

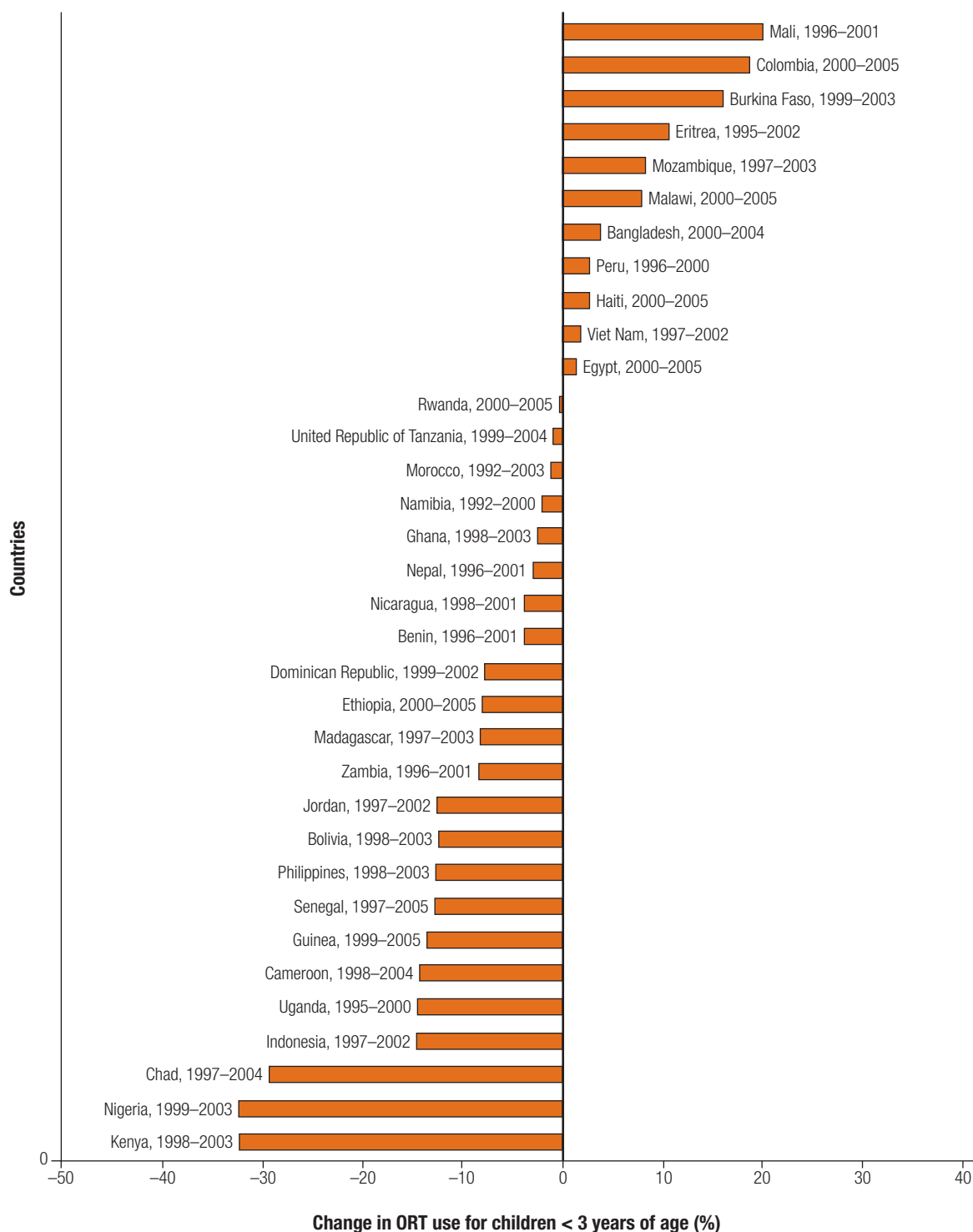
Declines in case management of diarrhoea among children less than five years old

In the January 2007 *Bulletin*, Forsberg et al. present an elegant analysis of the trends in diarrhoea case management using data from national Demographic and Health Surveys (DHS) from 1986

to 2003.¹ They conclude that despite global efforts to promote appropriate diarrhoea management during this time, only slow progress has been made in the proportion of children treated with oral rehydration salts (ORS), recommended home fluids (RHF) or increased fluids. The proportion of children given continued feeding during diarrhoea episodes actually decreased.

Forsberg et al. examined trends in diarrhoea management over all DHS surveys conducted from 1986 to 2003. Since the time horizon of their analysis encompasses the late 1980s and early 1990s, when national and global Control of Diarrhoeal Disease programmes were quite active, and the period in the second half of the 1990s when these transitioned into

Fig. 1. Percent change in use of oral rehydration therapy during the two most recent Demographic and Health Surveys, 1992–2005



the Integrated Management of Childhood Illness programme, we believe that the small increases in ORS, RHF and increased fluids reported do not accurately represent the current trend in diarrhoea management. To inform future programmatic strategies, we sought to determine the most recent trends in diarrhoea treatment by reviewing DHS data on management of diarrhoea among children < 3 years old in the 34 countries that conducted a DHS survey between 2000 and 2005 (available at: <http://www.measuredhs.com>). We calculated the absolute difference between the percentage of children with diarrhoea who were reportedly given ORS, RHF or increased fluids during the most recent DHS survey (2000 to 2005) and the preceding DHS survey (1992 to 2000) and found declines in the use of ORS, RHF or increased fluids in 23 (68%) of 34 countries, ranging from < 1% (Rwanda) to 32% (Kenya and Nigeria) (Fig. 1). Eleven countries experienced declines greater than 10%.

Children with diarrhoea who are not given ORS, RHF or increased fluids may be given the same amount of fluids as when they are well, a reduced amount of fluids or no fluids at all. In surveys conducted in or after 2000 in 43 countries, a median of 29% (range: 5–83%) of children actually received reduced or no fluids during a diarrhoea episode. Forsberg et al. report an annual decrease of 0.64% for this indicator. However, of 32 countries where this indicator was measured during both of the most recent surveys, 27 (91%) experienced increases in the proportion of children < 3 years old receiving reduced or no fluids during diarrhoea episodes, with increases ranging from < 1 to 64% (median 10%). The median annual change in the proportion of children with diarrhoea receiving reduced or no fluids was an increase of 1.4% (range: –2% – 13%).

Declines in use of rehydration seem to occur despite overall improvements in awareness of ORS. In the 40 countries having DHS surveys in or after 2000 and in which this indicator was measured, a median of 89% (range:

46–98%) of mothers of children with diarrhoea knew about ORS. Of 30 countries where this indicator was measured during both of the most recent surveys, 17 (57%) experienced increases in the proportion of mothers aware of ORS. The median increase in the proportion of mothers aware of ORS was 11% (range: < 1–33%).

Our analysis confirms Forsberg's finding of a downward trend in the practice of continued feeding during diarrhoea. In the 42 countries having DHS surveys conducted in or after 2000 and in which this indicator was measured, a median of 52% (range: 37–67%) of children received reduced or no food during a diarrhoea episode. Of 30 countries where this indicator was measured during both of the most recent surveys, 17 (57%) experienced increases in the proportion of children < 3 years old receiving reduced or no food during diarrhoea episodes. The median increase in the proportion of children with diarrhoea getting reduced or no food was 8% (range: 2–31%).

The decline in appropriate diarrhoea case management at the household level is likely multifactorial. The well-deserved recent growth in attention and resources accorded to diseases such as HIV/AIDS, tuberculosis and malaria has not been matched for other leading causes of childhood death, including diarrhoea.² The shift away from vertical, disease-specific public health programmes during the past decade towards more integrated approaches, which have been primarily implemented at health facilities and among health-care workers, may have resulted in gaps in promotion of basic diarrhoea case management at the community level.³ As Forsberg et al. point out, increased knowledge does not necessarily result in an improvement in practices. Thus, efforts to increase appropriate diarrhoea management must concentrate on behaviour change in the community and household, targeting a variety of caretakers involved in treatment decisions.

To better understand these changes, we are undertaking quantitative and qualitative research to investigate the

determinants of diarrhoea treatment by caregivers and health-care workers in Kenya, which has seen a substantial reduction in use of rehydration therapy. We encourage colleagues to undertake similar investigations in other countries showing evidence of declines in appropriate diarrhoea management.

We congratulate Forsberg et al. for highlighting the lack of progress in diarrhoea case management. Our additional findings underscore the disturbing fact that diarrhoea management behaviours are actually worsening in some countries. These findings indicate the possibility of losing ground on oral rehydration therapy, one of the simplest and most affordable public health innovations of the past century. Without swift corrective action on multiple levels (community-based behaviour change, national and global funding and policy), we may indeed see reversals in the dramatic decline in diarrhoea mortality of the past 20 years, a decline frequently attributed to the advent of oral rehydration therapy.⁴ Renewed commitment to decreasing the highly preventable and treatable infant and child mortality from diarrhoea, which remains at 2 million deaths annually, is long overdue. ■

Pavani Kalluri Ram,^a Misun Choi,^b Lauren S Blum,^c Annah W Wamae,^d Eric D Mintz^c & Alfred V Bartlett^b

References

1. Forsberg BC, Petzold MG, Tomson G, Allebeck P. Diarrhoea case management in low- and middle-income countries — an unfinished agenda. *Bull World Health Organ* 2007;85:42-8. PMID:17242757
2. Rudan I, El Arifeen S, Black RE, Campbell H. Childhood pneumonia and diarrhoea: setting our priorities right. *Lancet Infect Dis* 2007;7:56-61. PMID:17182344 doi:10.1016/S1473-3099(06)70687-9
3. Bryce J, Victora CG, Habicht JP, Black RE, Scherpbier RW. Programmatic pathways to child survival: results of a multi-country evaluation of Integrated Management of Childhood Illness. *Health Policy Plan* 2005;20:i5-17. PMID:16306070 doi:10.1093/heapol/czi055
4. Victora CG, Bryce J, Fontaine O, Monasch R. Reducing deaths from diarrhoea through oral rehydration therapy. *Bull World Health Organ* 2000;78:1246-55. PMID:11100619

^a University at Buffalo, Buffalo, NY, United States of America.

^b US Agency for International Development, Washington, DC, USA.

^c Centers for Disease Control and Prevention, Atlanta, GA, USA, and Nairobi, Kenya.

^d Ministry of Health, Nairobi, Kenya.

Correspondence to Pavani Kalluri Ram (e-mail: pkram@buffalo.edu).