CORRESPONDENCE

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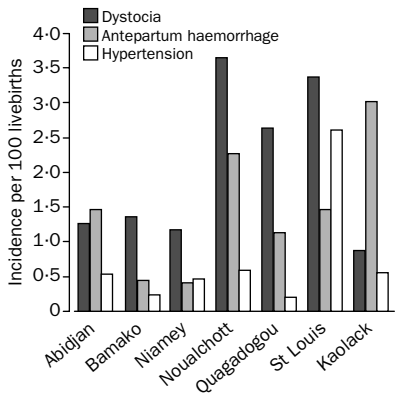
Need for caesarean sections in west Africa

Sir—Alexandre Dumont and colleagues (Oct 20, p 1328)[1] estimate the need for caesarean section for maternal indication in west African women by applying published caesarean section rates by obstetric indication to population-based estimates of the incidence of such complications from a prospective study in west Africa. We question their approach and urge caution in the interpretation of results.

The researchers use data from hospitals in sub-Saharan Africa and elsewhere. In sub-Saharan Africa, access to facility-based obstetric care is poor, and obstetric complications seen in hospitals are more likely to require a caesarean section than those seen in the community. Caesarean section rates from industrialised countries are also likely to overestimate maternal need since they are increasingly being done for fetal distress, thus falsely inflating the need for caesarean sections for prolonged labour, the most common indication.

Dumont and colleagues apply the expected caesarean section rates by indication to population-based data on the incidence of obstetric complications from seven west African sites.[2] The study was unique in that women were followed up prospectively and life-threatening complications were unlikely to be missed.[3] The definition of obstetric complications relied heavily on care provision and degree of staff training, however, and their incidence varied substantially across sites (figure).[2,3] In addition, more than half the caesarean sections were done for prolonged labour, whether for maternal or fetal reasons. We therefore re-calculated the expected caesarean section rates by use of the minimum, median, and maximum estimates of the incidence of life-threatening dystocia recorded across sites, assuming that all women with severe dystocia require a caesarean section to save their lives. The caesarean section rate for maternal indications (median 2·3% [range 1·3–4·7]) is lower than that reported by Dumont and colleagues; the rate comes much closer to the 1–2% estimated by De Brouwere and colleagues,[4] based on historical data from England and Wales and current estimates from areas in less-developed countries with good access to care.



Incidence of severe obstetric complications in seven west African sites
Source: MOMA.[2]

The disparity between the expected and observed major obstetric intervention rates for absolute maternal indications, including caesarean sections, hysterectomy, and destructive operations, is a powerful indicator of the unmet need for life-saving obstetric care.[4] Measurement of this disparity requires the assessment of observed intervention rates by maternal indication rather than mere caesarean section rates. The optimum caesarean section rate in a given population cannot be inferred from expected caesarean section rates for maternal indication. To determine how many women need a caesarean section, irrespective of indication, is not possible, since the balance between costs and benefits, and between maternal and fetal needs, depends on the context. Setting an arbitrary minimum caesarean section rate is also dangerous because it may encourage an already over-interventionist culture. It is easy to imagine 5% being achieved without reaching those who need it.

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1 Dumont A, de Bernis L, Bouvier-Colle M-H, Bréart G, for the MOMA study group. Caesarean section rate for maternal indication in sub-Saharan Africa: a systematic review. *Lancet* 2001, **358:** 1328–33.

2 MOMA group. Morbidité maternelle en Afrique de l'Ouest: résultats d'une enquête en population à Abidjan, Bamako, Niamey, Nouakchott, Ouagadougou, Saint-Louis et Kaolack. Paris: Ministère des Affaires Étrangères-Coopération et Francophonie, 1998.

3 Prual A, Bouvier-Colle MH, de Bernis L, Breart G. Severe maternal morbidity from direct obstetric causes in West Africa: incidence and case fatality rates. *Bull World Health Organ* 2000; **78:** 593–602.

4 De Brouwere V, Van Lerberghe W. Les besoins obstétricaux non couverts. Paris: L'Harmattan, 1998.

Sir—Alexandre Dumont and colleagues[1] are careful not to present their descriptive results as targets. Nevertheless, the numbers will probably be used as more than a mere benchmark. Distinction would be wise between minimum rates—ie, rates sufficient to eliminate the maternal mortality that can be avoided through surgical intervention—and optimum rates that make it possible to do this and more.

Maternal mortality can be reduced with caesarean section rates much lower than the proposed 3·6–6·5%. During the 1950s and 1960s, the Netherlands, Wales, and California kept maternal mortality to lower than 50 per 100 000 with caesarean section rates for maternal indications of 1·35–1·97%.[2] The MOMA study,[3] on which Dumont and colleagues estimated the need for caesarean deliveries for maternal indications, confirms that caesarean section rates lower than 2% can remove all maternal deaths that are avoidable through this method of delivery. If we add the 18 recorded maternal deaths that could have been avoided through caesarean section to the rate of this procedure, it rises from 1·7% to 1·8%. If all caesarean sections done actually saved the mothers' lives (which is possibly an overestimation) the implication is that all maternal mortality from causes amenable to caesarean section can be dealt with at a rate of 1·8%, which is much lower than the proposed optimum range of 3·6–6·5%.

Our preliminary results from a multicountry study of unmet obstetric needs[4] seem to confirm that lower rates may be enough to save mothers' lives (table). In each urban setting the rate

Country	Expected births in selected urban areas	Caesarean sections		
		Absolute maternal indications	All indications	Additional number required to fall into 3·6–6·5% range
Benin	19 522	242 (1·2%)	554 (2·8%)	703–1269
Burkina Faso	17 997	197 (1·1%)	320 (1·8%)	648–1169
Haiti	18 088	241 (1·3%)	479 (2·7%)	651–1175
Mali	135 555	1437 (1·1%)	2314 (1·7%)	4880–8811
Pakistan	23 872	314 (1·3%)	897 (3·8%)	859–1589

Caesarean section rates in selected urban areas, 1998

of caesarean sections for absolute maternal indications (primarily to save the mother's life) was 1·1–1·3%. We estimate residual maternal mortality avoidable through caesarean section in these areas at 100 per 100 000; even if higher, these data show that maternal mortality is avoidable through caesarean section at rates lower than 2·0%.

Dumont and colleagues had to work with hospital-based data and a non-standardised registration of indications. They therefore had to make several assumptions, such as on the need for caesarean section after previous caesarean section or in case of prolonged labour. Estimates based on population-based caesarean section rates with standard disaggregation by indication is more specific and much lower.

Countries and developing agencies are likely to use optimum rates for setting objectives. Optimum rather than minimum benchmarks may serve as an extra stimulus to improve access to comprehensive obstetric care, but they may also have unwelcome consequences. First, the data may help induce over-eagerness, which plagues much of the world.[5] Second, and perhaps worse, the sheer size of the backlog compared with higher benchmarks (table) may actually discourage countries from addressing the issue. Achievement of high optimum benchmarks is a daunting task indeed, whereas lower minimum numbers are perhaps less off-putting: the priority remains to make sure that at least the life-saving interventions are done; once that is done we can think about more ambitious optima.

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1 Dumont A, de Bernis L, Bouvier-Colle M-H, Bréart G, for the MOMA study group. Caesarean section rate for maternal indication in sub-Saharan Africa: a systematic review. *Lancet* 2001; **358:** 1328–33.

2 Van den Brook N, Van Lerberghe W, Pangu K. Cesarean sections for maternal indications in Kasongo (Zaire). *Int J Gynaecol Obstet* 1989; **28:** 337–42.

3 Bouvier-Colle MH, Prual A, de Bernis L. Morbidité maternelle en Afrique de l'Ouest. Paris: Ministère des Affaires Etranèbres-Coopération et Francophonie, 1998.

4 The Unmet Need for Major Obstetric Interventions Network. www.uonn.org (accessed Jan 5, 2002).

5 Buekens P. Over-medicalisation of maternal care in developing countries. *Stud Health Serv Org Pol* 2001; **17:** 195–206.

Authors' reply

Sir—We estimated the expected caesarean section rate in a population of west African pregnant women by applying published caesarean section rates by obstetric indication to population-based estimates of the incidence from the MOMA survey.

Carine Ronsmans and colleagues question the use of published facility-based caesarean section rates as a standard, and especially caesarean section rates from more-developed countries. We do not think that obstetric complications seen in hospitals from sub-Saharan Africa are more likely to require a caesarean section than those seen in the community, since the definitions are similar in both populations. The expected rate by indication should be the same for every woman, in whatever place she chooses (or does not choose) to deliver. Moreover, there is no reason to exclude from the systematic review studies done in more-developed countries, since maternal mortality is particularly low in these parts of the world. Therefore, optimum rates for caesarean section by indication to ensure the best outcome for mothers and children are probably more likely to be reported in richer than in poorer countries.

The minimalist approach of De Brouwere and colleagues is based on historical data from more-developed countries (England and Wales) as well. However, we have to carefully interpret the findings in some countries, such as the Netherlands during the 1950s, because they are not the most representative areas in Europe and other factors for maternal mortality than crude caesarean section rates have to be taken into account.

Ronsmans and colleagues discussed the possible risk in inflating the need for caesarean section for extended labour, the most common indication. They have recalculated the expected caesarean section rates using severe dystocia as defined in the MOMA population. They assume that a 100% caesarean section rate is expected for this indication. This approach may, however, underestimate the need for the procedure; some women without life-threatening dystocia need a caesarean section to avoid further complications of extended labour. Our method, based on published caesarean section rates by indication, requires use of the same definitions of obstetric complications as the studies reported. According to the information available, the definition of protracted labour from the MOMA population (labour longer than 12 h, vertex presentation, and no caesarean section history) was close to the definition used by most workers.

Nonetheless, we assume that our method might not be strictly accurate, but it is simple and provides findings that can help policy makers and health planners in less-developed countries to design and follow up programmes to reach the optimum caesarean section rate according to the obstetric risk level in the population. The minimum rate may represent a short-term objective to reduce disparities between rural and urban areas. The two approaches are complementary.

The risk of a striking increase in caesarean section rates is real according to the evolution in richer and some poorer countries. Thereby, practitioners in health facilities need specific tools to monitor their practice. The comparison between expected and observed caesarean section rates by indication could be a first step in the quality assessment.

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Sir—The various factors for the short-fall reported by Alexandre Dumont and colleagues[1] are well broadcast, and include poverty, cultural impediments, poor access, and lack of transport. However, in west Africa, many women also deliver outside health institutions.

The main reason why women deliver elsewhere, even in urban areas, is that hospital-based deliveries are expensive. The one most important step, therefore, in bridging this gap