



Developing and using evidence to make motherhood safer in Jamaica

Launch of the Caribbean Branch of the United States
Cochrane Center and Symposium:
Translating Research for Policy Impact & Practice:
An Evidence-Based Approach
June 6th & 7th 2013

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1981-83

- Confidential Enquiry into Maternal Deaths

1986-87

- Jamaica Perinatal Morbidity & Mortality Study

1992-95

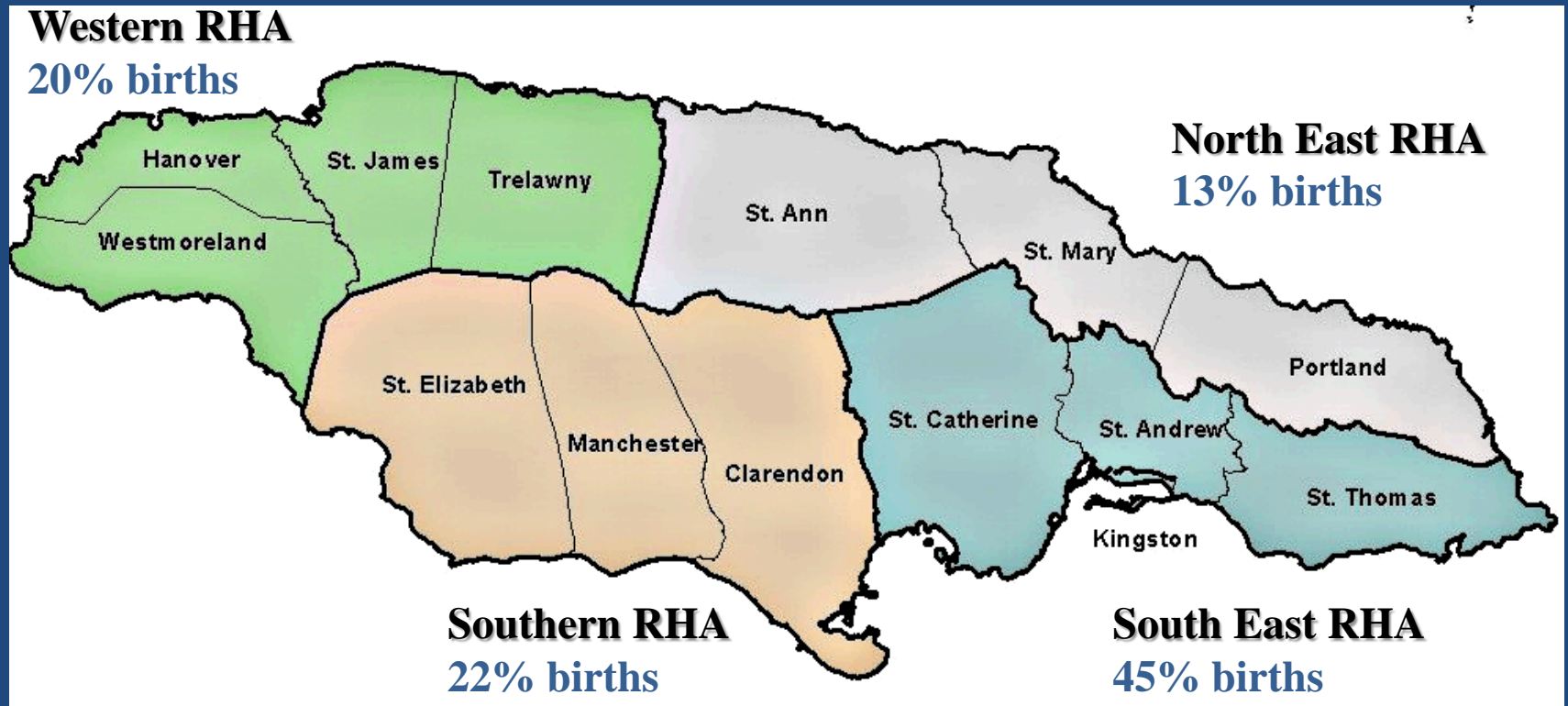
- Hypertension in Pregnancy Project

1998
onward

- Maternal Mortality Surveillance

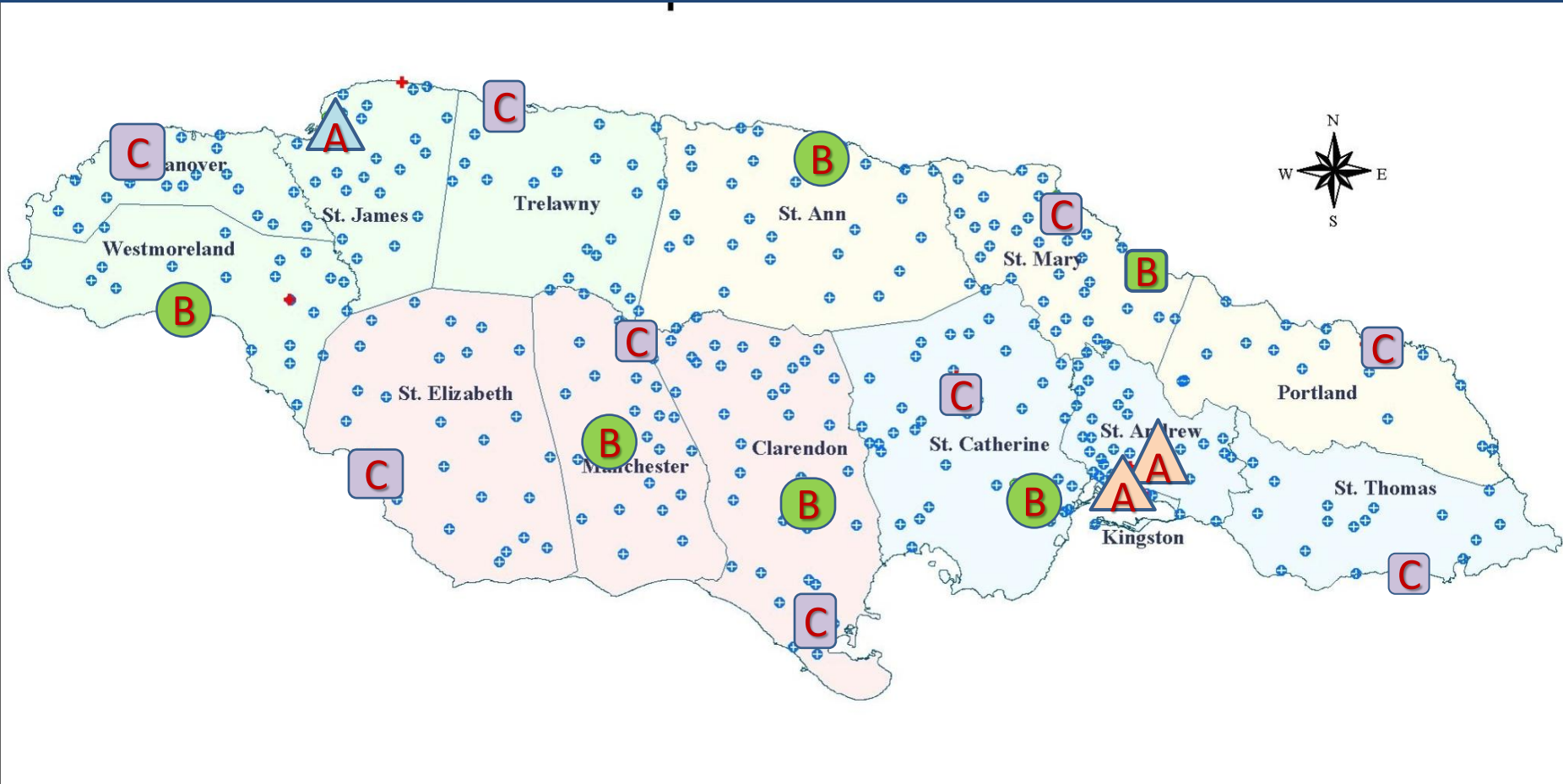


Jamaica: by health region





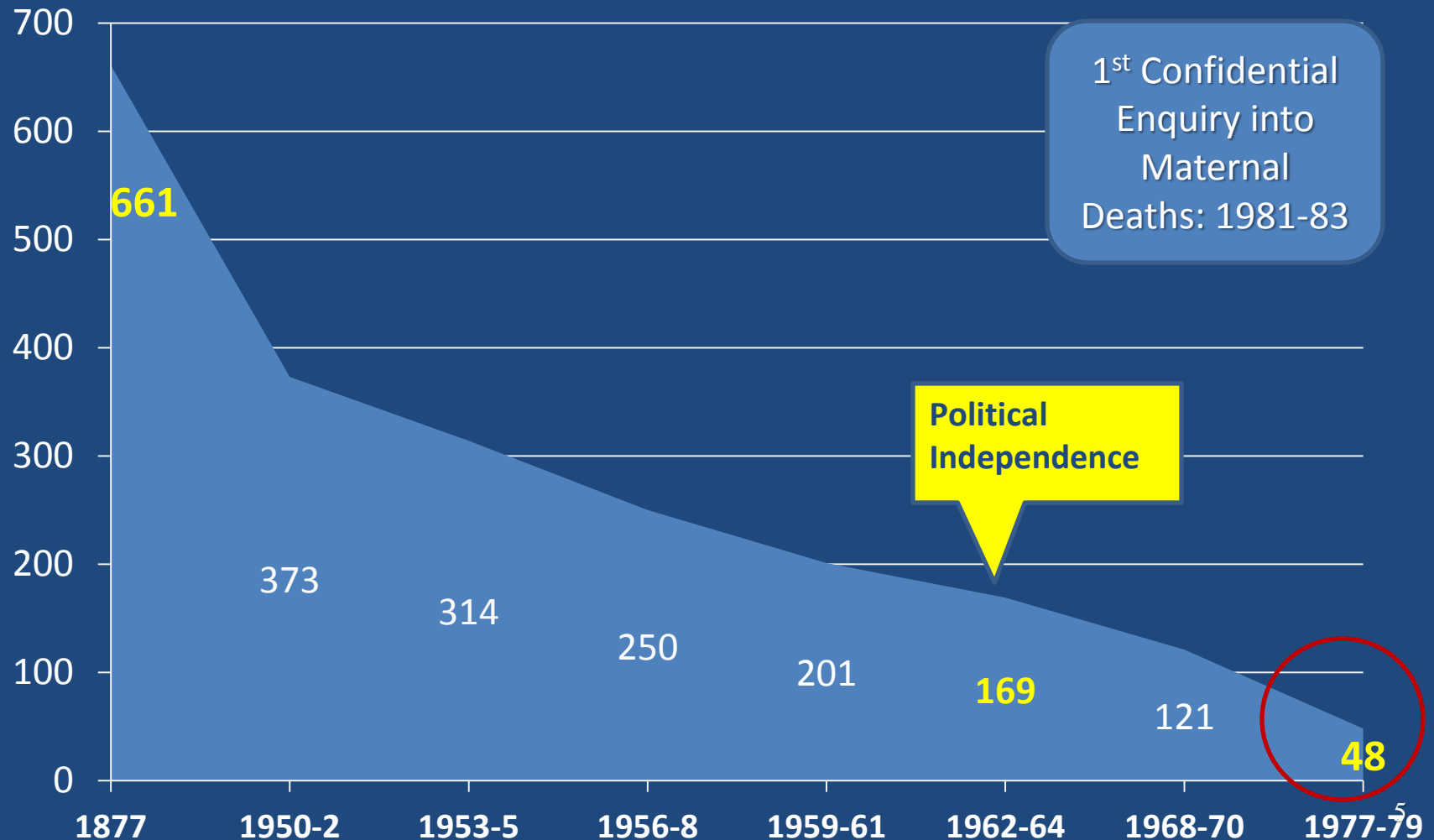
Jamaica: Health centres & Hospitals





Vital registration and maternal mortality : 1877 -1979

MM RATIO

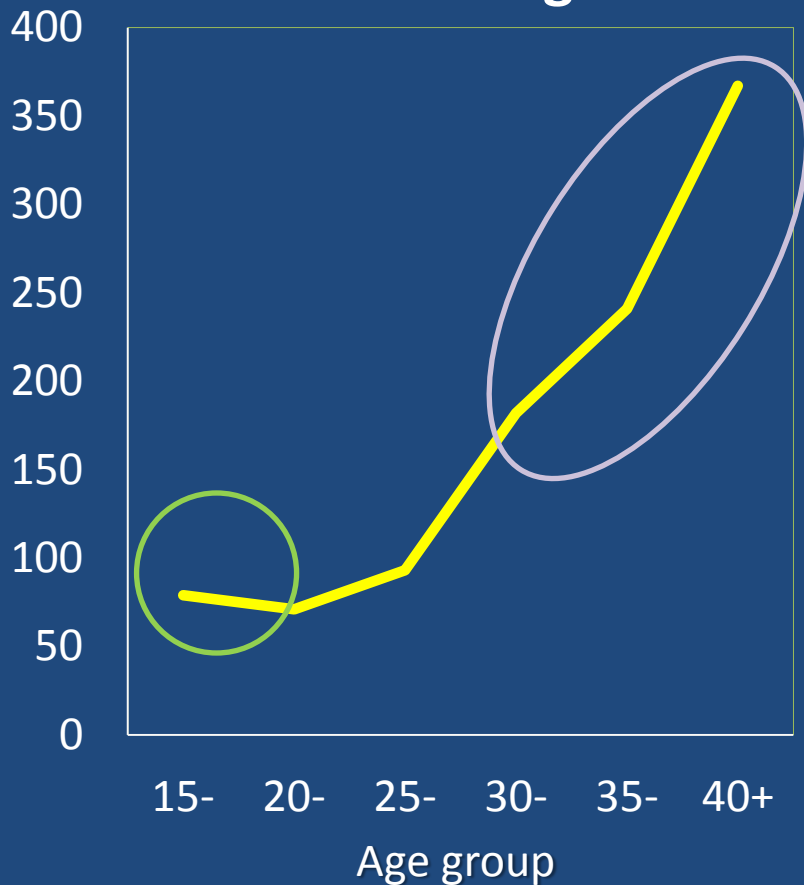




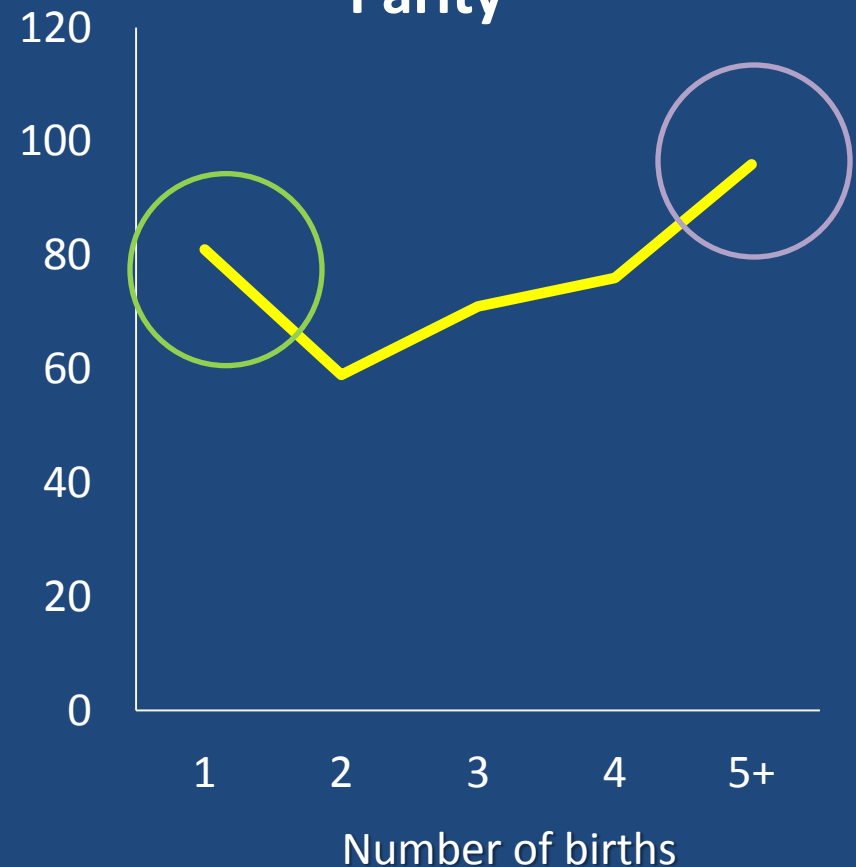
Confidential Enquiry into Maternal Deaths

Findings: Age, parity and maternal mortality: 1981-83

Maternal Age



Parity





Policy & Impact: 1981-83 Confidential Enquiry: Maternal Deaths

- **Policy:**
 - Teenagers, first time mothers
 - Women over 30 years, grand-multiparae
 - Must be referred to hospital for delivery
- **Impact:**
 - 1983-1990: hospital births increased from 70% - >95%
 - Stimulated interest in more comprehensive information on the management of pregnancy and its impact on neonatal outcome
- Walker GJ, Ashley DE, **McCaw AM**, Bernard GW. Maternal mortality in Jamaica. *Lancet* 1986 Mar 1; **1(8479)**: 486-8.



Jamaica Perinatal Morbidity and Mortality Study: 1986-87





Jamaica Perinatal Morbidity & Mortality Survey (JPMMS)

- IDRC funding: September 1986 – August 1987
 - All births: 2 months (cohort study)
 - All neonatal admissions: 6 months (morbidity study)
 - All deaths - perinatal & maternal: 12 months (mortality study)
 - Health service evaluation: hospital & community care
- **McCaw-Binns A**, Samms-Vaughan M, Ashley D. Impact of the Jamaican birth cohort study on maternal, child and adolescent health policy and practice. *Paediatr Perinat Epidemiol* 2010 Jan; **24 (1)**: 3–11.

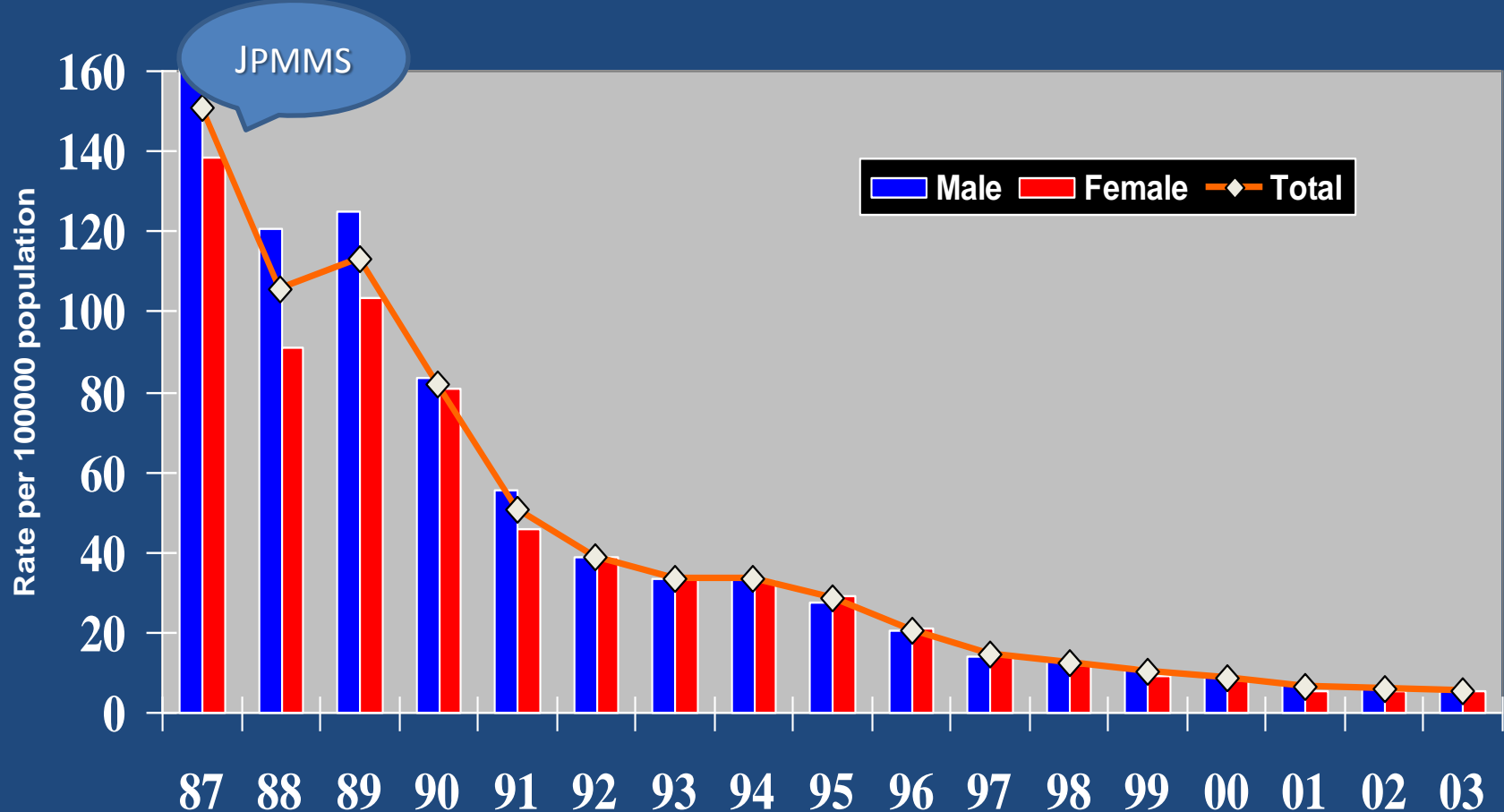


Findings - JPMMS: Antenatal care

- Community midwives:
 - 94% ordered VDRL test for syphilis
 - 25% waited over 2 months for VDRL results
 - Many infants born with congenital syphilis
- **Policy Response:**
 - Introduction of rapid tests to screen for syphilis
 - Immediate initiation of treatment for sero-positive women



Impact: Incidence of Primary & Secondary Syphilis in Jamaica, by sex: 1987-2003



Source: National HIV/STI Control Program, Jamaica

Ref: Figueroa et al. West Indian Med J 2008; 57(6):562-576



Findings - JPMMS: Delivery care

- 18% of observed deliveries unattended
 - Poor layout of labour wards
 - Inadequate staffing/overcrowding
- Overcrowding
 - Bed occupancy at Referral [Type B] hospitals (86-93%)
 - 39% of beds at 2 Type B hospitals shared
- **Policy response:**
 - Layout of labour/delivery wards re-designed
 - Bed complement at 3 of 4 Type B hospitals expanded (doubled in some instances)

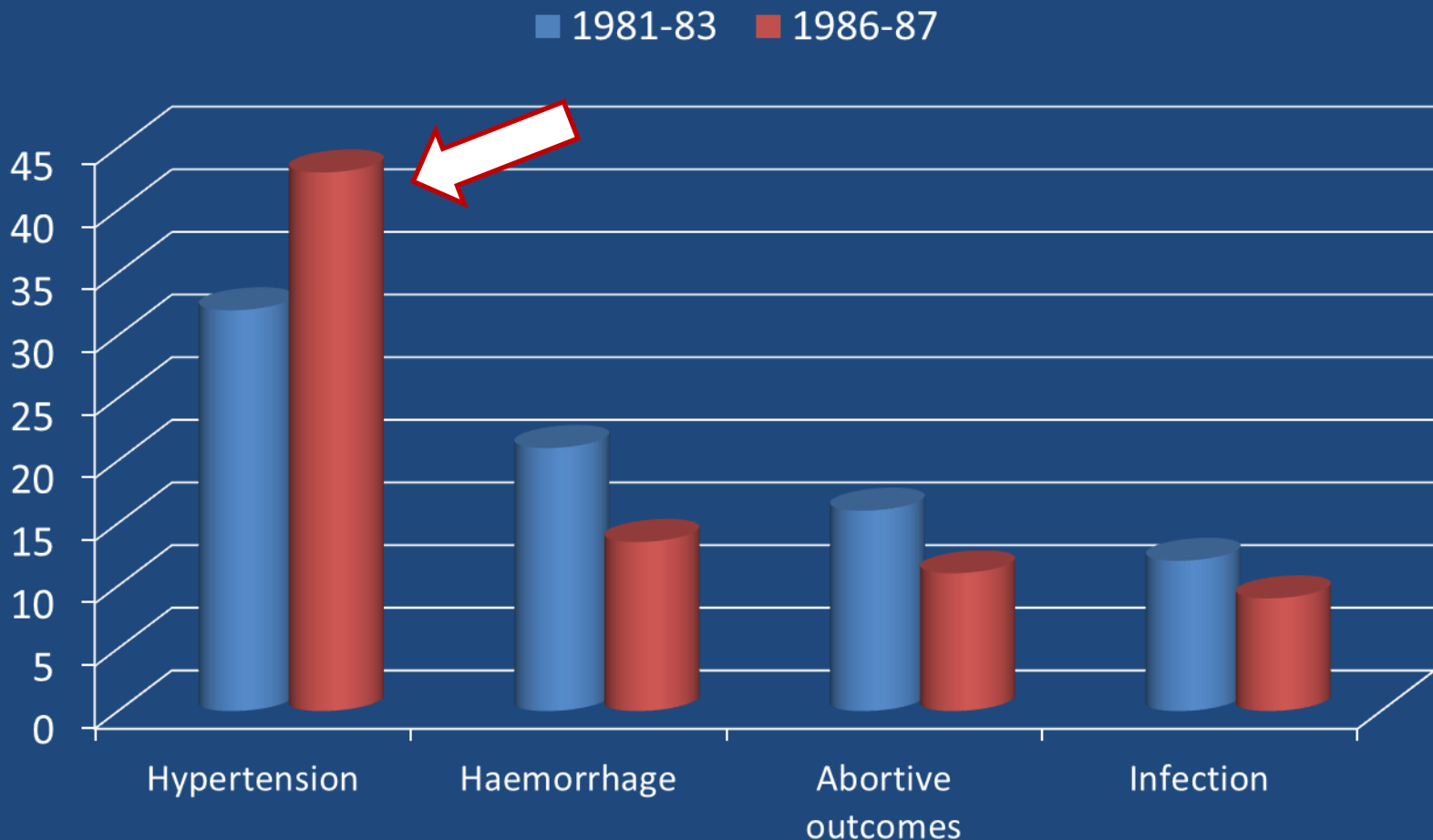


Findings - JPMMS: Vital Registration

- Vital registration
 - Only 9% NNDs, 12% fetal deaths registered
 - 94% live births registered by age 1
 - Outdated, paper based system
 - Registrar General's Department (RGD)
 - Poor state of repair
- **Policy Response:**
 - World Bank/GOJ Social Sector project
 - Rebuild/modernize the RGD
 - Correct deficiencies in birth and death registration
 - Improve service delivery



Finding: Direct maternal deaths, by cause: 1981-1987: ratio/100,000 live births

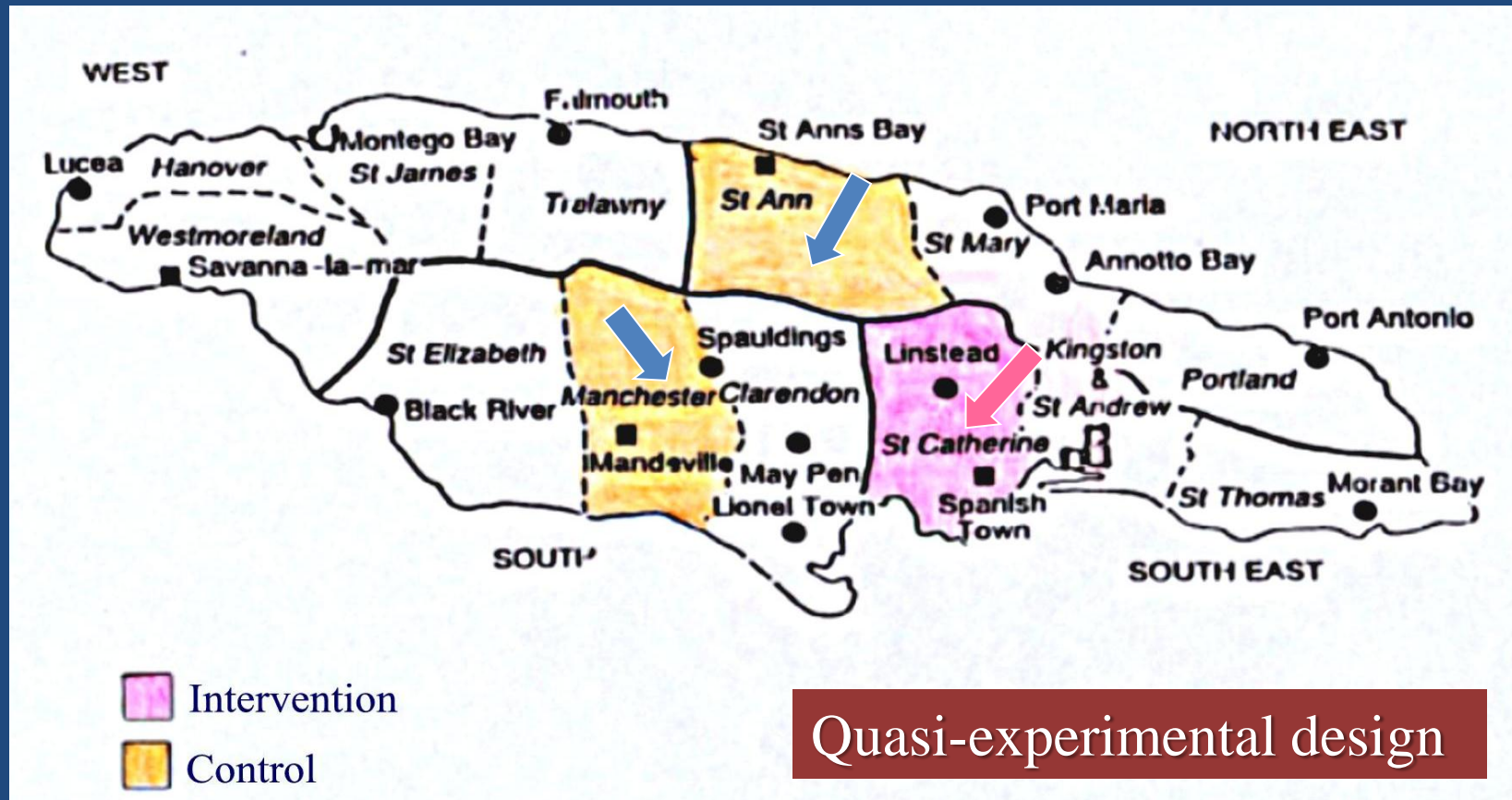




HYPERTENSION IN PREGNANCY PROJECT: 1992-95



Hypertension in Pregnancy Project: Intervention and Control Areas





Hypertension in pregnancy project

- Objectives
 - Test evidence based strategy to reduce morbidity
- Method
 - Develop model for high risk antenatal care
 - Clinical guidelines
 - Training
 - Weekly referral AN clinics
 - Monitoring adverse events



Prof. Ian MacGillivray



University of
BRISTOL



Maternal Education Card, Jamaica

PREGNANT! HAVING ANY OF THESE?



SEEING SPOTS,
SEEING DOUBLE,
UNABLE TO SEE



VOMITING IN LATE PREGNANCY



VAGINAL BLEEDING

ACT NOW!



HEADACHE
ABOVE THE EYES



SWOLLEN HANDS, FEET OR FACE



BELLY ACHE

CHECK WITH.....



Field visit to an eclamptic patient



- Porter issued appointments
 - Referred patients sent home without being seen
- All attendees triaged by RM
- Non-compliance
- Every referred patient given repeat visit following week to health centre
 - Home visit if didn't return
- Patients presenting to A&E with prodromal signs sent home (antacid; analgesia)
- Bypass A&E if 3rd trimester



Findings

Eclampsia: Cases per year and odds of occurrence in intervention area

Year	Intervention	Control	OR [95% CI]
1986-91	84	50	1.00 [reference]
1992	13	9	0.86 [0.34, 2.15]
1993	11	10	0.66 [0.26, 1.66]
1994	8	13	0.37 [0.14, 0.95]
1995	4	13	0.18 [0.06, 0.58]

P (trend) <0.001



Outcome

effect on admissions

Eclampsia	Before	After
No. admitted /year	13	4 *
No. bed days /year	108	20 *****
All hypertension related admissions		
No. admitted /year	252	150 *****
No. bed days /year	2255	1038 *****

*P<0.05; ***** P<0.0001

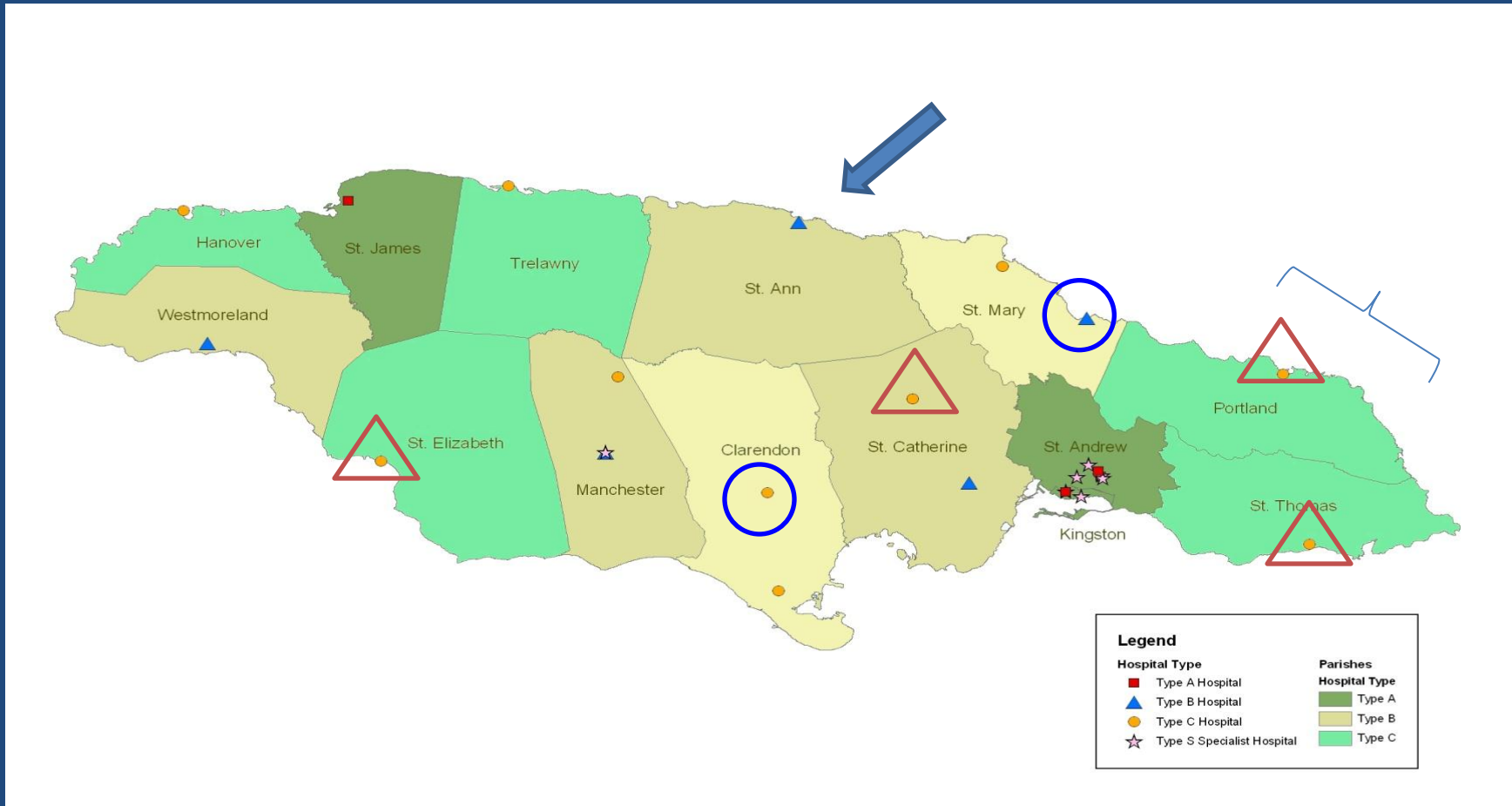


Impact

- Process rolled out into all the health regions
- High risk ANCs established at referral Type A & B hospitals
 - Re-referral of women with short-term acute problems to midwifery team
 - Reduce overcrowding & waiting times

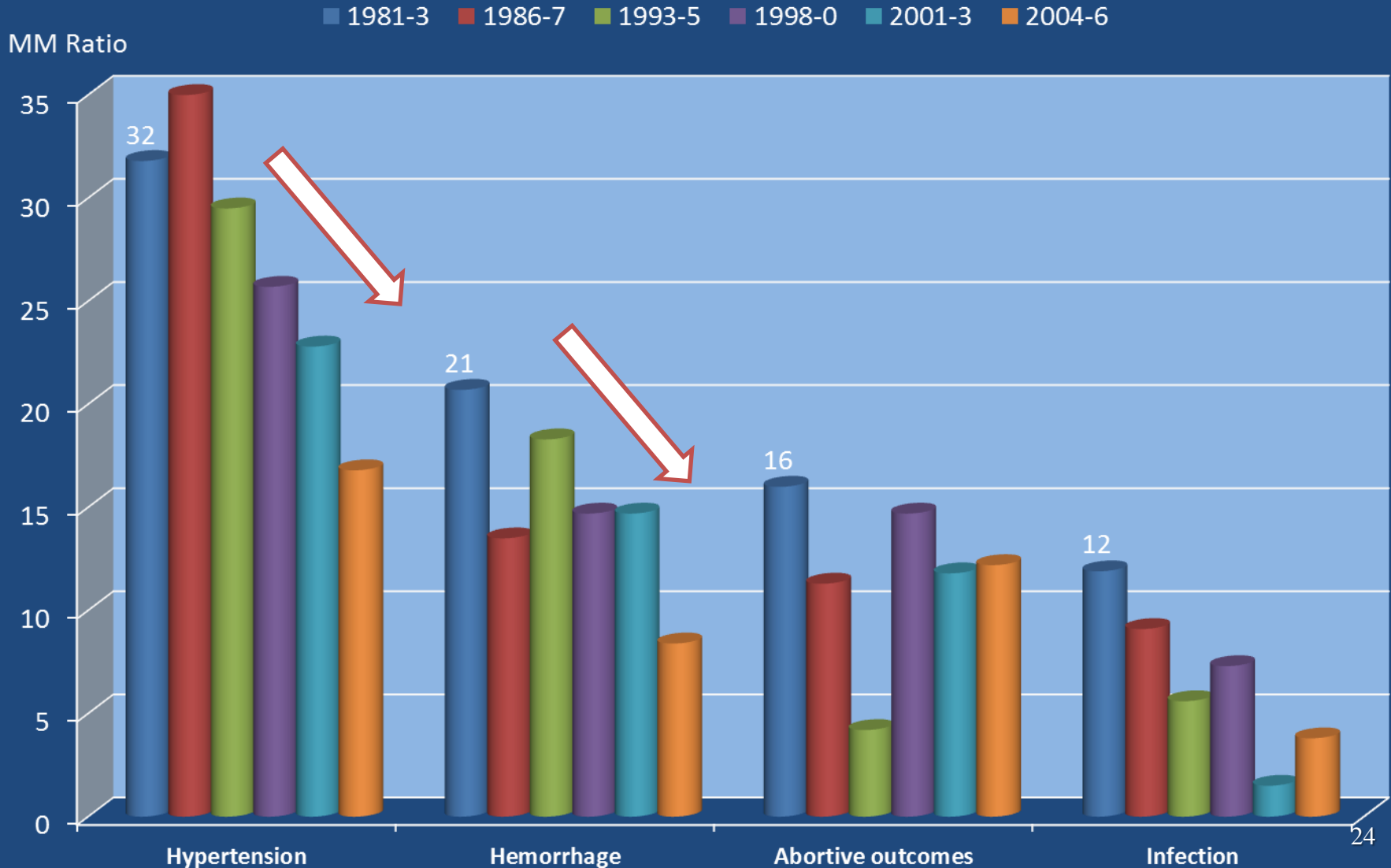


Jamaica, parishes by highest level hospital services





Impact: DIRECT causes of maternal death, Jamaica:1981-2006 (ratio /100,000 live births)

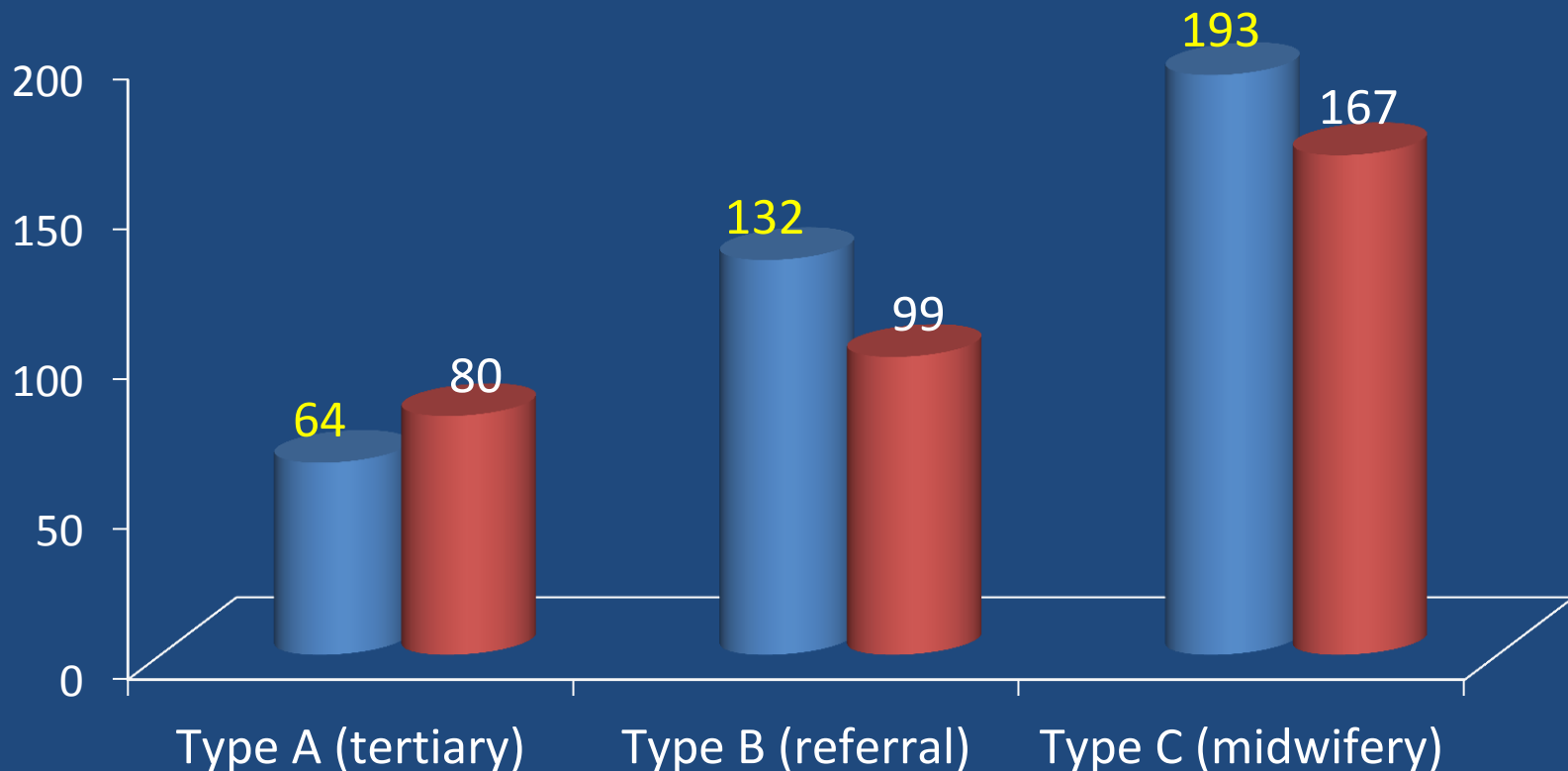




Finding: 1993-95 Maternal Mortality Study

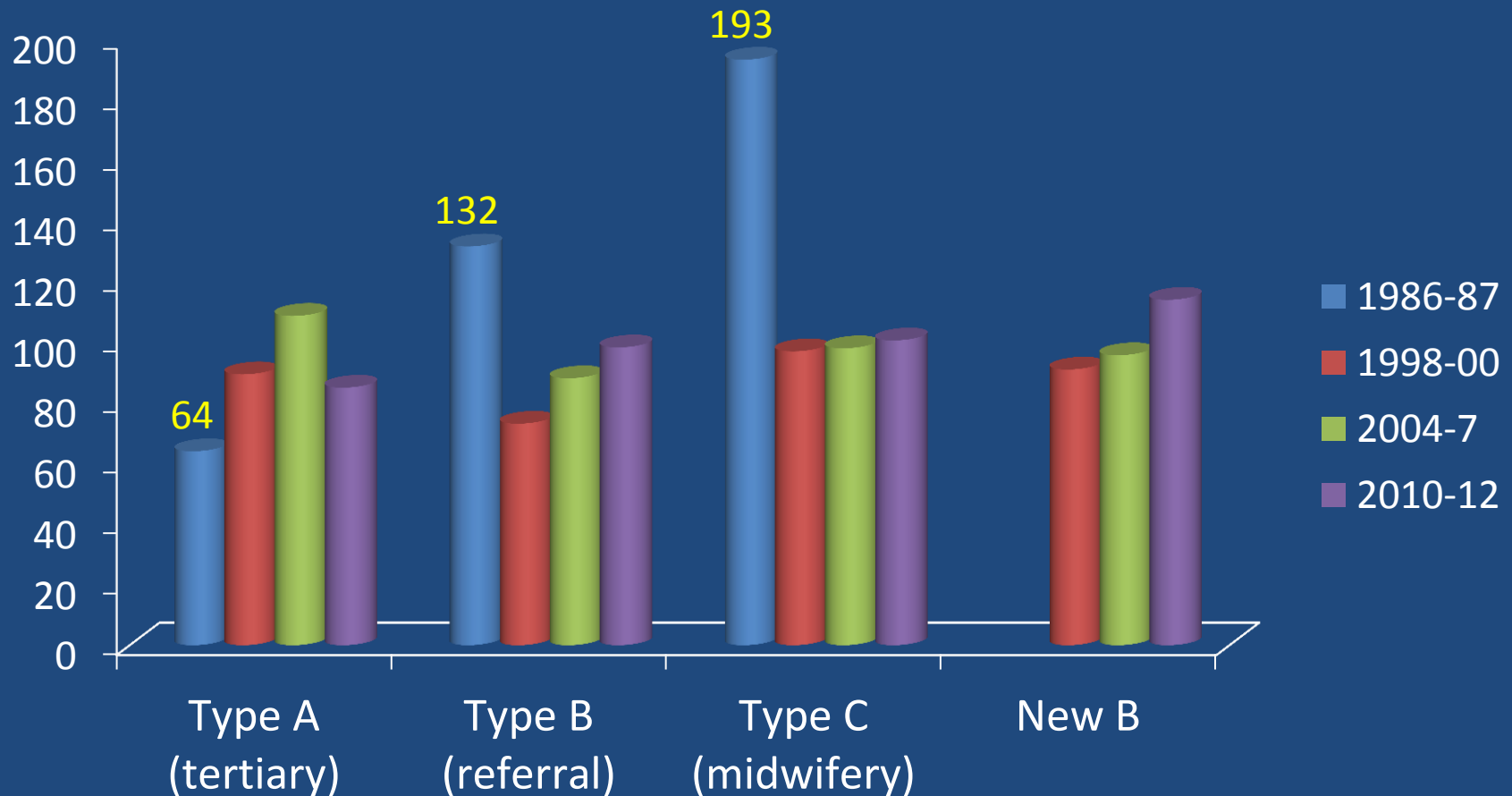
Maternal mortality, by access to care in parish of residence: 1986-1995

■ 1986-87 ■ 1993-95





Impact High-Risk ANC roll-out: Maternal mortality, by access to care in parish of residence: 1986-2012





MATERNAL MORTALITY SURVEILLANCE: 1998 - PRESENT

McCaw-Binns A, Lewis-Bell K. Small victories, new challenges: two decades of maternal mortality surveillance in Jamaica. *West Indian Medical Journal* 2009; **58(6)**: 518-32.



Maternal Mortality surveillance: 1998 onward

- 1981-83
 - Walker et al
- 1986-87
 - Keeling et al
 - Voluntary reporting
- 1993-95
 - McCaw-Binns et al
 - >95% hospital births
 - Monitor hospital maternal deaths
- 1998: Maternal deaths = Class I notifiable event
 - All maternal deaths reported to Ministry of Health, on suspicion
- Active surveillance
 - Monitoring hospitals by surveillance officers




Maternal Mortality surveillance

- **Maternal deaths = Class I notifiable event**
 - Case review includes:
 - Clinical summary of inpatient management
 - Post mortem report
 - Home visit (verbal autopsy)
 - Antenatal care report
 - Multidisciplinary team (midwives, obstetricians, pathologists, epidemiologists) review case and:
 - Decide on the cause of death
 - Identify areas for intervention
 - Report findings to Ministry of Health
- **National committee**
 - **Address policy issues**



Reporting to Surveillance Unit, Ministry of Health: by year, maternal deaths (WHO definition)*



	1998	1999	2000	2001	2002	2003	2008
 % deaths reported	23.3	58.8	78.7	92.7	80.9	84.2	84.3

*Direct & indirect maternal deaths, to 42 days post partum



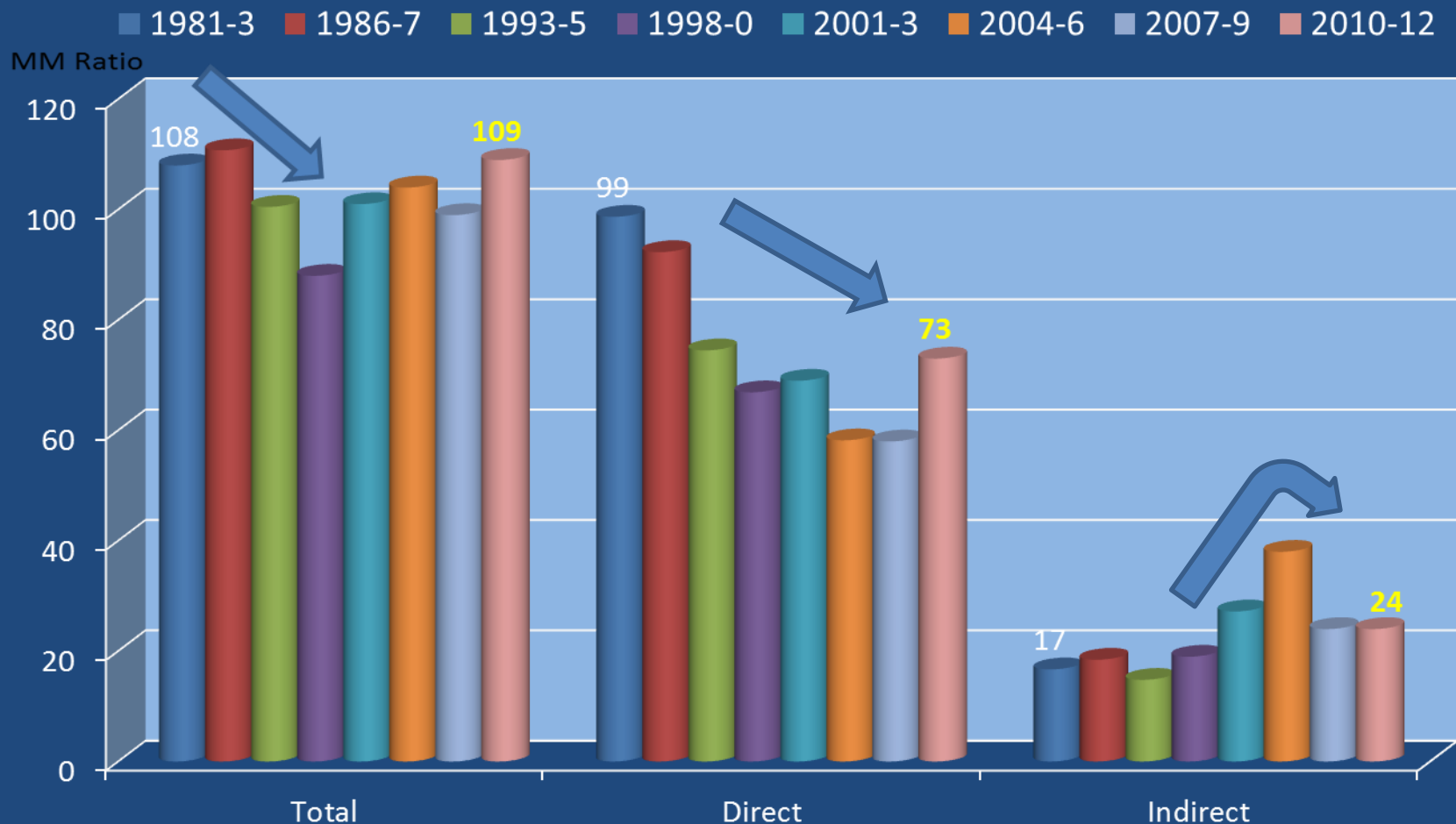
Evaluation: Cases missed by surveillance in 2008

- 8/51 (15.7%) maternal & 11/18 (61.1%) **late** maternal deaths
 - **Community** (8): 3 maternal; 5 late
 - **Hospital** (11): A&E (4), ICU (1), KPH (4); medical ward (2)
- Missed maternal deaths (pregnant – 42 days post partum)
 - Direct: **Ectopic pregnancy (4)**; abortion (1)
 - PPH (1); **PP eclampsia (1)**; puerperal sepsis (1).
- Missed late maternal deaths (43-364 days post partum)
 - Direct: **Cardiomyopathy (3)**; **Unspecified hypertension (1)**; fatty liver disease(1).
 - Indirect: **Cardiac (2)**; **stroke (1)**; breast cancer (1); DM (1)



Changing epidemiology I

Maternal mortality trends, Jamaica: 1981-2012
(ratio/100 000 live births)





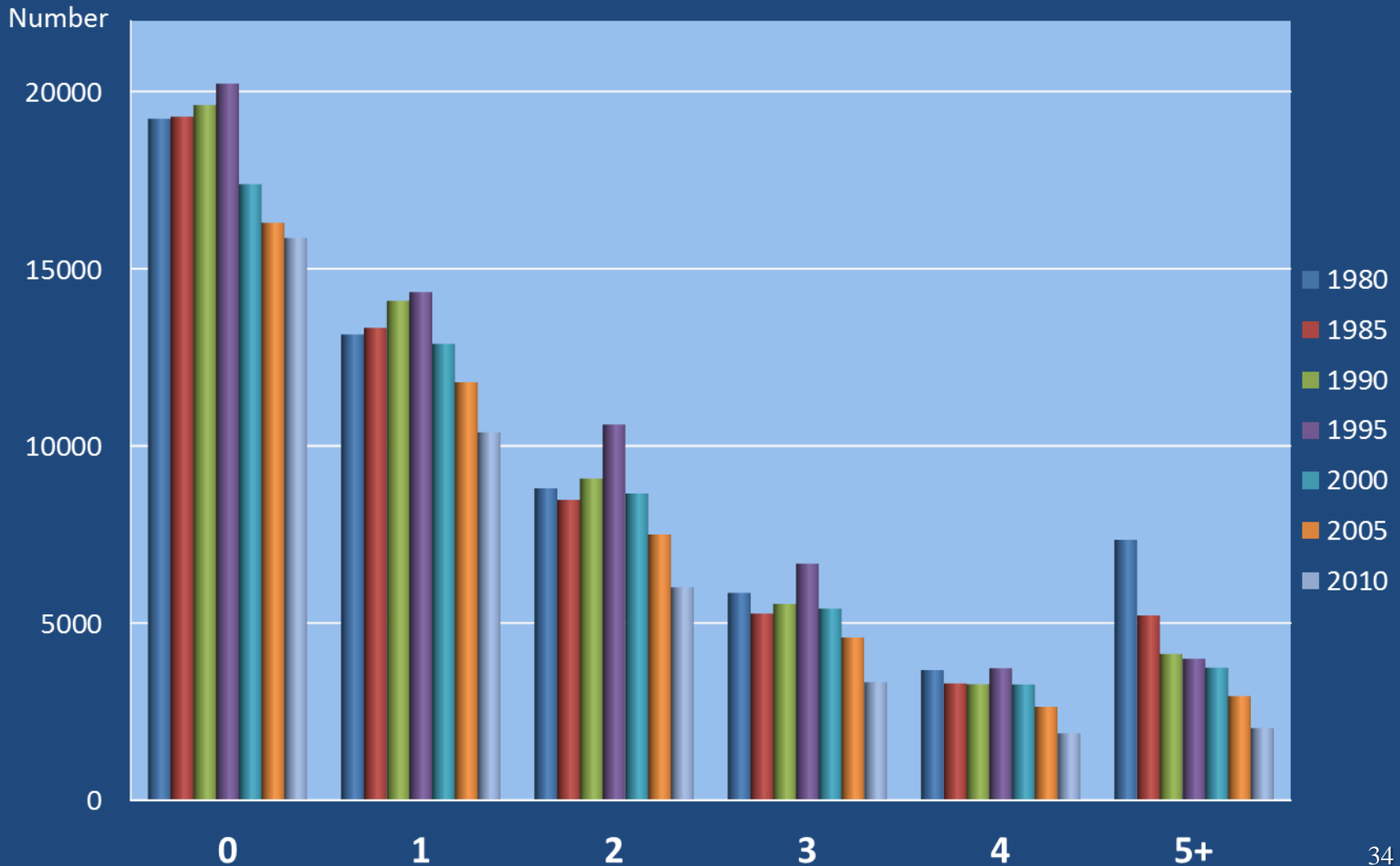
UNDERSTANDING THE PROBLEM: USING THE EVIDENCE

McCaw-Binns A, Lewis-Bell K. Small victories, new challenges: two decades of maternal mortality surveillance in Jamaica. *West Indian Medical Journal* 2009; **58(6)**: 518-32.



Changing demography I

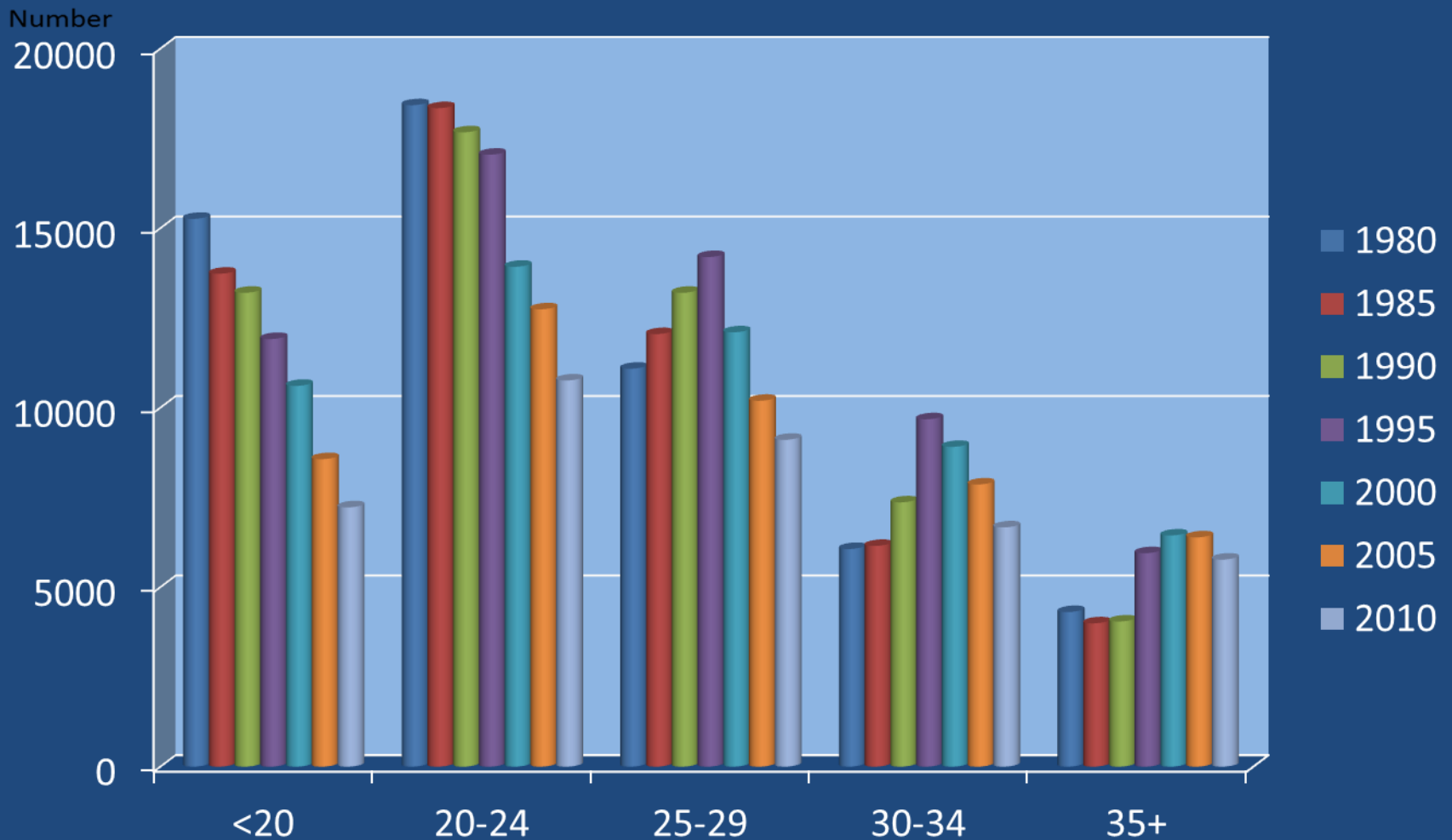
Births by parity (previous live births): 1980-2010





Changing demography II

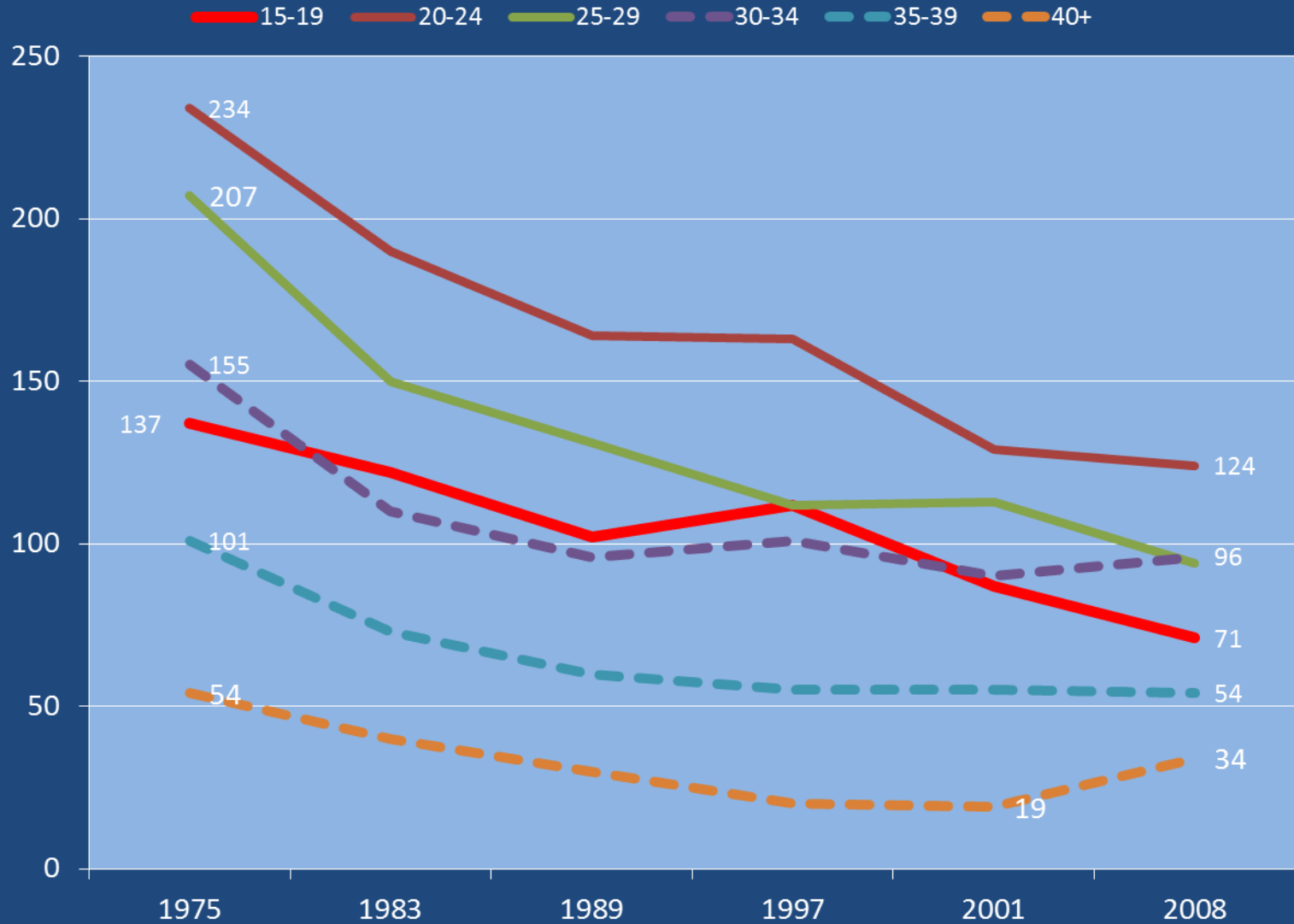
Births by maternal age(n): 1980-2010





Changing fertility

Age specific fertility rates: 1975-2008



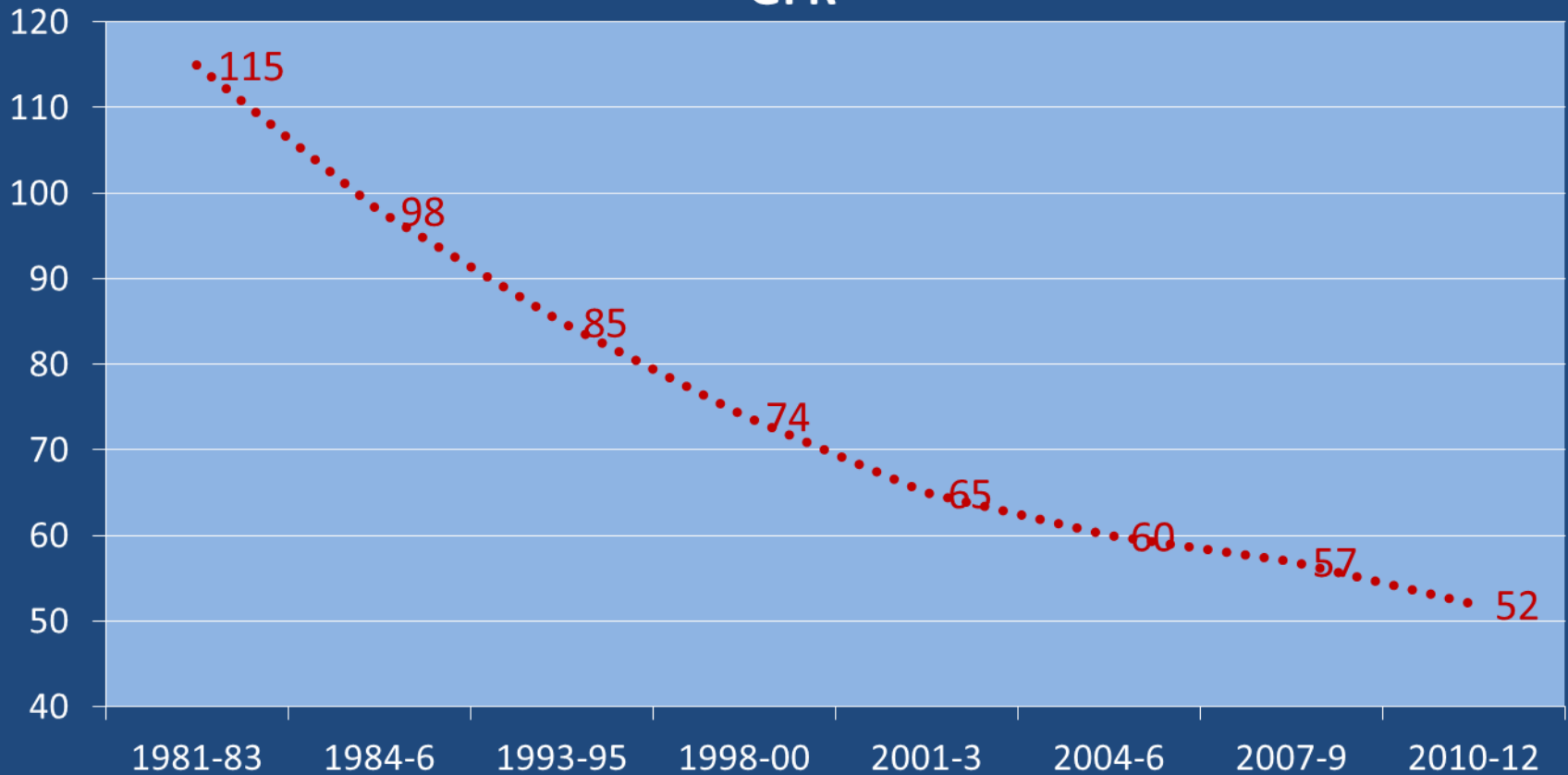


Counting reproductive performance

Fertility rate per 1000 women, maternal mortality ratio per 100,000 live births, maternal mortality rate per million women 15-49 years:

1981-2012, Jamaica

GFR

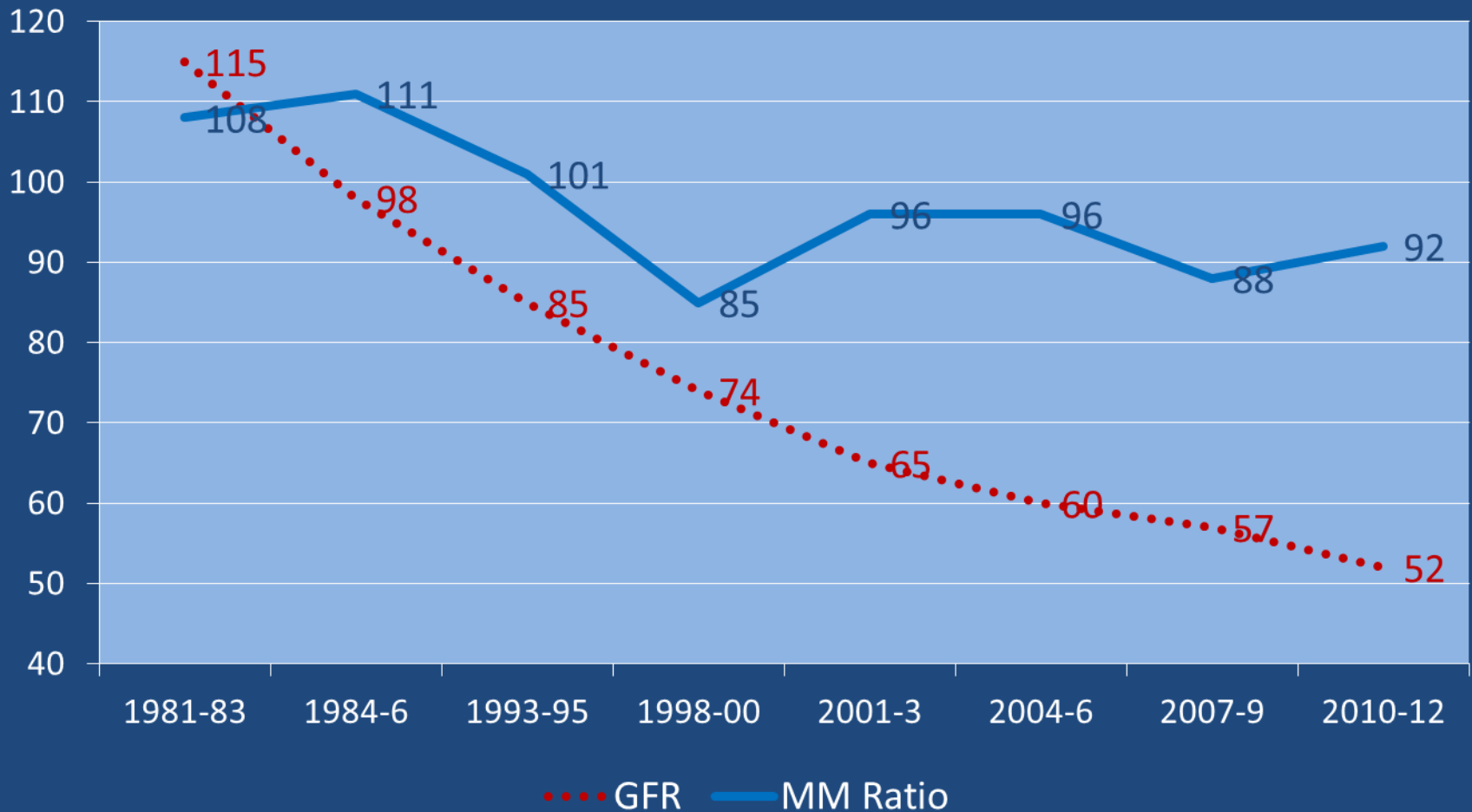


.....GFR



Monitoring programme effectiveness?

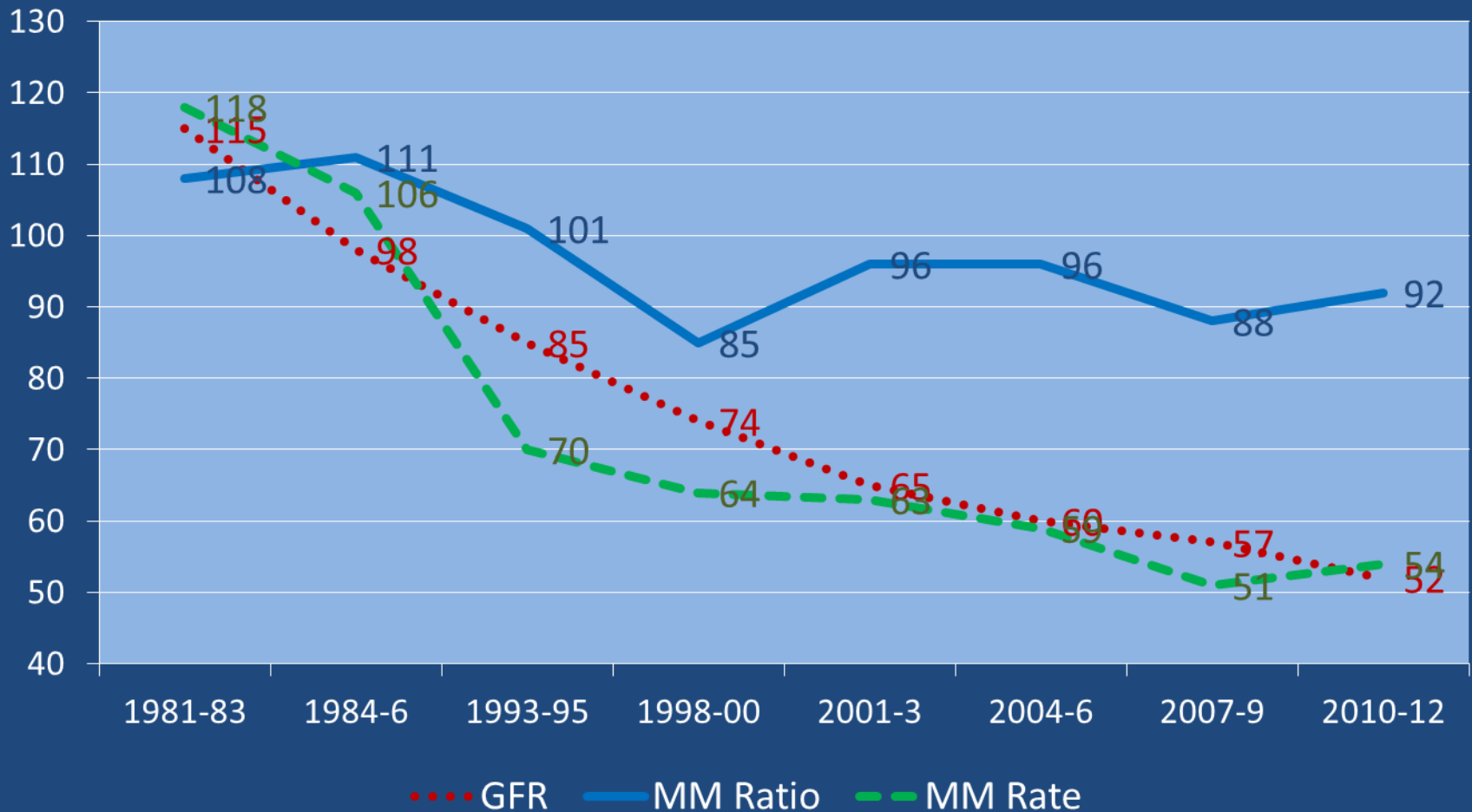
Fertility rate per 1000 women, maternal mortality ratio per 100,000 live births, maternal mortality rate per million women 15-49 years:
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Monitoring programme effectiveness?

Fertility rate per 1000 women, maternal mortality ratio per 100,000 live births, maternal mortality rate per million women 15-49 years:
1981-2012, Jamaica



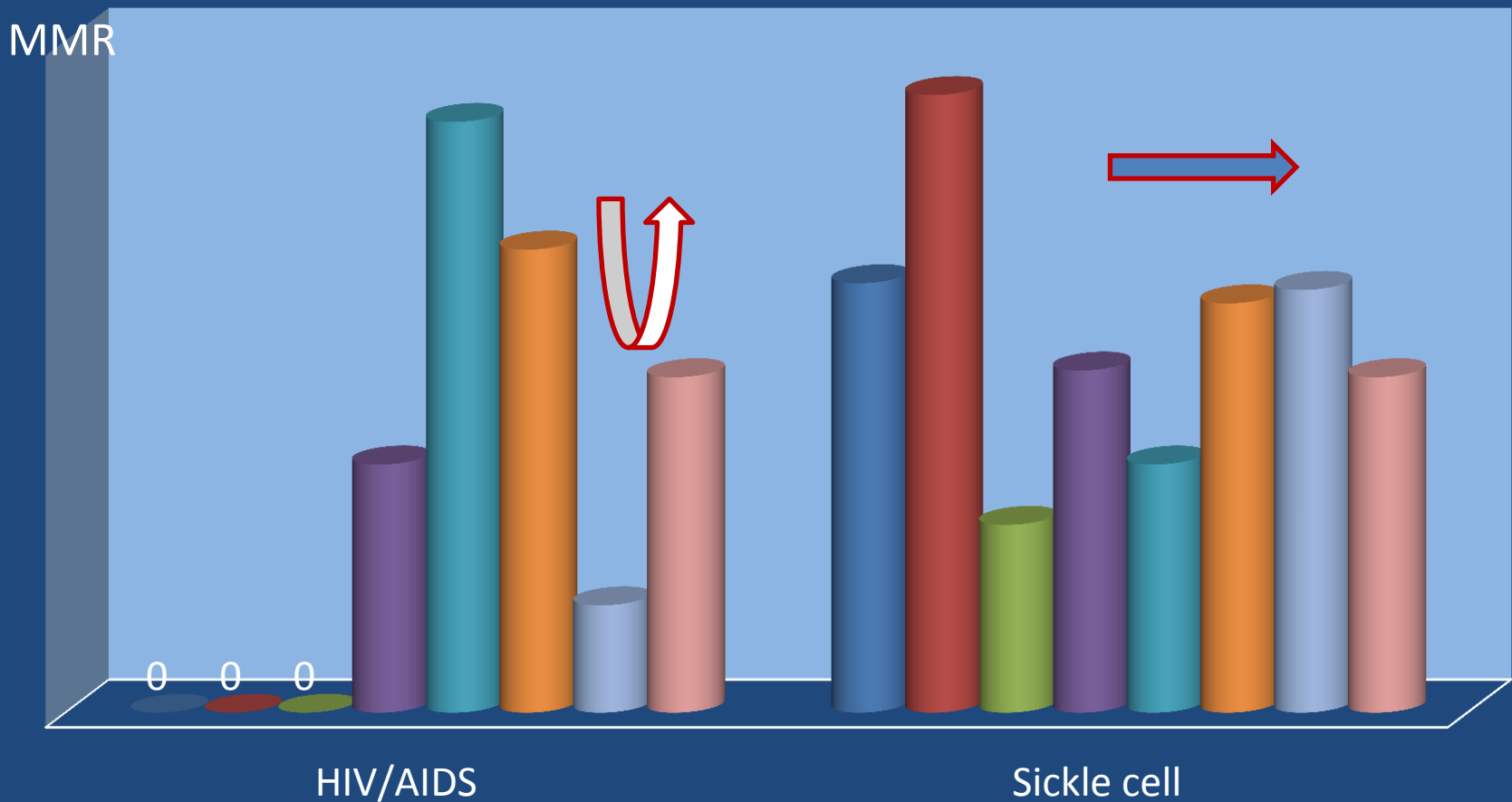


Challenges:

INDIRECT deaths: 1981-2012

(ratios/100 000 live births)

■ 1981-3 ■ 1986-7 ■ 1993-5 ■ 1998-0 ■ 2001-3 ■ 2004-6 ■ 2007-9 ■ 2010-12

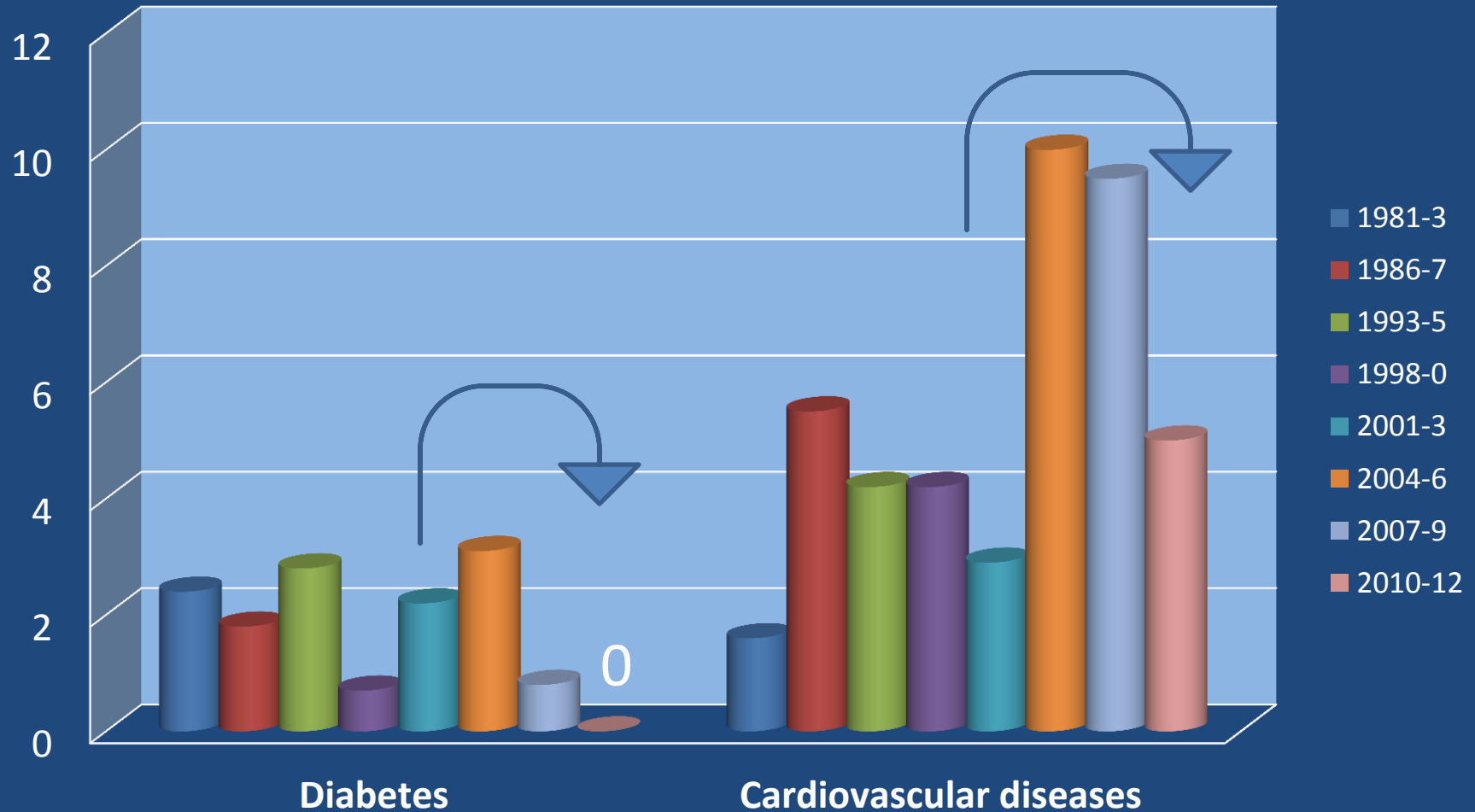




Challenges:

INDIRECT deaths: 1981-2012

(ratios/100 000 live births)





Issues needing research

- Management of medical complications of pregnancy
 - Pre-conception education and care
 - Multidisciplinary antenatal care
 - Obstetrician + Physician
 - Needs to be evaluated
 - More technical capacity
 - High dependency units /tertiary care for women with:
 - Sickle disease in crisis
 - Cardiac conditions
 - Severe pre-eclampsia & its complications (e.g. stroke)
 - Post partum haemorrhage
- Continuity of care after 6 weeks post partum
 - Most late deaths due = sequelae of medical conditions



Issues needing research

- Why has direct mortality started to increase?
 - Audit eclampsia cases and deaths
 - Review case management
 - Examine training, deployment and retention of community midwives
 - Integrate HIP guidelines into curricula



Critical directions for the future

- Improve quality of care and access
 - Reduce unresponsive service points
 - Unhelpful/rude health personnel
 - Unfriendly opening hours
 - Reduce opportunity cost of seeking care
 - Encourage involvement of male partners
 - Attend antenatal care
 - Screening, counseling
 - Accompany partner at delivery



Acknowledgements



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Ashley***



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Lewis-Bell**

Thank You!

