Management of the high risk parturient

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Location of Malaysia





Format of lecture

- Definition
- Building a profile –recognition of risk group
- Risk stratification
- Obstetric and anesthesia plans
- Labour Analgesia/Anesthesia for LSCS
- Strategies for Emergency situations
- Recent focus

The High Risk parturient

Parturients are considered to be "high risk" to the anesthesiologists if they have a preexisting medical condition, obstetric complication, a problem which can potentially necessitate an emergency caesarean section, or a potential uncertainty regarding anesthetic management.

David J Birnbach

The High Risk parturient

- is a parturient whose life or whose life plus that of the baby's may be threatened in the course of the pregnancy or during the process of delivery
- A parturient who may potentially end up as a statistic in a mortality or morbidity audit.

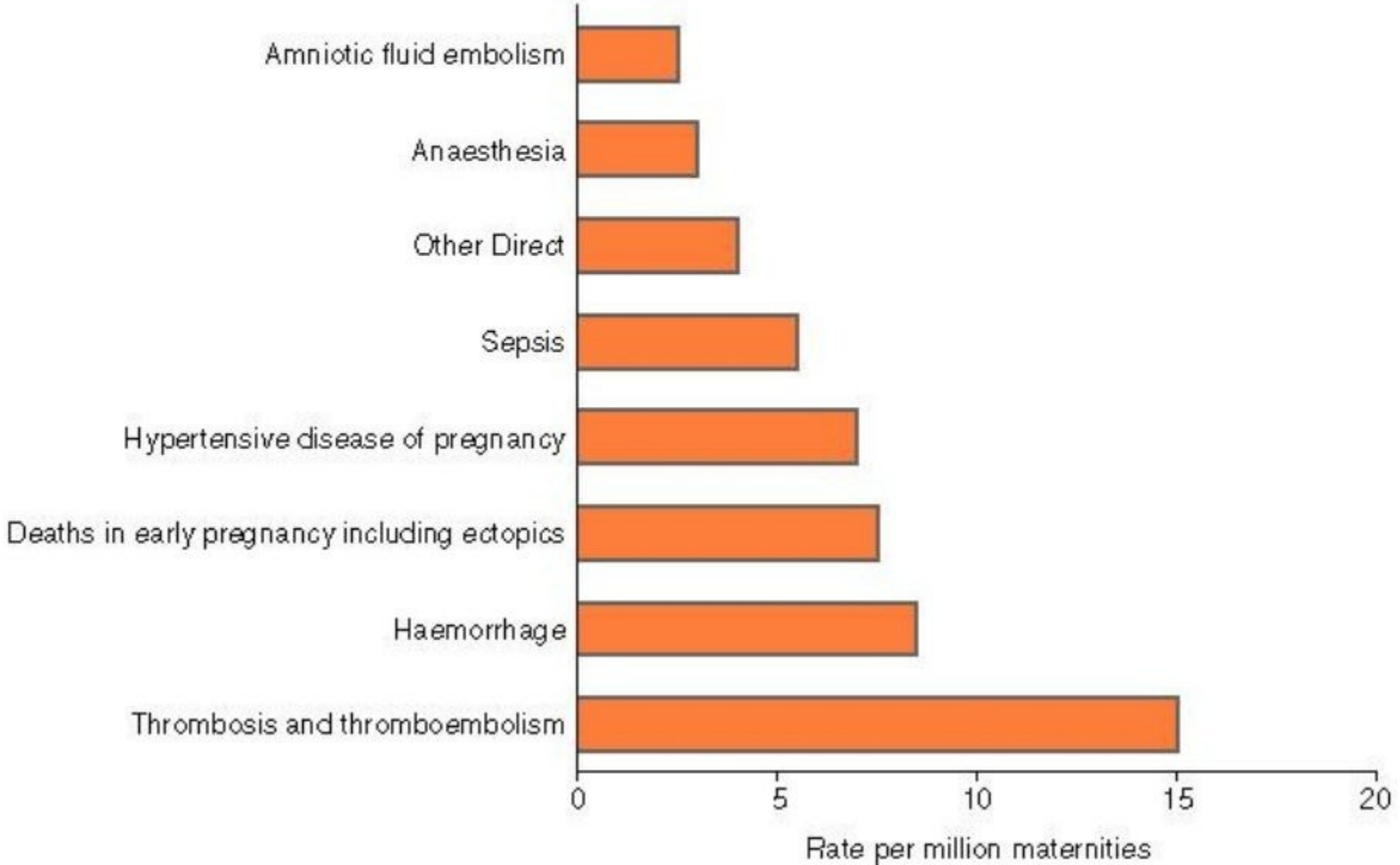
Profile of the high risk parturient

(1985-2008 Triennial report, UK)

Cause of death	Rates per 100 000 maternities								Cause of death
	1985–87	1988–90	1991–93	1994–96	1997–99	2000–02	2003–05	2006–08	
***Direct* deaths**									***Direct* deaths**
Sepsis	0.40	0.72	0.65	0.73	0.85	0.65	0.85	1.13	Sepsis
Pre-eclampsia and eclampsia	1.19	1.14	0.86	0.91	0.75	0.70	0.85	0.83	Pre-eclampsia and eclampsia
Thrombosis and thromboembolism	1.41	1.40	1.51	2.18	1.65	1.50	1.94	0.79	Thrombosis and thromboembolism
Amniotic fluid embolism	0.40	0.47	0.43	0.77	0.38	0.25	0.80	0.57	Amniotic fluid embolism
Early pregnancy deaths*	0.71	1.02	0.73	0.68	0.80	0.75	0.66	0.48	Early pregnancy deaths*
Ectopic	0.48	0.64	0.39	0.55	0.61	0.55	0.47	0.26	Ectopic
Spontaneous miscarriage	0.18	0.25	0.13	0.09	0.09	0.05	0.05	0.22	Spontaneous miscarriage
Legal termination	0.04	0.13	0.22	0.05	0.09	0.15	0.09	0.00	Legal termination
Other	0.00	0.00	0.09	0.00	0.00	0.00	0.05	0.00	Other
Haemorrhage	0.44	0.93	0.65	0.55	0.33	0.85	0.66	0.39	Haemorrhage
Anaesthesia	0.26	0.17	0.35	0.05	0.14	0.30	0.28	0.31	Anaesthesia
Other *Direct*	1.19	0.72	0.60	0.32	0.33	0.40	0.19	0.17	Other *Direct*
Genital tract trauma	0.26	0.13	0.17	0.23	0.09	0.05	0.14	0.00	Genital tract trauma
Fatty liver	0.26	0.21	0.09	0.09	0.19	0.15	0.05	0.13	Fatty liver
Other causes	0.66	0.38	0.35	0.00	0.05	0.20	0.00	0.04	Other causes
All *Direct*	6.13	6.14	5.53	6.10	4.99	5.31	6.24	4.67	All *Direct*
Indirect									***Indirect***
Cardiac disease	1.01	0.76	1.60	1.77	1.65	2.20	2.27	2.31	Cardiac disease
Indirect neurological conditions	0.84	1.27	1.08	2.14	1.60	2.00	1.75	1.57	*Indirect* neurological conditions
Psychiatric causes	–	–	–	0.41	0.71	0.80	0.85	0.57	Psychiatric causes
Indirect malignancies	–	–	–	–	0.52	0.25	0.47	0.13	*Indirect* malignancies
Other *Indirect* causes	1.90	1.91	1.64	1.77	1.93	2.50	2.37	2.14	Other *Indirect* causes
All *Indirect*	3.70	3.94	4.32	6.10	6.40	7.76	7.71	6.59	All *Indirect*
Coincidental	1.15	1.65	1.99	1.64	1.37	1.80	2.60	2.18	***Coincidental***
Late									***Late***
Direct									*Direct*
Indirect									*Indirect*

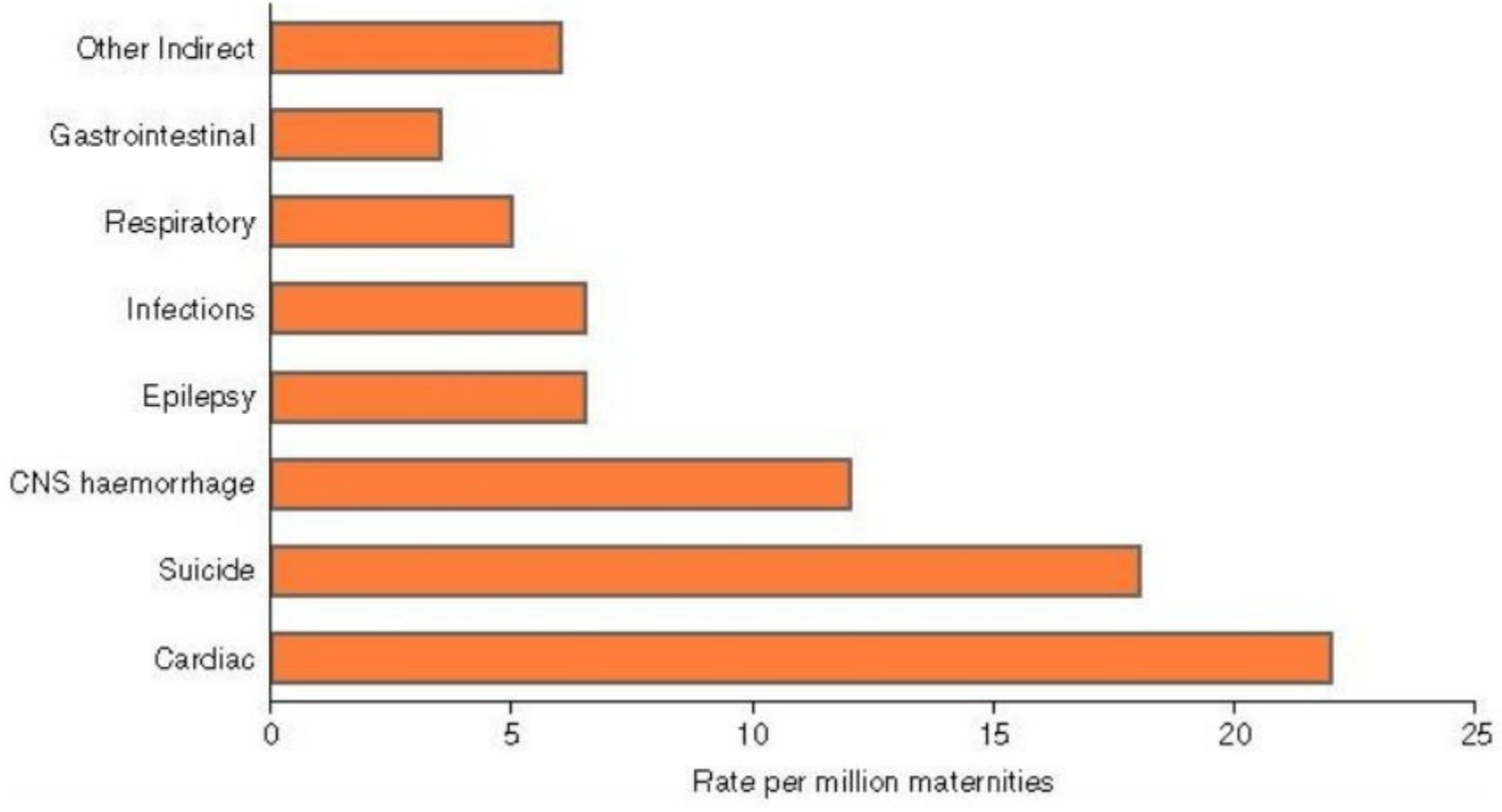
Profile of the high risk parturient

(2000-2002 Triennial report)



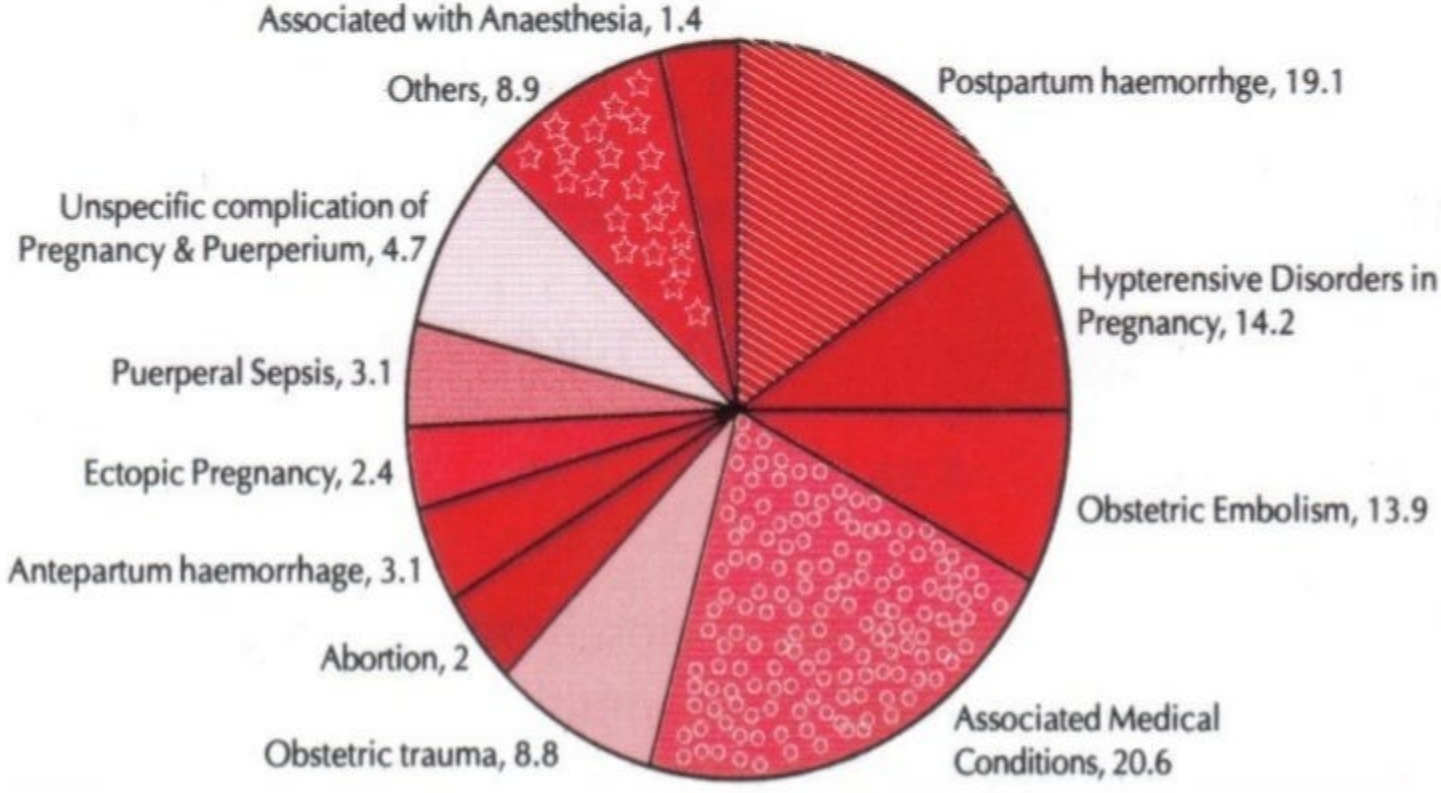
Profile of the high risk parturient

(2000-2002 Triennial report)



Causes of maternal deaths, Malaysia (1997-2000)

Figure 1.3 : Percentage of maternal deaths by causes, 1997-2000





Tip of the ice-berg = **MORTALITY**

Bottom of the ice-berg = **NEAR-MISS MORBIDITY**

The UK Obstetric Surveillance System (UKOSS)

Surveillance of specific near-miss maternal morbidities and other rare disorders of pregnancy has been conducted through the UKOSS since 2005.[1] UKOSS is an active, negative surveillance system. Cases are actively sought through a routine monthly mailing to nominated reporting obstetricians, midwives, risk management midwives and anaesthetists in all consultant-led maternity units in the UK. All consultant-led units participate in UKOSS reporting. Clinicians are asked to complete the monthly report card indicating whether there has been a woman with one of the conditions under study delivered in the unit during the previous month. They are also asked to complete a 'nil report' indicating if there have not been any cases; this allows participation to be monitored and confirms the denominator population for calculation of disease incidence.

Influence of Patient Comorbidities on the Risk of Near-miss Maternal Morbidity or Mortality

Jill M. Mhyre, M.D.,* Brian T. Bateman, M.D.,† Lisa R. Leffert, M.D.†

Table 3. Rates and Adjusted Odds Ratios for Near-miss Morbidity/Mortality by Maternal Characteristics and Comorbidities

	Rate of Near-miss Morbidity/Mortality per 1,000 Deliveries†	95% CI	Adjusted Odds Ratio‡	95% CI	*P* Value
Age	—	—	—	—	—
<20 (3)	1.3	1.1–1.2	1.07	0.95–1.21	0.255
20–34	1.1	1.2–1.4	Ref	—	—
≥40(4)	3.3	2.9–3.7	2.08	1.81–2.40	<0.001
Race	—	—	—	—	—
Black	2.9	2.7–3.1	2.40	2.17–2.66	<0.001
Hispanic	1.1	1.1–1.2	1.25	1.12–1.39	<0.001
Asian or Pacific Islander	1.4	1.1–1.6	1.37	1.13–1.67	0.002
Native American	2.2	1.4–2.9	1.76	1.12–2.76	0.014
Other	1.3	1.1–1.5	1.34	1.10–1.64	0.004
Missing	1.2	1.1–1.3	1.19	1.09–1.31	<0.001
Conditions	—	—	—	—	—
Pulmonary hypertension	98.0	70.8–125.2	12.00	7.61–18.91	<0.001
Sickle cell disease	15.5	11.7–19.2	6.95	5.08–9.52	<0.001
Hypertensive disorders of pregnancy	6.6	6.3–7.0	6.58	6.10–7.09	<0.001
Chronic renal disease	19.3	15.9–22.6	6.56	5.14–8.36	<0.001
Preexisting hypertension	9.0	8.2–9.8	5.87	5.20–6.64	<0.001
Chronic ischemic heart disease	*	*	5.48	2.48–12.08	<0.001
Congenital heart disease	12.3	8.1–16.5	5.45	3.42–8.70	<0.001
Systemic lupus erythematosus	21.1	15.9–26.2	5.39	3.86–7.54	<0.001
Hypercoagulable state	9.5	6.7–12.3	5.37	3.74–7.72	<0.001
Human immunodeficiency virus	15	6.6–23.4	4.89	2.16–11.10	<0.001
Multiple gestation	7.3	6.6–8.0	4.01	3.56–4.53	<0.001
Drug abuse	4.2	3.6–4.8	3.26	2.70–3.94	<0.001
Valvular disease	6.0	5.0–7.0	2.99	2.40–3.73	<0.001
Asthma	2.6	2.2–3.0	1.58	1.33–1.87	<0.001
Diabetes mellitus	2.5	2.3–2.7	1.18	1.05–1.33	0.005
Obesity	2.6	2.1–3.1	—	—	NS
Previous cesarean delivery	1.4	1.3–1.6	—	—	NS
Tobacco abuse	1.1	0.9–1.2	0.70	0.56–0.87	0.001
Overall	1.3	1.3–1.4	—	—	—

ICNARC Case Mix Prog Database UK (1995-2003)

Table 3

Prevalence of obstetric conditions in any of the four ICNARC Coding Method fields in the CMPD

ICNARC Coding Method condition	*n*	% of all obstetric admissions	Ultimate hospital mortality (*n* [%])
Peripartum or postpartum haemorrhage	553	29.1	3 (0.6)
Pre-eclampsia	347	18.2	7 (2.0)
HELLP syndrome	239	12.6	6 (2.6)
Eclampsia	141	7.4	5 (3.5)
Ectopic pregnancy	104	5.5	1 (1.0)
Intrauterine death	95	5.0	6 (6.3)
Antepartum haemorrhage	71	3.7	5 (7.2)
Infected retained products of conception	26	1.4	1 (3.8)
Amniotic fluid embolus	22	1.2	2 (9.1)
Septic abortion	18	0.9	2 (11.1)
Amnionitis	7	0.4	1 (16.7)
Molar pregnancy	4	0.2	1 (25.0)
Any obstetric condition	1496	78.7[a]	37 (2.5)

Note that the columns do not sum to the values in the 'Any obstetric condition' row because some admissions had more than one obstetric condition recorded in the four fields. [a]The remaining 406 obstetric admissions (21.3%) were identified from a partial obstetric code (234) or by the text field search (172). CMPD, Case Mix Programme Database; HELLP, haemolysis, elevated liver enzymes and low platelets; ICNARC, Intensive Care National Audit and Research Centre.

Emerging risk population

- **Social disadvantage**: Women living in families where both partners were unemployed, many of whom had features of social exclusion, were up to 20 times more likely to die than women from the more advantaged groups. In addition, single mothers were three times more likely to die than those in stable relationships.
- **Poor communities**: Women living in the most deprived areas of England had a 45% higher death rate compared with women living in the most affluent areas.
- **Minority ethnic groups**: Women from ethnic groups other than White were, on average, three times more likely to die than White women. Black African women, including asylum seekers and newly arrived refugees had a mortality rate seven times higher than White women and had major problems in accessing maternal health care.
- **Late booking or poor attendance**: 20% (50) of the women who died from

- **Obesity**: 35% (78) of the all women who died were obese: 50% more than in the general population.

- **Domestic violence**: 14% (51) of all the women who died self-declared that they were subject to violence in the home.
- **Substance abuse**: 8% (31) of all the women who died were substance misusers.
- **Suboptimal clinical care**: 67% of the 261 women who died from *Direct* and *Indirect* causes were considered to have some form of suboptimal clinical care
- **Lack of inter-professional and/or inter-agency communications**: In many cases, the care provided to the women who died was hampered by a lack of cross-disciplinary working. There were a number of cases in which crucial clinical information, which may have affected the outcome, was not passed from the general practitioner to the midwifery or obstetric services at booking or shared between consultants in other specialties, including staff in accident and emergency departments and the obstetric team. There were also cases where significant information, particularly regarding a risk of self-harm and child safety, were not shared between the health and social services.



"... in the beginning of the malady, it is easy to cure
but difficult to detect, but in the course of time, not
having been either detected or treated... it becomes
easy to detect but difficult to cure."

Niccolo Maichiavelli, The Prince

Why mothers die?

(1997-1999)

- failure to **recognize** the existence of the disease
- failure to recognize the degree of de-compensation
- failure to solicit the expertise of the team
- failure on the part of the parturient to follow recommendations

Teaching points from the UK report

(2000-2002)

- failure of some obstetric and midwifery staff to recognise and act on medical conditions outside their immediate experience
- failure of accident and emergency staff to recognise the severity of the illness in sick pregnant women and to ask for obstetric or midwifery assessment
- lack of active follow-up of women who were known not to attend for antenatal care, particularly for those women with known high risk conditions
- failure of GPs and other medical specialists to pass on relevant past or current medical information in referral letters or by telephone to the booking clinics or to maternity health care staff during pregnancy

Convergence of symptoms for cardiac ds parturients

- fatigue
- shortness of breath
- orthopnoea
- peripheral oedema
- palpitations

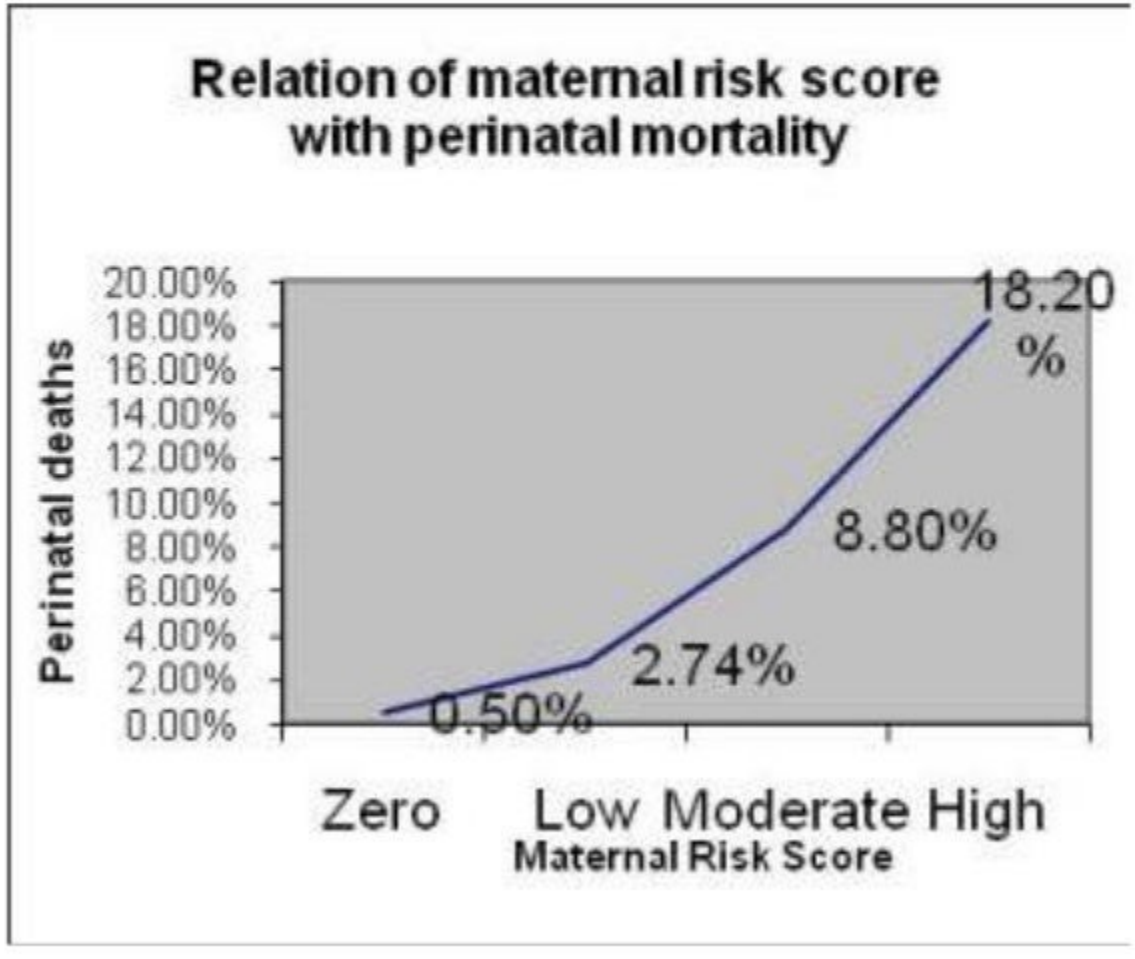
PREGNANCY RISK ASSESSMENT [1]

OB History Risk Factor	Points
Previous stillbirth	10
Previous neonatal death	10
Previous premature infant	10
Post-term > 42 weeks	10
Fetal blood transfusion for hemolytic disease	10
Repeated miscarriages	5
Previous infant > 10 pounds	5
Six or more completed pregnancies	5
History of eclampsia	5
Previous cesarean section	5
History of preeclampsia	1
History of fetus with anomalies	1
Medical History Risk Factor	**Points**
Abnormal PAP test	10
Chronic hypertension	10
Heart disease NYHA Class II-IV (symptomatic)	10
Insulin dependent diabetes (≥ A2)	10
Moderate to severe renal disease	10
Previous endocrine ablation	10
Sickle cell disease	10
Epilepsy	5
Heart disease NYHA Class I (no symptoms)	5
History of TB or PPD >= 10 mm	5
Positive serology (for syphilis)	5
Pulmonary disease	5
Thyroid disease	5
Family History	**Points**
Family history of diabetes	1
Physical Risk Factor Risk Factor	**Points**
Incompetent cervix	10
Uterine malformations	10
Maternal age 35 and over or 15 and under	5
Maternal weight < 100 pounds or > 200 pounds	5
Small pelvis	5
Current Pregnancy Risk Factor	**Points**
Abnormal fetal position	10
Moderate to severe preeclampsia	10
Multiple pregnancy	10
Placenta abruptio	10
Placenta previa	10
Polyhydramnios or oligohydramnios	10
Excessive use of drugs/alcohol	5
Gestational diabetes (A1)	5
Kidney infection	5
Mild preeclampsia	5
Rh sensitization only	5
Severe anemia < 9 g/dL hemoglobin	5

1. Hobel CJ, Hyvarinen MA et al. Prenatal and intrapartum high-risk screening. Am J Obstet Gynecol. 1973; 117: 1-9. PMID: 4722373

Scoring system and correlation with maternal/ fetal outcome

Samiya M, Samina M. Indian Journal for the Practising Doctor 2008; 5(1)



Risk stratification

(Clark SL,1997)

- **Group 1 (Mortality < 1%)**
  - atrial septal defect
  - ventricular septal defect
  - patent ductus arteriosus
  - pulmonic /tricuspid disease
  - corrected tetralogy of Fallot
  - bioprosthetic valve
  - mitral stenosis, NYHA class 1 and 2

Risk stratification

(Clark SL,1997)

- **Group 2 (Mortality 5 - 15 %)**
  - mitral stenosis with atrial fibrillation
  - artificial valve
  - mitral stenosis, NYHA class 3 and 4
  - aortic stenosis
  - coarctation of aorta, uncomplicated
  - uncorrected tetralogy of Fallot
  - previous myocardial infarction
  - marfan syndrome with normal aorta

Risk stratification

(Clark SL,1997)

- **Group 3 (Mortality 25 - 50%)**
  - pulmonary hypertension
  - coarctation of aorta, complicated
  - marfan syndrome with aortic involvement

Matching of care

- **Ideal** situation

  enough competent care providers to meet level of care required by all.

- **Matching of care**

  provision of **appropriate** level of care for these select group of high risk patients to meet their **needs**

Why mothers die?

(Chapter 10-Cardiac disease 1994-1996)

Cardiac disease:key recommendations

Endocarditis is common in pregnancy and accounts for 10% of cardiac deaths

Pulmonary hypertension is very dangerous and requires careful management

Clinicians should think of dissection of the aorta in a woman complaining of severe chest pain

Chest X-ray is safe in pregnancy and is a simple screening test for dissection of the aorta. It should always be performed in unwell pregnant women with chest pain.

Echocardiography is the investigation of choice for dissection around the heart.

Patients with severe heart disease or those taking anticoagulants require management in SPECIALIST CENTRES. They must not be alienated from centres by the manner in which advice not to get pregnant is given.

Appropriate systems

- **Team** work
- Appropriate planning and timing of deliveries
- **Protocols and drills** to improve emergency care
- **Audit** to improve systems

Back to basics

M Oates[1], A Harper[2], J Shakespeare[3], C Nelson-Piercy[4]

[1] East Midlands Perintal Mental Health Clinical Network, Nottinghamshire Healthcare NHS Trust, Nottingham, UK; [2] Royal Jubilee Maternity Services, Royal Maternity Hospital, Belfast, UK; [3] Summertown Health Centre, Oxford, UK; [4] Guy's & St Thomas' Foundation Trust and Imperial College Healthcare Trust, Women's Health Directorate, London, UK

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Keywords recommendations, Confidential Enquiry, maternal, mortality.

3.2. Good communication among professionals is essential. This must be recognised by all members of the team looking after a pregnant woman, whether she is "low risk" or "high risk". Her GP must be told that she is pregnant. If information is required from another member of the team, it is not enough to send a routine request and hope for a reply. The recipient must respond promptly, and if not, the sender must follow it up. With a wide variety of communication methods now available, including e-mail, texting and fax, teams should be reminded that the telephone is not an obsolete instrument.

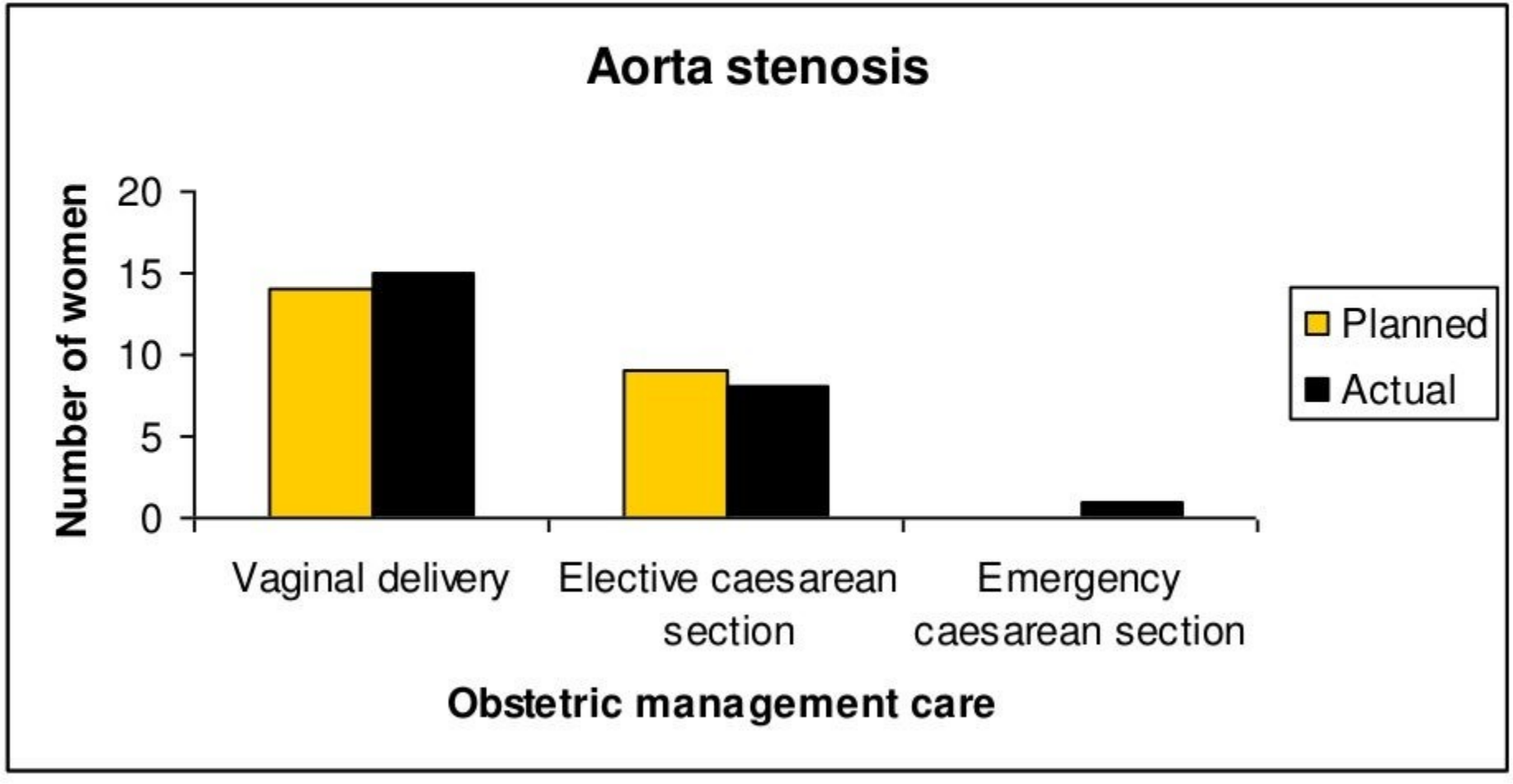
CODING is flagging

Table 1.19: Maternal deaths by colour coding, 1997-2000

Colour coding	1997		1998		1999		2000	
	n	%	*n*	%	*n*	%	*n*	%
Red	22	13.9	23	12.6	19	11.3	17	11.6
Yellow	60	38.0	75	41.2	70	41.6	56	38.4
Green	17	10.8	18	9.9	29	17.3	22	15.1
White	6	3.8	1	0.6	4	2.4	4	2.7
No information	53	33.5	65	35.7	46	27.4	47	32.2
Total	**158**	**100.0**	**182**	**100.0**	**168**	**100.0**	**146**	**100.0**

Obstetric Management Plan

IJOA 2003;12:28-34



Relative risk of death by timing and mode of delivery, UK (2000-2002)

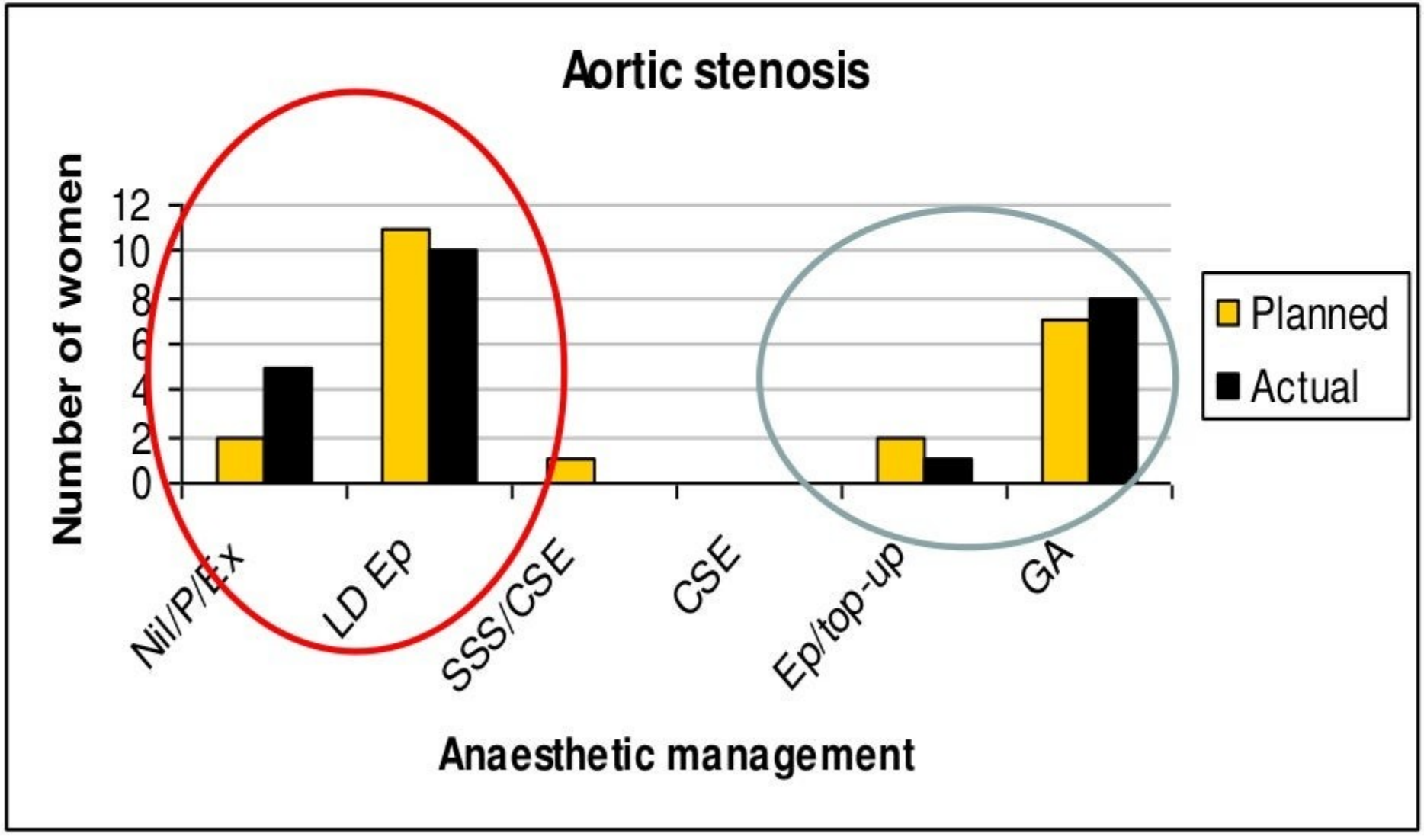
Table 1.11 Estimated case fatality rates per 100,000 maternities over 24 weeks of gestation and relative risk by type of delivery for *Direct* and *Indirect* deaths; United Kingdom 2000–02

Type of delivery	Total number (000s)	Delivered *Direct* and *Indirect* deaths (*n*)	Death rate per 100,000 maternities	95% CI for death rate	Relative risk (RR)	95% CI for RR
Vaginal	1571	75	48	3.8–6.0	1.0	–
All Caesarean section	426	73	172	13.4–21.6	3.7	2.6–5.0
Emergency and urgent	212	44	208	15.1–27.9	4.3	3.0–6.3
Scheduled and elective	214	29	136	9.1–19.5	2.8	1.9–4.4

Source: Derived from the Department of Health Hospital Episode Statistics data for 2000–02

Analgesia & Anesthesia Plans

IJOA 2003;12:28-34



Individualized Analgesia & Anesthesia Plans

- Tailored according to **delivery needs**
- Tailored according to **patient's needs**

  eg if **CARDIAC** patients, need to maintain cardiovascular stability

  - Maintain adequate Preload
  - Preservation of Sinus Rhythm
  - Protection against Tachycardia
  - Protection against extreme Bradycardia
  - Avoidance of Systemic Hypotension
  - Avoidance of Myocardial Depression

Titratable Regional Anaesthesia may be safely used in the high risk cardiac parturient…

Disease	Neuroaxial technique (No. of reported cases)		Comments
	Labour/vaginal	Caesarean section	
Pulmonary hypertension	ED (4)	CSE (5)	36% postoperative mortality independent of the anesthetictechnique
		CSA (2)	
Eisenmenger's syndrome		CSA (2)	Light hypotension
		ED (1)	
Mitral stenosis		CSE (2)	Hypotension after high dose 2% lidocaine
Aortic regurgitation		ED (1)	Presenting with heart failure
Aortic stenosis	CSA (1)	ED (2)	Light hypotension in some patients
	ED (1)	CSA (1)	
		CSE (1)	
Aortic coarctation	ED (4)		
Pulmonary stenosis		ED (2)	Hypotension after high ED lidocaine dose
Marfan syndrome	ED (3)	SSSA (1)	ED in Caesarean section in Marfan Syndrome with aortic dissection
		ED (1)	
		CSE (1)	
Peripartum cardiomyopathy		CSA (3)	Minimal cardivascular changes
		CSE (3)	
Hypertrophic obstructive cardiomyopathy	ED (39)	CSE (2)	Minimal hypotension in one patient
	CSA (1)		
Heart transplant		ED (3)	
Infrequent cardiopathies[a]	ED (5)	SSSA (1)	
		ED (2)	
		CSE (1)	

References available from authors on request. Data represent numbers of patients. If not stated, neither intra nor postpartum problems were observed.
ED, epidural anaesthesia; CSE, combined spinal epidural anaesthesia; CSA, continuous spinal anaesthesia; SSSA, single shot spinal anaesthesia.
[a]Cor triatriatum (3), transposition of the great arteries, corrected transposition of great arteries (2), double-outlet right ventricle, single ventricle.

The emergency high risk parturient

- Includes the group that may present innocuously as a normal delivery
- Recognition, flagging and provision of care tend to fall on **junior care-providers** who have limited experience to provide competent care…
- **ONUS** is on the health system to ensure a **HIGH LEVEL of CARE for ALL** regardless of urgency

Improving level of care (policies)…

Box 1.3. RCOG guidelines: emergency situations when a consultant should attend in person, whatever the level of the trainee[8]

Eclampsia
Maternal collapse (such as massive abruption, septic shock)
Caesarean section for major placenta praevia
Postpartum haemorrhage of more than 1.5 l where the haemorrhage is continuing and a massive obstetric haemorrhage protocol has been instigated
Return to theatre—laparotomy
When requested

Recommendation 3: Communications and referrals

3.1. Referrals to specialist services in pregnancy should be prioritised as urgent. In some specialties, routine referrals can take weeks or months, or even be rejected because of local commissioning rules. This is unacceptable for pregnant women. The referral must clearly state that the woman is pregnant, and its progress must be followed up. Trainee doctors and midwives should have a low threshold for referral "upwards" and must receive an immediate response. Referral between specialties should be at a senior level. When rapid referral is required, the senior doctor should use the telephone.

Workload: learning point

A clear contingency plan to provide additional skilled assistance should be in place if maternity staff are already fully committed at times of peak activity, if a woman with an acute, severe illness requires high-dependency care.

Improve competency of providers

CHAPTER 9
Anaesthesia
GRISELDA M COOPER and JOHN H McCLURE on behalf of the Editorial Board

Anaesthesia: key recommendations
Service provision
Dedicated obstetric anaesthesia services should be available in all consultant obstetric units. These services should be capable of taking responsibility for epidural analgesia, anaesthesia, recovery from anaesthesia and management of mothers requiring high dependency care.
Isolated consultant obstetric units present major difficulties in terms of immediate availability of additional skilled anaesthetic backup and assistance from other specialties, including critical care. When presented with problem cases requiring special skills or investigations, obstetric anaesthetists should not hesitate to call on the assistance of anaesthetic colleagues in other subspecialties, as well as colleagues in other disciplines.
Anaesthesia training must ensure competence in airway management, especially the recognition and management of oesophageal intubation.
Obese pregnant women (body mass index, BMI, greater than 35) are at greater risk from anaesthesia and should be referred to the anaesthetist early.
Adequate advance notice of high-risk cases must be given to the obstetric anaesthetic service. The notice must be sufficient to allow consultation with the woman, specialist advice, investigation and assembly of resources needed for the safe management of high-risk women.
Women who are needle phobic are at greater risk from anaesthesia and an anaesthetic consultation in the antenatal period should be arranged to establish a management plan.
Supportive counselling of anaesthetic personnel involved in a maternal death is essential. It should be remembered that such an event represents a tragedy not only for the mother?s family but also for the anaesthetist involved, who commonly assumes full responsibility for the death.

Timely advance notice of high risk cases

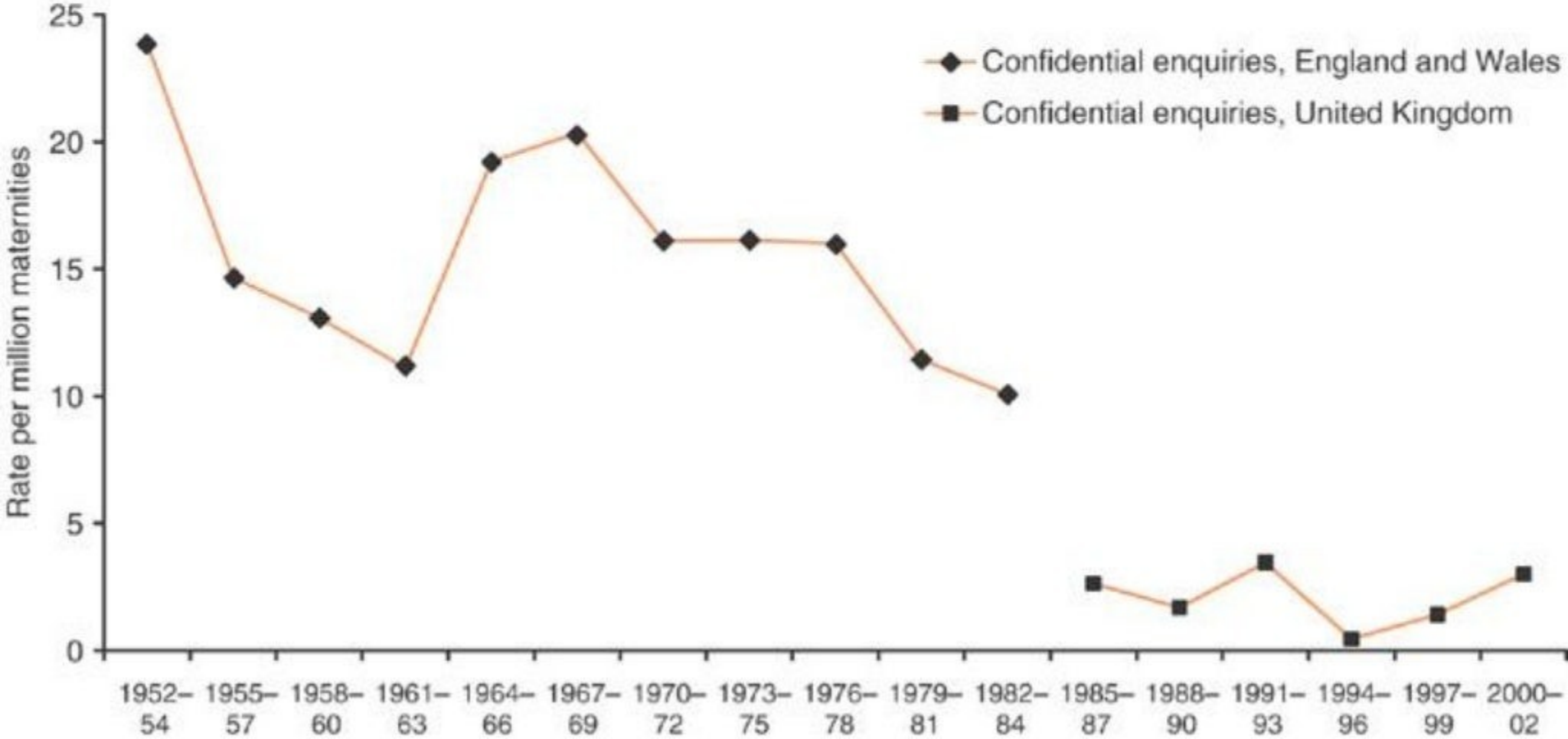
CHAPTER 9
Anaesthesia
GRISELDA M COOPER and JOHN H McCLURE on behalf of the Editorial Board

Anaesthesia: key recommendations
Service provision
Dedicated obstetric anaesthesia services should be available in all consultant obstetric units. These services should be capable of taking responsibility for epidural analgesia, anaesthesia, recovery from anaesthesia and management of mothers requiring high dependency care.
Isolated consultant obstetric units present major difficulties in terms of immediate availability of additional skilled anaesthetic backup and assistance from other specialties, including critical care. When presented with problem cases requiring special skills or investigations, obstetric anaesthetists should not hesitate to call on the assistance of anaesthetic colleagues in other subspecialties, as well as colleagues in other disciplines.
Anaesthesia training must ensure competence in airway management, especially the recognition and management of oesophageal intubation.
Obese pregnant women (body mass index, BMI, greater than 35) are at greater risk from anaesthesia and should be referred to the anaesthetist early.
Adequate advance notice of high-risk cases must be given to the obstetric anaesthetic service. The notice must be sufficient to allow consultation with the woman, specialist advice, investigation and assembly of resources needed for the safe management of high risk women.
Women who are needle phobic are at greater risk from anaesthesia and an anaesthetic consultation in the antenatal period should be arranged to establish a management plan.
Supportive counselling of anaesthetic personnel involved in a maternal death is essential. It should be remembered that such an event represents a tragedy not only for the mother?s family but also for the anaesthetist involved, who commonly assumes full responsibility for the death.

Appropriate audits/database…

- Definitely improve systems.
- Pooled data would be even better.
- UK registry of high risk obstetrics, ICNARC of obstetric admissions
- Regional registry of high risk obstetrics?

Risk of maternal mortality through the years, UK



High Risk Obstetrics Clinics



Programs and Services

- A Typical High-Risk Obstetrics Clinic Visit
- Meet Our Patients
- Patients We Treat
- Preconception Counseling
- Your First High-Risk Obstetrics Clinic Visit
- Your High-Risk Obstetrician
- Your High-Risk Obstetrics Delivery

A Typical High-Risk Obstetrics Clinic Visit

Women who are High-Risk Obstetrics patients visit our clinic on a regular basis. These visits allow your high-risk obstetrician to monitor the health of both you and your baby.

Your partner is always welcome to come to your clinic visits.

Your first High-Risk Obstetrics Clinic visit is slightly different than your regular visits, described below.

Contact Us
Phone: (650) 498-4069, option 5
Fax: (650) 498-2583
Monday-Friday, 8 am-5 pm

What to Bring

Please bring the following items to all of your clinic visits:

- List of medications you are taking
- Questions for your physician

Modified Early Obstetric Warning system

Anaesthesia
Journal of the Association of Anaesthetists of Great Britain and Ireland

A validation study of the CEMACH recommended modified early obstetric warning system (MEOWS)

FREE

S. Singh, A. McGlennan, A. England, R. Simons

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Issue



Anaesthesia
Volume 67, Issue 4, page 453, April 2012

Safe handover in obstetrics

_**Sick patients**: including those with sepsis, preeclampsia, severe systemic disease and those requiring high dependency care.

_ **At risk**: of emergency caesarean section, haemorrhage or anaesthetic problems such as placental disease, fetal problems, twins, obesity, clotting derangements and difficult airways.

_ **Follow-ups**: including post dural puncture headaches, massive obstetric haemorrhage or patients with neurological deficit after regional anaesthesia.

_**Epidurals**: who has them and any problematic ones which need reviewing or re-siting.

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Call for action…

BMJ

BMJ 2011;343:d4993 doi: 10.1136/bmj.d4993

EDITORIALS

Maternal mortality in the UK and the need for obstetric physicians

Most deaths are now caused by preventable or treatable medical conditions

Catherine Nelson-Piercy *professor of obstetric medicine and consultant obstetric physician*[1], Lucy Mackillop *consultant obstetric physician*[2], David J Williams *consultant obstetric physician*[3], Catherine Williamson *professor of obstetric medicine*[4], Michael de Swiet *emeritus professor of obstetric medicine*[4], Christopher Redman *professor of obstetric medicine*[2]

CARE for the high risk parturient

- **S**afe
- **T**imely
- **E**ffective
- **E**fficient
- **E**quitable
- **P**atient centred

(Across the Medical Chasm, IOM, US, 2001)

Summary

- failure of some obstetric and midwifery staff to recognise and act on medical conditions outside their immediate experience
- failure of accident and emergency staff to recognise the severity of the illness in sick pregnant women and to ask for obstetric or midwifery assessment
- lack of active follow-up of women who were known not to attend for antenatal care, particularly for those women with known high risk conditions
- failure of GPs and other medical specialists to pass on relevant past or current medical information in referral letters or by telephone to the booking clinics or to maternity health care staff during pregnancy

Thank you



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