100.0)	765	(100.0)	838	(100.0)	551	(100.0)

ELAC, 2001



Does anybody know what in fact the doctors think?

Considering the available data in Brazil, Chile and other places on the incidence of C-section, the doctors' preference is for vaginal delivery in public sector among poor women and for Cesarean section in private sector among women with a better social and economic status, independently of their will

RISING CS RATES - CONSEQUENCES

- Increased maternal morbidity and mortality
- 65 - 90% of previous CS result in CS
- Risk of scar rupture – 0.5% in spontaneous, 0.75% in oxytocin induced, 2.5% in PG induced labours
- Fetal morbidity/mortality increased with scar rupture
- Rising costs for public sector
- But, in some contexts where there is a lack of availability of the procedure, it can be life saving for mother and baby

CESAREAN SECTION – KEY ISSUES

- Principle of autonomy should be considered, but with a public health approach for the benefit of population
- Women should be really well informed of all advantages and disadvantages before deciding jointly with the medical staff on the mode of delivery
- Doctors should play their role of informing women and ethically and technically practicing their tasks according to local conditions
- There is an urgent need for reviewing the optimum rates for different settings and economical resources and also for evaluating their consequences and complications through RCT

Mode of delivery:
Vaginal or C-section?

Is it a matter of choice?

- Nowadays any perinatal risk is no longer acceptable because of the mode of delivery
- There is an increasing demand for vaginal and natural delivery
- Economic aspects should be taken into account
- The medicalization of birth does not necessarily means quality
- There are not yet definitive evidences regarding the mode of delivery: there are no RCT evaluating which is the best, which is safer for low risk pregnancy, however the available evidence is favorable to vaginal delivery (at least until now)

EBM APPROACH TO C-SECTION

It is very difficult to study apropriately C-section because there is not an ethical consensus that the choice can be at random

- There are no general RCT available
- Technical restrictions: RCT, random allocation, concealment, doble/uni blinded (or masked?)
- Approach: evidences on indications, interventions addressed to reduce C-section, technical aspects

LEVELS OF EVIDENCE

1+ Systematic Reviews or metanalysis of high quality RCT or high quality RCT with low risk of bias

1- Systematic Reviews or metanalysis of RCT or RCT with high risk of bias

2+ Systematic Reviews of high quality cohort or case-control studies or high quality cohort or case-control studies with low risk of bias, confounders and random effect

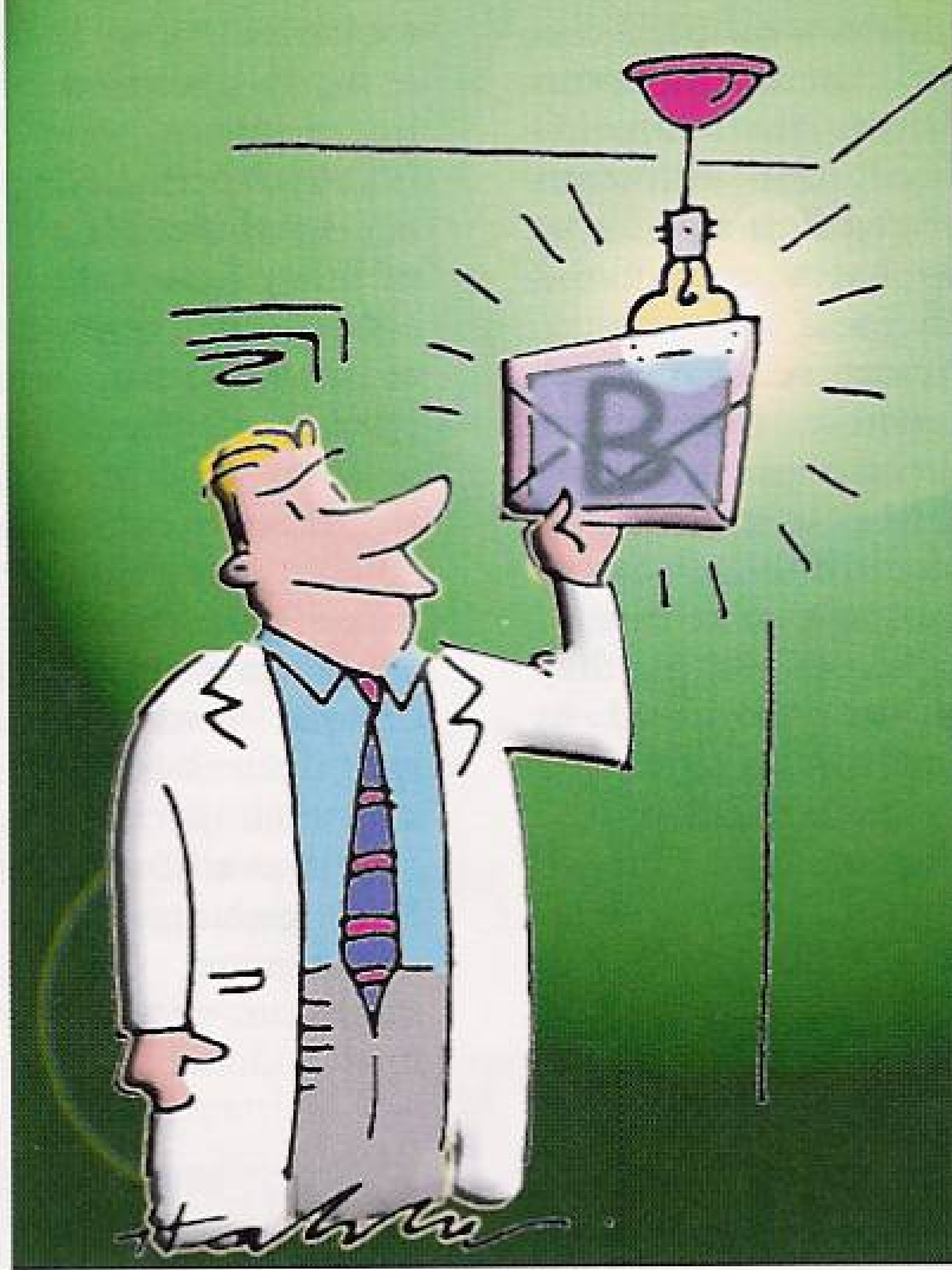
2- Systematic Reviews of cohort or case-control studies or cohort or case-control studies with high risk of bias, confounders and random effect

3 Not analytical studies (case reports or case series)

4 Opinion of experts

Harbour y Miller. BMJ 2001;323:334-6

Ideally, professionals and patients should not know the assigned treatment to each individual in the study in order to guarantee that the factors have a random distribution between the groups



Deciphering the allocation concealment scheme

Double blinded versus uni-blinded

Schulz & Grimes, 2002. Lancet

“blinded” and “masked” researchers

Schulz & Grimes, 2002. Lancet

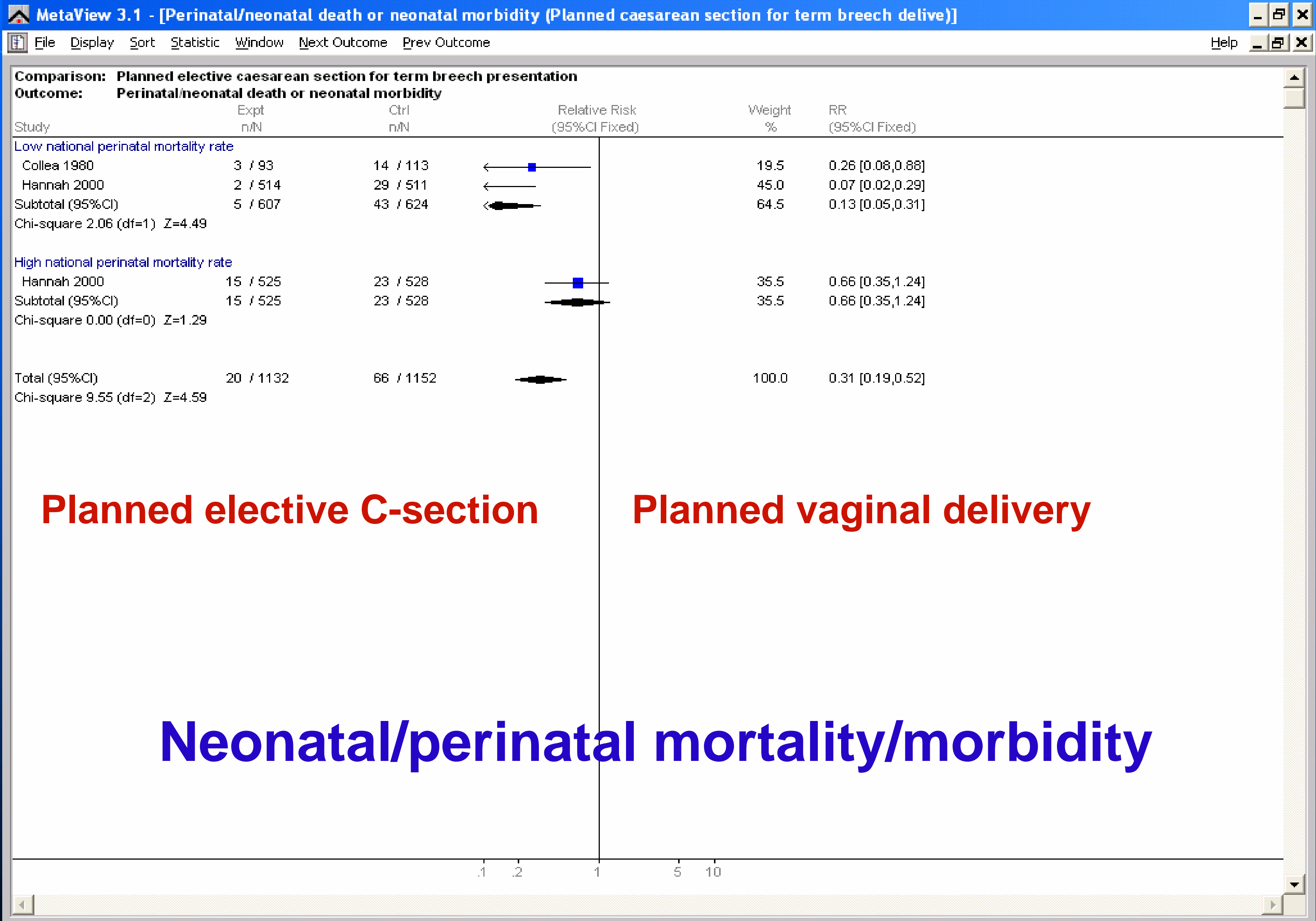
CURRENT INDICATIONS FOR CESAREAN SECTION BASED ON EVIDENCE

- Term breech after unsuccessful ECV
- Maternal infection with HIV
- Previous C-sections (What cut-off point?)
- Emergency (based on what criteria?)

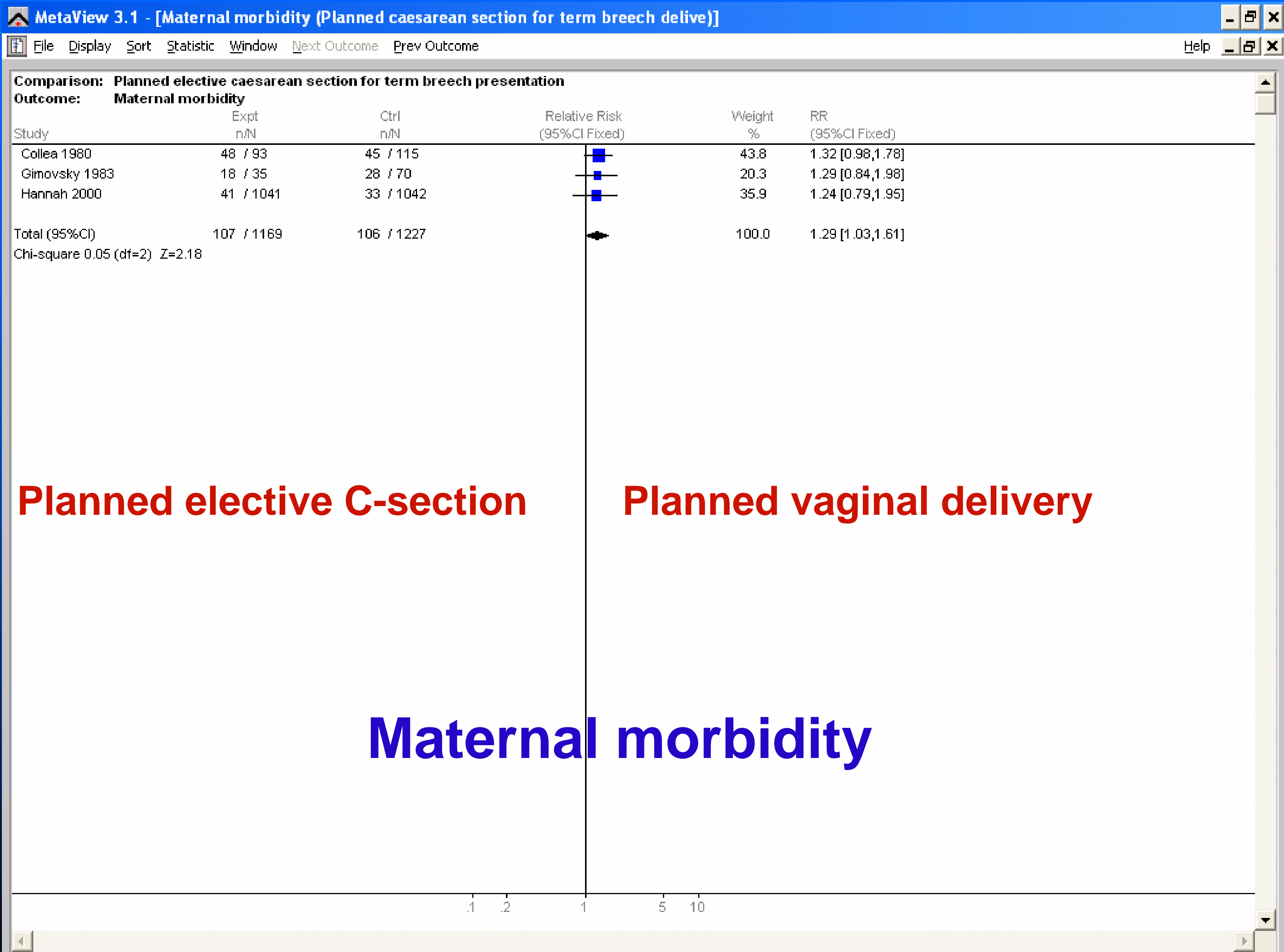
Still with doubts:

- twin pregnancy (TBS trial from Canada)
- suspicious fetal distress, CPD
- IUGR (small baby) and large baby
- not cephalic second twin

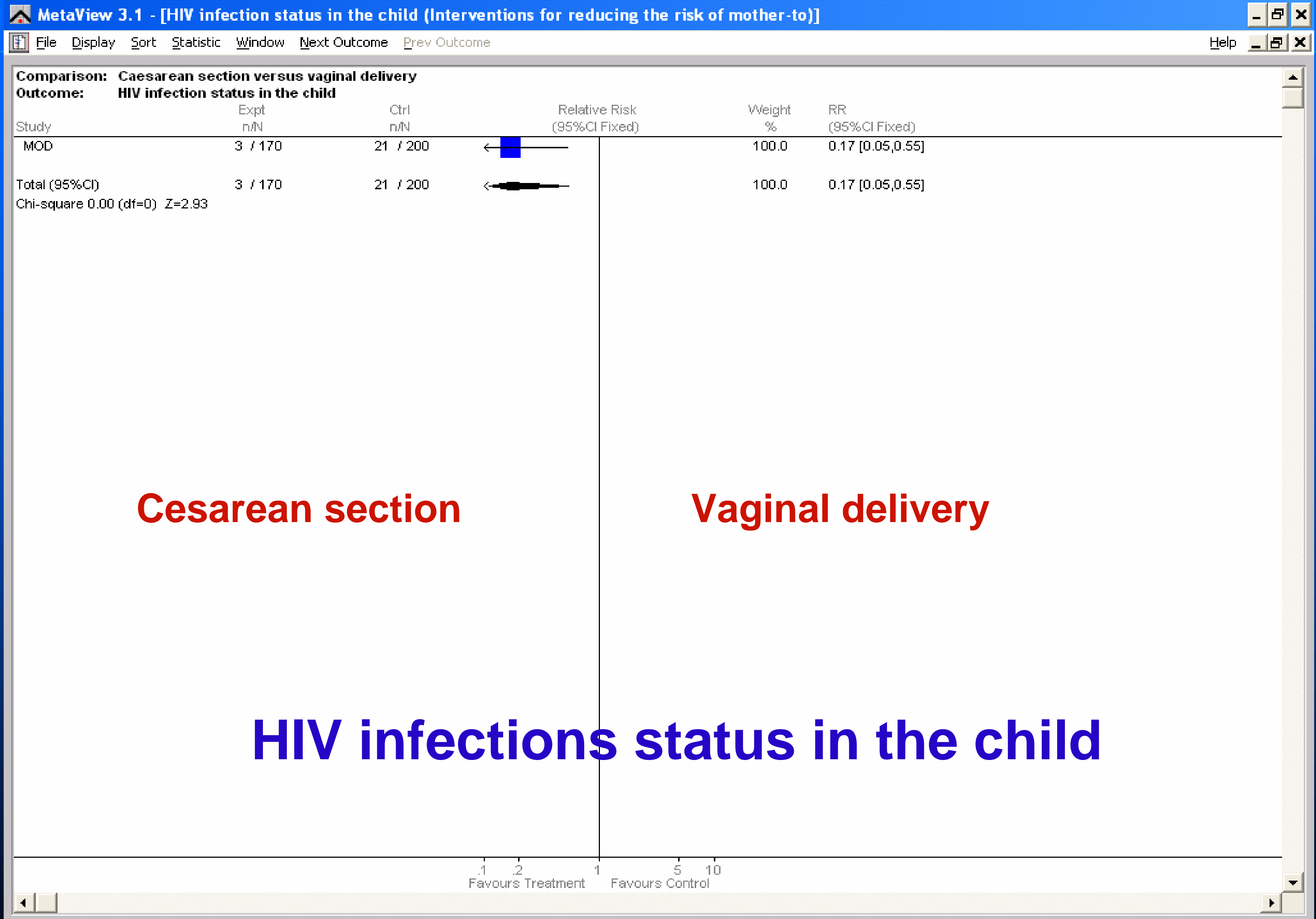
TERM BREECH PRESENTACION



TERM BREECH PRESENTACION



MATERNAL INFECTION WITH HIV



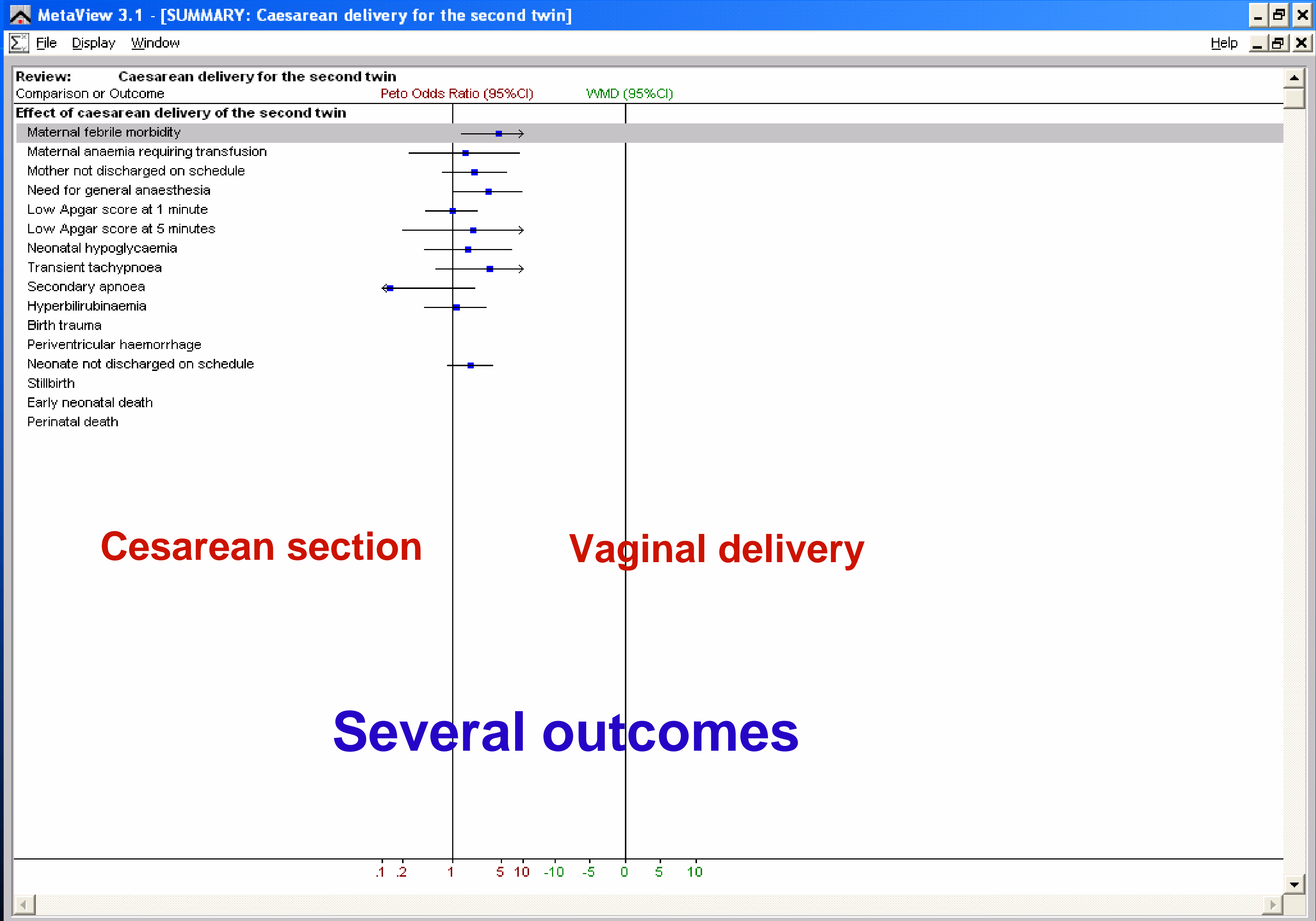
PREVIOUS CESAREAN SECTION

OUTCOME	ELECTIVE C-S	TOL	OR (95% CI)
RUPTURE UTERUS	0.2	0.4	2.10 (1.45 – 3.05)
MATERNAL DEATH	0.0	0.01	1.52 (0.36 – 6.38)
FETAL/NEONAT DEATH	0.3	0.6	1.71 (1.28 – 2.28)
APGAR <7 5^0 MIN.	0.9	2.2	2.24 (1.29 – 3.88)
FEBRILE MORBIDITY	5.4	4.4	0.70 (0.64 – 0.77)
TRANSFUSION	1.7	1.1	0.57 (0.42 – 0.76)
HYSTERECTOMY	0.41	0.16	0.39 (0.27 – 0.57)

Systematic review including 15 cohort studies (N=47.682), **Vaginal birth: 72.3% (IC 95%: 71.8 - 72.8%)**

Mozurkewich y Hutton. Am J Obstet Gynecol 2000;183:1187-97

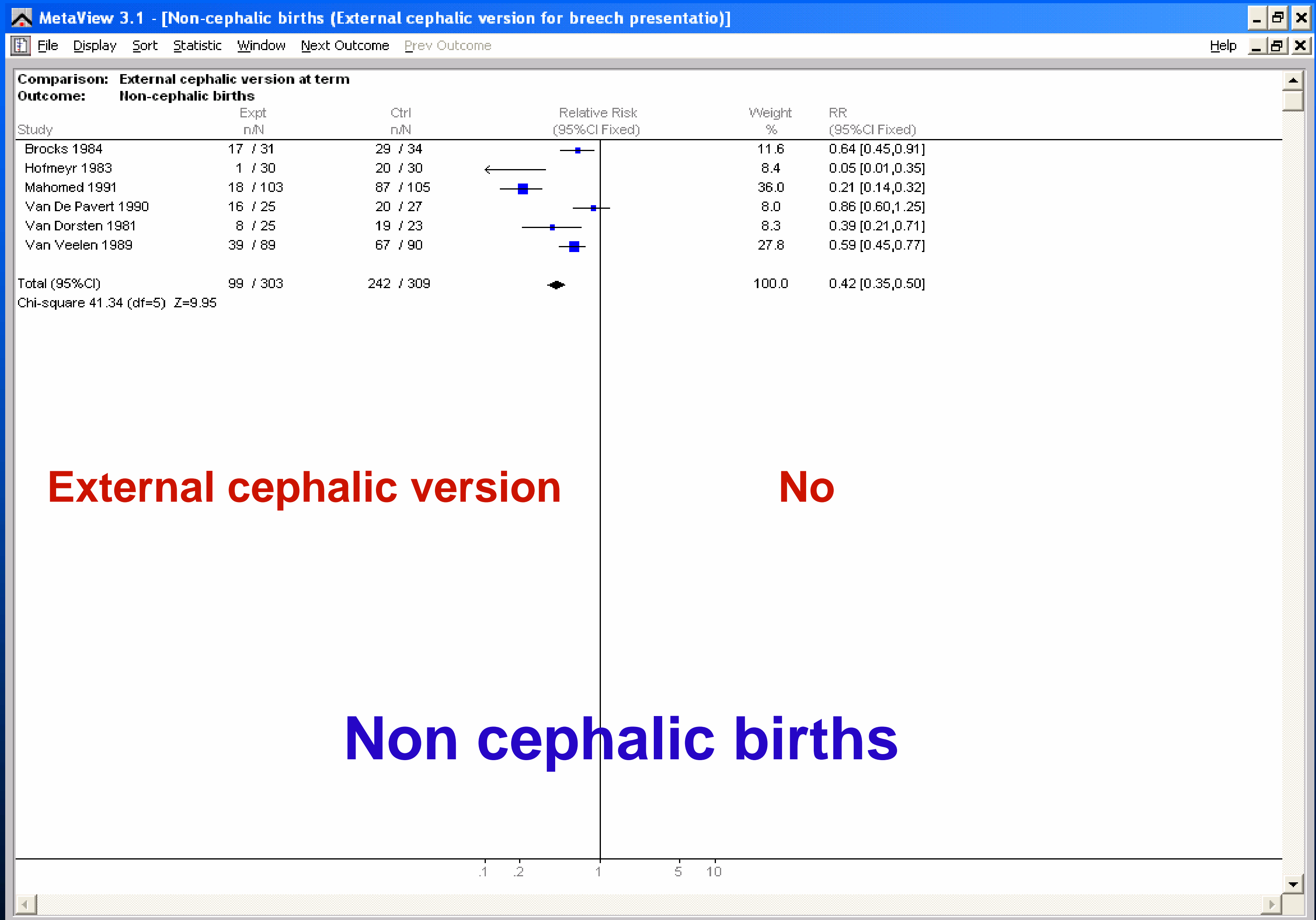
NOT-CEPHALIC SECOND TWIN



INTERVENTIONS ADDRESSED TO REDUCE CESAREAN SECTION BASED ON EVIDENCE

- External cephalic version in term breech
- Trial of labor for at least one previous C-section
- Second opinion before performing C-section
- Institutional procedures (guidelines, audit, etc.)
- Professional procedures (rules, audit, etc.)
- Governmental procedures (laws, payment, NHS)
- Public campaigns

TERM BREECH PRESENTACION



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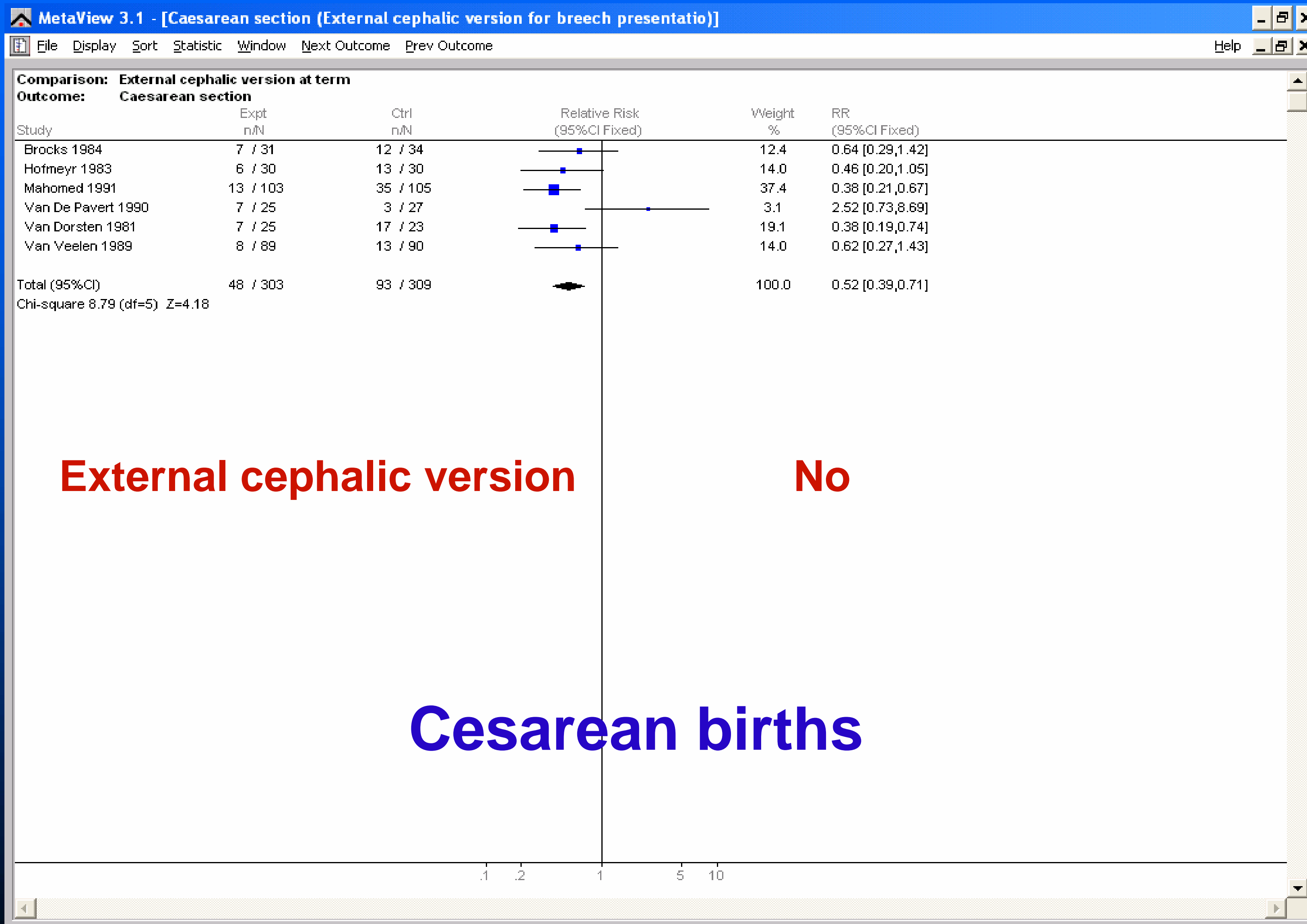
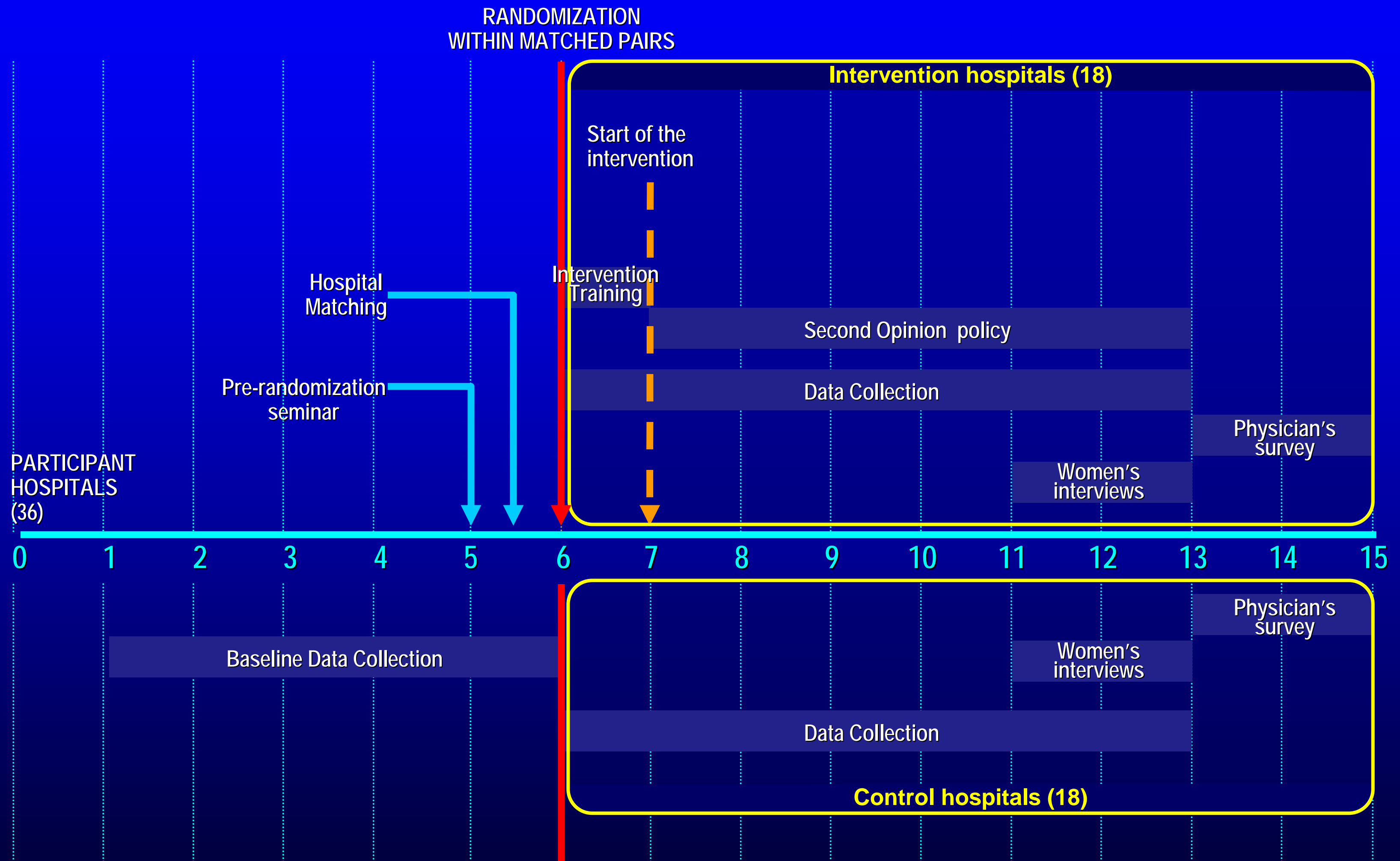


Sequence and activities of the Latin American cesarean section study

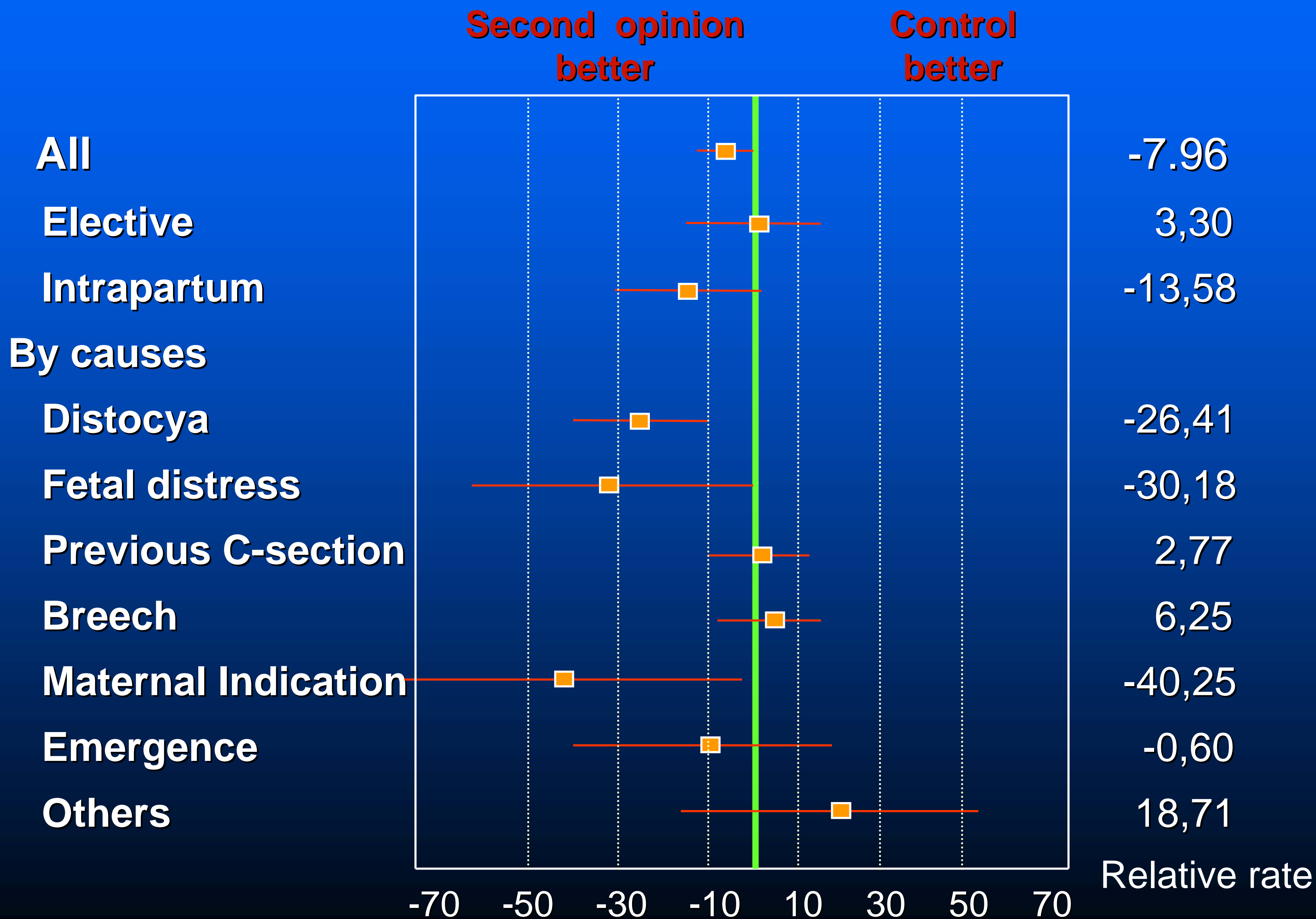


Countries and hospitals enrolled

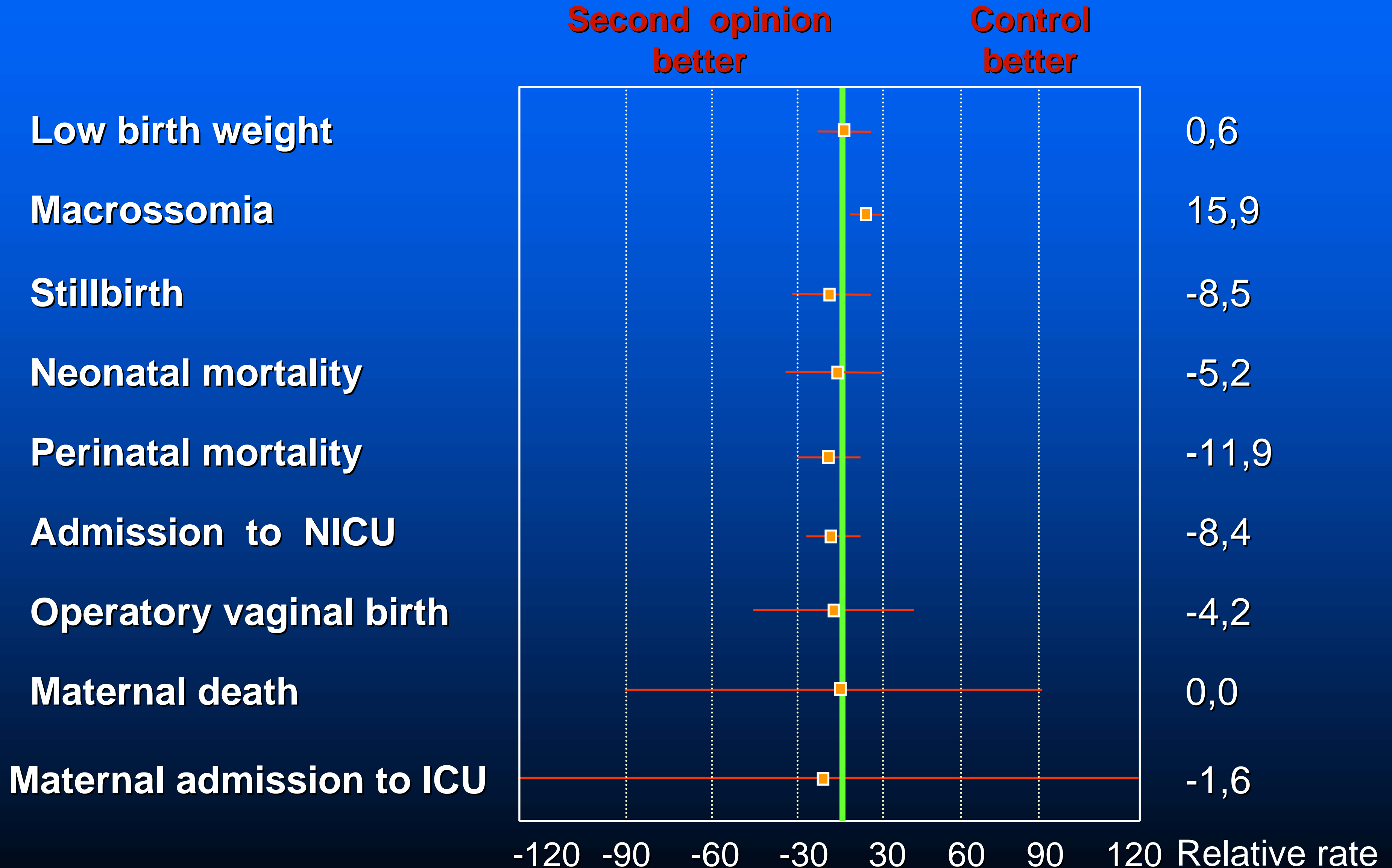
ARGENTINA	18 hospitals in 6 cities (Buenos Aires, Corrientes, Jujuy, Rosario, Salta and Tucumán)
BRAZIL	8 hospitals in a region and 1 city (São Paulo State and Recife)
CUBA	4 Hospitals in La Habana
GUATEMALA	2 hospitals in Guatemala City
MEXICO	4 hospitals in México City

5 countries
36 hospitals

EFFECT OF SECOND OPINION ON CESAREAN SECTION RATES, ELAC 2001



EFFECT OF SECOND OPINION ON SECONDARY OUTCOMES, ELAC 2001



EBM APPROACH TO C-SECTION

Technical aspects and consequences still to be definitely determined (a challenge for future research)

- Impact of C-section on future pregnancy and fertility
- Effectiveness/safety of choosing way of delivery
- Anaesthesia, maternal position during procedure
- Operatory techniques: type of skin incision, type of uterus incision, exteriorization of uterus, uterine suture, peritonium suture, skin suture, use of haemostatic procedures, etc.

Obstructed labour

Very low rates of Cesarean sections
Limited capacity of monitoring labour
Importance of partograph
Role of TBA and midwives
Poor social and nutritional conditions

Condition very common in poor countries, specially from Asia and Africa (training, transport)

Complications:

- Maternal infection
- Fetal morbidity/death
- Rupture uterus, fistula
- Maternal death

Situation in Developing countries

No evidences at all