

live scores correlate with specific attitudes and preferences about one's terminal course? Are there critical threshold will-to-live scores, which may help guide end-of-life care? These questions remain unanswered, and further qualitative and quantitative studies are needed. Is it ethical to do research of this kind?

The research agenda should never supersede or sacrifice good patient care, but we must also ask the question, is it ethical not to be engaging patients in end-of-life care research, and thereby embrace the status quo? Are the fluctuations we report real, or merely a reflection on the instrument's imperfections?

Research on the psychometric properties of visual analogue scales indicates they are both valid and reliable for this population.³ That will to live correlated significantly with some symptoms and not others, and that those relations were clinically interpretable and meaningful further supports the validity of the scale. To what extent do our findings inform the debate on euthanasia and assisted suicide?

Pellegrino⁴ points out that there are limitations to the extent to which empirical research can inform the debate "about the moral propriety and policy implications of euthanasia and assisted suicide". However, he indicates that empirical data "can help clinicians to diagnose the reasons for patients' desperation and . . . guide the specialist in palliative care and the patient's family and friends to help the patient cope with his or her problems and to die with genuine dignity".

If our research on will to live is able to do that—even in a small way—and serve as a springboard for others to follow up and refine our work, then it will have accomplished all we hoped it might.

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Safe motherhood

Sir—We agree with Olivier Weil and Hervé Fernandez (Sept 11, p 940)¹ on the limited impact of antenatal care and the poor results from the training of traditional birth attendants reflected in the decrease of maternal mortality. However, this does not mean that safe motherhood should become the province of obstetricians alone.

In the late 19th century, in Sweden, Norway, and the Netherlands, technically competent midwives were the key agents in the decline in maternal mortality to levels that are lower than that in many less-developed countries today.² They played a similar part in Malaysia and Sri Lanka.³ These success stories also show how political commitment, appropriate legislation, and the existence of national awareness operated by facilitating midwifery care for normal deliveries, and the possibility of referral in case of difficulties.⁴

Strengthening of essential obstetric care is the key strategy to obtain rapid improvements in safe motherhood. This encompasses a wide range of interventions that include a set of major surgical and technical acts. Precise epidemiological data on the need for major obstetric interventions are not available and are context dependent. Nevertheless, reliable estimates of minimum needs for major obstetric interventions for specific maternal disorders (severe antepartum haemorrhage, severe postpartum haemorrhage, fetopelvic disproportion and malpresentation) in a country are fairly easy to come by, even in the difficult operational circumstances of less-developed countries. In areas with good access to health care, rates of major obstetric interventions for these life-threatening maternal complications were around 1%.⁵ If we use these rates, as a reference, the underuse of these interventions can be calculated as a measure of unmet obstetric need. Mapping of this unmet need allows us to see regional differences in essential obstetric care without having to know the exact maternal mortality rate.

This method is used in several countries that are grouped under the Unmet Obstetric Need for Major Obstetric Interventions Network. This network brings together ministries of health, development organisations, scientific institutions, and practitioners to improve maternal health, but also the overall functioning of the health-care system.

Obstetricians play a key role in resolving obstetrical catastrophes. Without accessible and well-functioning hospitals and a good referral system,

they cannot even do that. Even if these conditions are met, safe motherhood requires professional midwifery care for the other deliveries to avoid catastrophes, to react quickly when they occur, and to maintain an equilibrium between the safety of professional care and the alienation of medicalisation.

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Sir—Weil and Fernandez¹ propose an inappropriate response to the challenge of maternal mortality. Why does high maternal mortality persist? The Safe Motherhood Initiative started just as it was becoming apparent that governments in many less-developed countries were effectively bankrupt. In an environment characterised by a reduced economic base, impoverished communities, and under-investment in the health sector, efforts to implement the comprehensive agenda described in the 1987 Call to Action were abandoned. Instead, less costly alternatives were pursued, mainly focused on actions at community level to the detriment of those required at the higher levels of the health-care system.

These particular interventions have been shown to be of limited effectiveness in reducing maternal mortality. But Weil and Fernandez's proposal that obstetricians and gynaecologists take the lead in safe motherhood does not redress the balance. Identification of major obstetric interventions as the core of safe motherhood programming risks over-intervention, iatrogenicity, and inappropriate use of scarce resources. Promotion of interventions of dubious effectiveness (or positively harmful) is common enough in obstetrics.²

Numbers of obstetricians and gynaecologists in most less-developed countries are small and are generally concentrated in urban centres and the private sector. Greater authority needs to be vested in general doctors, nurses, and midwives, who often lack training, supervision, and logistic support. Weil and Fernandez make no mention of care in normal labour and delivery. However, good management of normal births by skilled health-care professionals (midwives, nurses, general doctors, and auxiliary staff) would help prevent many complications and ensure timely treatment or referral.⁴

There are errors of fact in their article. First, effective antenatal interventions include management of anaemia (not only iron or folate but also antihelminths and control of malaria), tetanus immunisation, treatment of syphilis, and the early detection and management of acute conditions that emerge close to the time of delivery. The effectiveness of fundal height measurement to identify fetal position has not been shown. Second, in most more-developed nations, maternal mortality fell substantially during the 20th century, not the 19th century. Third, family planning is not promoted as a method of reducing obstetric risk, although it is clearly important in terms of reducing numbers of deaths. Finally, there is no evidence that the partners in the initiative "thought that maternal mortality could be easily decreased by improvements in women's status".

Thanks to the work of many partners around the world, maternal mortality is now on the international public-health agenda. There is consensus about the importance of evidence-based practices; the professionalism of delivery care, referral, addressing unwanted pregnancy, and unsafe abortion; and better monitoring and evaluation strategies.⁵

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Sir—Olivier Weil and Hervé Fernandez¹ argue that the widespread distribution of

contraceptives is no longer recognised as the best method of lowering maternal mortality. If the indicator used is the maternal mortality ratio—maternal deaths per 100 000 livebirths—they may be correct. If, however, an indicator was used that calculated female deaths from pregnancy-related causes during the reproductive years per 100 000 women in those years, it would show family planning has a huge effect, because total fertility fell from six, which is the present value for central Africa, to two, and then to one.

If we change the denominator from babies to their mothers, family planning becomes the most effective method of reducing maternal mortality (as redefined). Inclusion of the component of not being pregnant reflects more clearly a girl's chance of death from reproductive causes as she enters her reproductive years. This indicator is also more sensitive to public-health interventions. However, no indicator is ever ideal. I suggest that there should be two indicators: the maternal mortality ratio that is based on livebirths as at present, and a new ratio, based on women of reproductive age.

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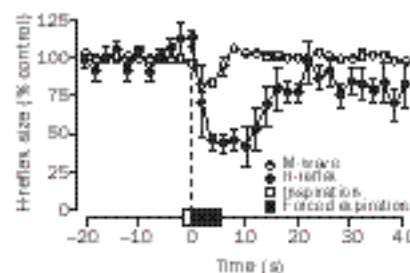
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No laughing matter

Sir—S Overeem and colleagues (Sept 4, p838)¹ report a dramatic reduction in the size of the H-reflex during laughter and propose that this reduction underlies the sensation of weakness that occurs with laughter and that it may precipitate cataplexy. Forced expiration and coughing have similar reflex effects; thus the respiratory accompaniments of laughter rather than its emotional origin may cause this sensation.

The H-reflex allows assessment of the potential facilitation provided to a muscle's motoneurons via muscle spindle afferents. The assessment is not a surrogate measure of the excitability of motoneurons, because in man the reflex is not wholly monosynaptic² and is subject to many presynaptic influences.³ Despite these limitations we wondered whether the effect of laughter on the H-reflex was explicable by repeated expiratory efforts.

We measured the size of the soleus H-reflex in three healthy individuals who were comfortably seated, before, during, and after forced expirations lasting about 5 s. Initial H-reflex size was set at about 20% of the maximum motor response (ie, the maximum M-



Change in the size of H-reflex with forced expiration and cough

Mean (SE) area of H-reflex in soleus averaged across four trials of maximum forced expiratory manoeuvres.

wave evoked by electrical stimulation of the tibial nerve). Reflexes were elicited at 0.5 Hz. The figure shows that a forced expiratory manoeuvre reproducibly reduced the H-reflex to about 50% of its control size (Student's *t* test, $p < 0.01$). The size of the H-reflex decreased, whereas the preceding submaximum M-wave remained relatively constant, indicating a stable stimulus to the tibial nerve. H-reflex and M-wave data are shown relative to the mean of their respective control sizes. A similar reduction occurred with bouts of voluntary coughing.⁴ A small but consistent increase (about 10%) in the H-reflex occurred during large inspirations preceding the expiratory efforts. It is difficult to know whether this reduction in size of the H-reflex is due to a central command to cough or laugh, or to a sensory input evoked by these actions. However, pulmonary afferents are not required for H-reflex depression because voluntary coughing still depressed the reflex in two patients after bilateral lung transplantation.

Our findings indicate that a forced expiration is sufficient to depress the H-reflex; this may be part of a general system in which strong expiratory efforts, such as laughing, crying, sighing, and coughing, reduce the reflex and perhaps contribute to relaxation of limb musculature.

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