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AVERTING MATERNAL DEATH AND DISABILITY

Epidemiologic transition in maternal mortality and morbidity: New challenges for Jamaica

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Abstract

Objective: Given interventions implemented in recent years to reduce maternal deaths, we sought to determine the incidence and causes of maternal deaths for 1998–2003. *Method:* Records of public hospitals and state pathologists were reviewed to identify pregnancy-related deaths within 12 months of delivery and determine their underlying causes. *Results:* Maternal mortality declined ($p=0.023$) since surveillance began in 1981–83. The fall in direct mortality ($p=0.0003$) included 24% fewer hypertension deaths (introduction of clinical guidelines, reorganization of antenatal services) and 36% fewer hemorrhage deaths (introduction of plasma expanders). These improvements were tempered by growing indirect mortality ($p=0.057$), moving to 31% of maternal deaths from 17% in 1993–95. *Interpretation:* Declines in direct mortality may be associated with surveillance and related improvements in obstetric care. Increased indirect deaths from HIV/AIDS, cardiac disease, sickle cell disease and asthma suggests the need to improve collaboration with medical teams to implement guidelines to care for pregnant women with chronic diseases.

1. Introduction

Vital registration underestimates the incidence of maternal deaths in Jamaica (as elsewhere) due to misclassification of

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the causes of death [1]. To accurately determine incidence, episodic reproductive age mortality (RAMOS) surveys were undertaken covering the periods 1981–83 [2], 1986–87 [3] and 1993–95 [4].

The hypertensive disorders of pregnancy have historically been the leading direct cause of maternal death in Jamaica [2–5]. In 1993 we developed and implemented comprehensive guidelines for managing these conditions from the community into hospital [6,7]. To reduce delays associated with distance from a health facility, referral high risk antenatal clinics run by visiting obstetricians were established in parishes without such services. The health region with the highest incidence of maternal deaths (north east) employed two additional obstetricians, facilitating weekly referral antenatal clinics and improving the skill mix.

To move to continuous surveillance, in 1998 maternal deaths were made a notifiable event. All maternal deaths must be reported to the Ministry of Health through the 4 regional health authorities which were expected to actively identify, investigate and act on the findings of the case reviews.

This study aimed to determine whether these developments were associated with any improvements in maternal mortality. Specific objectives included to:

1. Determine the maternal mortality ratio for Jamaica and the 4 health regions for 1998–2000 and 2001–03
2. Determine and compare cause specific mortality ratios with previous studies
3. Identify areas for further intervention and training of health care providers to reduce the incidence of maternal deaths.

2. Materials and methods

Consistent with the WHO definition of maternal death (direct and indirect deaths during pregnancy and up to 42 days postpartum) [8], maternal mortality ratios (MMR) for 1993–95 were recalculated to exclude a small number of late maternal and co-incidental deaths [9]. Late deaths from medical complications (43–364 days after delivery) were classified as co-incidental if they occurred more than 6 months after delivery.

With over 90% of births in public hospitals and <5% in private hospitals, surveillance was restricted to deaths in public hospitals. This study, while confined to these institutions (non hospital births and deaths excluded from the numerator and denominator used to calculate the MMRs), will discuss the implications of excluding non hospital maternal deaths. Data were analyzed using SPSS for Windows (12.0). Rate differences were compared using EpiInfo 2002.

The national Maternal Mortality Surveillance System provided a list of notified maternal deaths. The study team (SA, JL, KS) visited all public hospitals ($n=20$) and state pathologists ($n=2$) to independently identify deaths in women 10–50 yeas of age with evidence of pregnancy/delivery within one year of death by examining institutional death and casualty registers and delivery books. Case notes were reviewed by the epidemiologist (AMc-B), and pathologist (CE) to determine the cause of death. A technical consultant (GL) assisted with a final case audit and classification into direct obstetric, indirect or co-incidental. The Ministry of Health representative (KL-B) assisted with the discussion and recommendations.

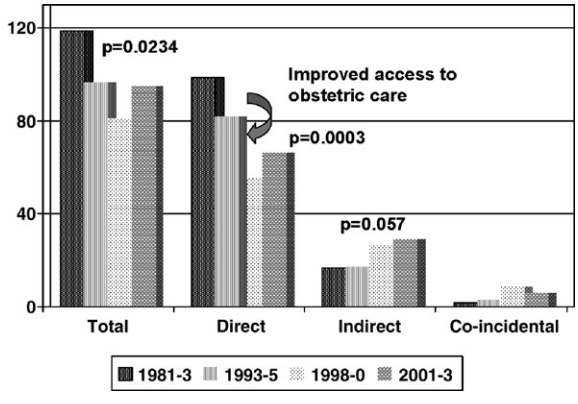

Figure 1 Maternal mortality trends: 1981–2003 (ratio/100,000 live births in public hospitals). Elsevier NB. "improved access to obstetric care" should be put next to the little banner (as in Fig. 2), but I don't know how to do it. Could you do it please? J. Fortney.

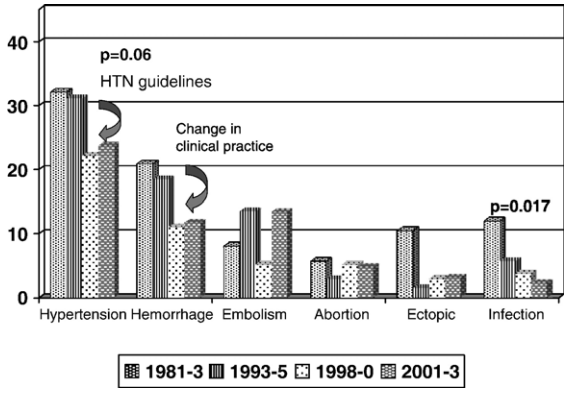

Figure 2 Direct deaths — trends: 1981–2003 (ratio/100,000 live births — public hospitals).

3. Results

3.1. Maternal mortality ratio and cause of death

3.1.1. Direct and indirect deaths

The epidemiology of maternal mortality in Jamaica is in transition. Fig. 1 shows that direct deaths declined

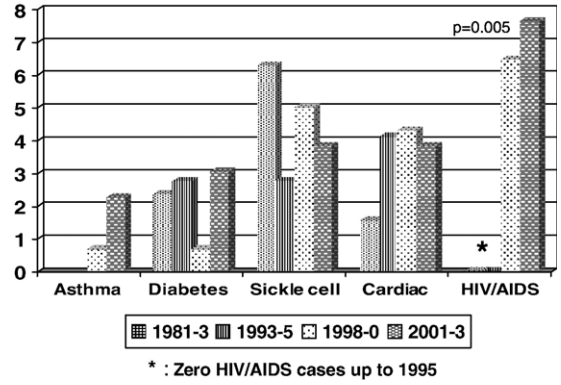

Figure 3 Indirect deaths — trends: 1981–2003 (ratio/100,000 live births in public hospitals).*: Zero HIV/AIDS cases up to 1995.