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Effect of multiple interventions on community health workers' adherence to clinical guidelines in Siaya district, Kenya

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Summary Evaluation of a community health worker (CHW) programme in Siaya district, Kenya, showed CHWs commonly made errors in managing childhood illness. We assessed the effect of multiple interventions on CHW healthcare practices. A sample of 192 ill-child consultations performed by 114 CHWs in a hospital outpatient department between February and March 2001 were analysed. The mean percentage of assessment, classification and treatment procedures performed correctly for each child was 79.8% (range 13.3—100%). Of the 187 children who required at least one treatment or referral to a health facility, only 38.8% were prescribed all treatments (including referral) recommended by the guidelines. Multivariate analyses found no evidence that the intervention-related factors studied (refresher training, supervision, involvement of community women in the CHW selection process, adequacy of medicine supplies, and use of a guideline flipchart during consultations) were significantly associated with overall or treatment-specific guideline adherence. A multivariate linear regression analysis revealed that several non-intervention-related factors, such as patient characteristics,

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were significantly associated with overall guideline adherence. Given that our study was cross-sectional and our measurement of exposure to several interventions was based on CHW recall, the estimated effects of the interventions should be interpreted with caution. Despite these limitations, however, our results raise questions about the effectiveness, in the setting of Siaya district, of several interventions commonly used to improve the quality of care given by CHWs.

1. Introduction

In developing countries, the burden of childhood illness remains high (Ahmad et al., 2000; Black et al., 2003). The benefits of proper case management are well documented, and simple, affordable treatment could prevent the vast majority of childhood deaths (Brewster et al., 1997; Fagbule and Kalu, 1995; Fontaine and Newton, 2001; Gove, 1997; Lasch et al., 1983; Ryder et al., 1985; Sazawal and Black, 1992; Victora et al., 1996). Evidence-based clinical guidelines have been developed to improve case management in resource-scarce settings (CDC, 1994; Gove, 1997; WHO, 1991). To expand the provision of health care, many community health worker (CHW) programmes that utilise clinical guidelines have been implemented throughout Africa, Asia and Latin America (Walt, 1990; Winch et al., 2005). Several studies provide evidence that implementation of such CHW programmes can reduce childhood mortality (Kumar et al., 1989; Pandey et al., 1991; Sazawal and Black, 1992).

In 1995, the non-governmental organisation CARE initiated a CHW programme in Siaya district, Kenya, which is located in a province with a high childhood mortality rate (198.8 deaths before 5 years of age per 1000 live births) (Macro International, 1998). The programme trained CHW volunteers to assess (i.e. collect information on clinical signs and symptoms), diagnose and treat children <5 years old according to the CARE Management of the Sick Child (MSC) guidelines, a modified version of the WHO/UNICEF Integrated Management of Childhood Illness (IMCI) guidelines (Gove, 1997). The programme covered 81 890 persons in Siaya district in 1999 (Central Bureau of Statistics, 2000).

To promote and maintain CHWs' adherence to MSC guidelines, the programme implemented a group of interventions. The types of interventions are commonly used in other CHW programmes and are assumed to be effective in improving the quality of care (WHO, 1989; Winch et al., 2003).

The first intervention was criteria for selecting CHWs. At a minimum, all CHWs were required to: (1) read at school level 'standard 7' (equivalent to being an elementary school graduate in the USA) or above; (2) volunteer; and (3) reside in the community. In addition to these criteria, some villages developed supplemental processes such as establishing health committees to select CHWs and soliciting the opinions of women in the village. The rationale for requesting women's opinions is that most of the patients' caretakers whom CHWs interact with are mothers, and women might be able to contribute ideas about characteristics they feel would enable CHWs to provide high quality care.

The second intervention was training on how to use the MSC guidelines. The programme required all CHWs to attend initial training, which involved 10 days of lectures, reviewing case scenarios and role-playing, and 5 days of clinical practice at Siaya District Hospital. The programme also provided refresher training, which targeted weaknesses in CHW clinical skills that were identified by surveys of CHW performance. Refresher training sessions lasted 6—15 days, trained CHWs in groups of 8—10 and included lectures, role-playing, reviewing videotaped consultations and clinical practice at local pharmacies or health facilities. The programme conducted three group trainings: the first (January—July 1997) served as initial training, and subsequent trainings (November 1998—February 1999 and September—November 2000) served as initial or refresher training.

The third intervention was provision of job aids. CHWs received MSC guideline flipcharts, treatment and counselling cards (which summarise drug dosages and counselling messages) and clinical registers. Clinical registers are books with columns where CHWs record assessment findings, illness classifications (i.e. diagnoses) and treatments. Since the register's columns match the MSC guideline tasks, the register is a job aid. Of note, when the guidelines were revised in 1998, job aids also were modified.

The fourth intervention was provision of drug supplies. CHWs received medicine kits that were replenished through a cost-recovery financing system at community pharmacies.

The fifth intervention was supervision. The programme planned for all CHWs to receive ongoing clinical and at least biannual administrative supervision. Supervisors examined children with CHWs at health facilities and in the village setting, reviewed CHWs' clinical registers and held monthly group meetings with CHWs to discuss problems.

The programme invested considerable resources in these interventions to ensure CHWs gave high-quality care. However, evaluations revealed CHWs commonly made medical errors (Kelly et al., 2001). This finding raised two essential questions. (1) Why are CHWs still frequently making errors after several years of quality improvement interventions? And (2) how can errors be prevented? To answer these questions, information is needed on the effectiveness of the interventions and the effect of other factors on CHW clinical practices.

Despite decades of experience with CHWs in developing countries, little objective scientific evidence exists regarding the effectiveness of interventions to improve the quality of care given by CHWs and the factors that determine how well CHWs manage ill children. The few published studies on the determinants of CHW performance have important limitations, including no measurement of actual case management, small sample size, non-probability sampling, failure to account for correlation and no adjustment for potential confounders (Ashwell and Freeman, 1995; Curtale et al., 1995; Hadi, 2001, 2003; Mangelsdorf, 1988; Zeitz et al.,