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## Epidemiological transition, medicalisation of childbirth, and neonatal mortality: three Brazilian birth-cohorts

Over the past two decades, Brazil has seen improvements in women's nutritional status, education, smoking habits, and antenatal care. Neonatal mortality rates (deaths of liveborn infants up to 1 month of age), however, have changed little. In this issue of *The Lancet*, Fernando Barros and colleagues present fascinating data from three birth-cohorts which suggest that falling mortality in term infants (37 weeks' gestation or more) has been offset by a rise in preterm births and deaths, resulting in little change in neonatal mortality. Brazilian health authorities can claim fairly that more preterm infants survive because of better neonatal care: gestation-specific mortality rates have fallen by 50% since 1982. Nonetheless, many preterm deliveries result from pregnancy interruption, either by caesarean section or induction. Such early delivery is often a direct consequence of inappropriate medicalisation.

The road to hell is paved with good intentions, and efforts to improve perinatal care have often had unintended consequences.<sup>1</sup> Diethylstilbestrol was used in

millions of pregnancies before its association with vaginal cancer in offspring was noted. Uncontrolled use of oxygen and sulphonamides to treat respiratory distress in premature infants in the 1950s triggered epidemics of retinopathy and kernicterus, respectively. A proportion of the epidemic of sudden infant deaths was attributable to paediatricians encouraging prone sleeping for term infants, drawing incorrectly on their experience of nursing preterm infants in this position to avoid aspiration.<sup>2</sup> Arguably the most pernicious example of medicalisation, however, is the promotion of formula milks. The increased health risks of formula feeding have been well documented in communities where illiteracy, poverty, and lack of a clean supply of water are the norm. Formula-fed infants aged under 2 months are nearly six times more likely to die than breastfed infants,<sup>3</sup> but inappropriate promotion by milk companies remains widespread.<sup>4</sup>

Two medical interventions that are potentially life-saving, antenatal ultrasonography and caesarean section, are particularly prone to misuse. Sen estimates that over

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Still Pictures

Child healthcare, Siquiere, Brazil

100 million women are missing as a result of sex bias in health care and termination of pregnancy after antenatal ultrasound.<sup>5</sup> Despite parliamentary legislation against sex determination, India's northern and western states still have much lower female-to-male birth ratios than expected. Barros and colleagues document another potential adverse effect of ultrasound, suggesting that overestimation of gestational age by private-sector scans can lead to unnecessarily preterm delivery. This result is worrying given that premature birth in itself is probably a greater risk for neonatal mortality than low birthweight in term infants.<sup>6</sup>

It is unwise to assume that the wholesale adoption of medical activities will lead to better childbirth outcomes. We have little evidence, for example, that the average eight antenatal visits documented by Barros and colleagues translates into better outcomes.<sup>7</sup> A caesarean section rate of 10–15% is generally considered appropriate for obstetric complications. Lower rates in poor countries do indicate a lack of access, but operative delivery rates in Latin America are the highest in the world. In the Brazilian cohorts, rates rose from 28% to 43% over 20 years, with a staggering 82% in the private sector. This rate rise accompanied a rise in induction rates from 3% to 45%. In Chile, women with private obstetricians also have consistently higher rates of caesarean section than those cared for in public hospitals.<sup>8</sup>

In the broader context, medicalisation might be an inappropriately narrow strategy to tackle a public-health problem. Many policymakers and academics attribute the

continuing high maternal mortality ratios in the developing world—where more than 50 countries have a maternal mortality ratio greater than 400 per 100 000 livebirths—to a lack of access to obstetric and midwifery care. Yet history and recent trials suggest that large reductions in maternal mortality ratio in the poorest countries can be achieved by social or community interventions, particularly when service use is low.<sup>9,10</sup> Access to essential and emergency obstetric care is certainly a key component of any national programme for safer motherhood, but broader public-health measures deserve similar investment.

In middle-income countries with high use of institutions for health care, a focus on the quality of perinatal care is a priority, and health outcomes must be monitored rigorously. Doing the simple things better is probably the most cost-effective policy: increasing coverage of syphilis screening, making sure that unimmunised women receive tetanus toxoid, and careful monitoring in labour. As Barros and colleagues show, the risks of medicalisation should not be ignored because they might offset the gains resulting from improved maternal health and survival of newborn infants.

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