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How does progress towards the child mortality millennium development goal affect inequalities between the poorest and least poor? Analysis of Demographic and Health Survey data

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The millennium development goals (MDGs) have been widely accepted as a framework for improving health and welfare worldwide. Child mortality is one of the most crucial and avoidable global health concerns. In many low income countries, 10-20% of children die before reaching 5 years (compared with, for example, 0.7% in England and Wales). The child mortality MDG (to reduce the under 5 mortality rate by two thirds between 1990 and 2015) is formulated as a national average. The World Health Report 2003 posed an important question: how does progress towards the MDGs affect equity? We investigated this by examining, across a range of settings, how inequality in the under 5 mortality of the poorest and least poor changes as progress is made towards the MDG.

Participants, methods, and results

Using published data we examined changes in inequalities in under 5 mortality within 22 low and lower middle income countries (11 in Africa, five in Latin America or the Caribbean, and six in Asia) each with two Demographic and Health Surveys between 1991 and 2001 (www.measuredhs.com). These countries encompass high and lower mortality situations, varied sociodemographic conditions, and in 2000 they accounted for 27% of the world's population. Under 5 mortality was estimated, using standard methods, from information on births in the 10 years preceding the survey derived from birth histories collected from women of reproductive ages. Socioeconomic position was described using an index of household wealth calculated from information on ownership of household assets (for example, a radio), housing characteristics (for example, floor materials), drinking water source, toilet facilities, and availability of electricity. The method is described elsewhere.2 Households, ranked by wealth index, were split into five groups each containing 20% of individuals and representing the poorest up to the least poor quintiles of the population. Under 5 mortality rates (deaths under age 5 per 1000 live births) were calculated for each quintile and the rate ratio (ratio of mortality in poorest and least poor quintiles) used to describe relative inequality. Inequality was considered to have increased or decreased over time if the rate ratio changed by at least ±10%.

National under 5 mortality rates vary between 30 and 250 deaths per 1000 live births (table). In all surveys mortality is highest in the poorest as compared with the least poor quintile. Most rate ratios lie within the range 1.5 to 3.0 and almost all the 95% confidence intervals exclude 1.0. Thirteen countries had statisti-
cally significant declines in overall under 5 mortality between surveys. Despite this, in only four of the 13 countries did the rate ratios decrease; five saw increasing rate ratios. None of the changes over time in the rate ratios were statistically significant.

Comment

We confirm that there are large and persistent inequalities in under 5 mortality within many low and lower middle income countries and show that improvements in national under 5 mortality, in line with the MDG, do not necessarily bring about decreasing inequalities in mortality between the poorest and least poor in society. Indeed, such society-wide improvements seem as likely to be accompanied by increasing as decreasing inequalities. This finding indicates the importance of monitoring under 5 mortality among different socioeconomic groups. It also argues for reformulating the child mortality MDG to incorporate an equity dimension and thus provide an impetus to adopt policies that tackle health inequalities.

For most countries considered here the Demographic and Health Surveys give the only nationally representative data on child mortality and are thus widely used for that purpose. However, as shown by the width of the confidence intervals in our analysis, these
A ship too far

A memorable patient

Second chance at life was sailing towards us, but then suddenly it crew members from the ocean. It appeared that hope and a it, half submerged in the deep sea. It was 18 hours later when an when we got it into the water it rolled over, and so we hung onto a Japanese submarine. We tried to make a raft out of hatches, but after being evacuated from Singapore, our ship was torpedoed by and I was in the RAF," he began. "On Friday 13 January 1944, disappointment. wheeled past us suggested much deeper feelings than mere performed in our hospital. However, the patient’s look as he was disappointed at the postponement, since this was to be the first had taken an overdose. We trainees, too, had our reasons to be Unfortunately, the last bed had been claimed for a patient who out of the anaesthetic room. After a long wait, the news had come W e saw the look of despair in his eyes as his trolley was wheeled We met him later on the ward. He was an extraordinary man I relived the experience as I was being sent back from theatre. I A version of this paper was presented at the Global Forum for Health Research, Mexico City, November 2004. We thank Eldaw Abdalla Suliman and Agbessi Amouzou for supplying us with the standard error data used in calculating the confidence intervals. Contributors: The idea was developed by KAM in discussion with DRG and DAL. KAM analysed the data and drafted the paper. All authors contributed to the interpretation of the data and the development and writing of the final manuscript. KAM is guarantor. Funding: KAM was supported by the Dreyfus Health Foundation. Competing interests: None declared. Ethical approval: Not needed.

Progress is being made in some low and lower middle income countries towards achieving the millennium development goal on under 5 mortality

National improvements in under 5 mortality, in line with the millennium development goal, are as likely to be accompanied by increasing as decreasing inequalities in child mortality within countries; adding an equity dimension to this goal would give an impetus to adopting policies that tackle health inequalities.

data allow us to give only indicative results rather than make statistically robust assessments of trends in inequality in under 5 mortality. This points to a need to strengthen health information systems for equity purposes. A

A memorable patient

We saw the look of despair in his eyes as his trolley was wheeled out of the anaesthetic room. After a long wait, the news had come from the intensive care unit that his operation had to be postponed because, as often happens, no bed was available. Unfortunately, the last bed had been claimed for a patient who had taken an overdose. We trainees, too, had our reasons to be disappointed at the postponement, since this was to be the first laparoscopic radical gastrectomy for distal gastric malignancy performed in our hospital. However, the patient’s look as he was wheeled past us suggested much deeper feelings than mere disappointment.

We met him later on the ward. He was an extraordinary man whose wartime experiences fascinated us. "It was 60 years ago, and I was in the RAF," he began. "On Friday 13 January 1944, after being evacuated from Singapore, our ship was torpedoed by a Japanese submarine. We tried to make a raft out of hatches, but when we got it into the water it rolled over, and so we hung onto it, half submerged in the deep sea. It was 18 hours later when an Australian ship spotted us and started collecting the scattered crew members from the ocean. It appeared that hope and a second chance at life was sailing towards us, but then suddenly it changed its direction and started sailing away. "Oh Lord, no. You show us mercy and then take it away." Then, when all seemed lost, the ship changed its direction and started coming back. We were rescued. I was told later by one of the ship’s crew that if they had sailed head on towards us we would have drowned with the water turbulence, and so the ship had to make a deviation and approach us from the side. You know, doctors, later that day I tasted the best tomato soup that I ever had in my life." He said, "Today that feeling of life ebbing away came back and brought about feelings that were identical to those I had 60 years ago. It was 18 hours in the water, the ship came for us and then turned back."

The old man spoke from his heart, and we thought about how often we never take time to think about what goes on inside the minds of our patients. We had failed to appreciate how a casual postponement could equate to a struggle to survive while starving, cold, and weary in the dark waters of adversity. Sajid Mahmud, specialist registrar, Wrexham Maelor Hospital, Wrexham (babasajid@yahoo.co.uk)

Corrections and clarifications

Influenza pandemics and avian flu

We introduced an important editorial error in this Clinical Review by Douglas Fleming at proof stage (BMJ 2005;331:1066-9, 5 Nov). While rephrasing a sentence, we inadvertently omitted the word “not.” So in the box titled “Learning point: Example 4” the penultimate sentence should read: “Pregnancy is not a contraindication for vaccination.” In the full text (HTML) version of this article on bmj.com, an electronic glitch resulted in an additional error: part of the main article appeared with the text of the same learning point box. All these errors have been corrected in the online versions of the article on bmj.com.

Rethinking breast screening—again

A confusion in the original text of this Personal View by Cornelia J Baines led to a change of intended meaning during the editorial process (BMJ 2005;331:1031, 29 Oct). In the third paragraph from the end, the sentence starting, “The reductions in breast cancer mortality...” should read: “Methodologically sound trials have found that the reduction in breast cancer mortality that can be attributed to screening does not even remotely approach 50%.”

What is already known on this topic

Progress is being made in some low and lower middle income countries towards achieving the millennium development goal on under 5 mortality

What this study adds

National improvements in under 5 mortality, in line with the millennium development goal, are as likely to be accompanied by increasing as decreasing inequalities in child mortality within countries; adding an equity dimension to this goal would give an impetus to adopting policies that tackle health inequalities.

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The old man spoke from his heart, and we thought about how often we never take time to think about what goes on inside the minds of our patients. We had failed to appreciate how a casual postponement could equate to a struggle to survive while starving, cold, and weary in the dark waters of adversity.

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