). Control of Parasitic Diseases through School-based Health Education and Deworming: A five years activities in Ada-Foah, Ghana.

Article · January 2008

CITATIONS
0

READS
82

16 authors, including:

Kwabena M Bosompem
Leiden University Medical Centre
73 PUBLICATIONS **1,278** CITATIONS
SEE PROFILE

Michael Wilson
Noguchi Memorial Institute for Medical Research
197 PUBLICATIONS **2,490** CITATIONS
SEE PROFILE

William K Anyan
Noguchi Memorial Institute for Medical Research
26 PUBLICATIONS **270** CITATIONS
SEE PROFILE

Daniel Boakye
Noguchi Memorial Institute for Medical Research
250 PUBLICATIONS **8,088** CITATIONS
SEE PROFILE

Reprinted from:

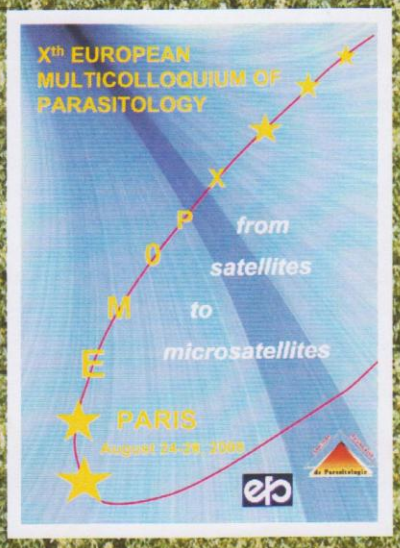
X European Multicolloquium of Parasitology – EMOP

Free Papers

Paris (France), August 24-29, 2008

Editors

Jean Dupouy-Camet • Eduardo Dei-Cas



MEDIMOND

INTERNATIONAL PROCEEDINGS

Control of Parasitic Diseases Through School-based Health Education and De-worming: A Five Years Activities in Ada-Foah, Ghana

K.M. Bosompem[1], M.D. Wilson[1], W.K. Anyan[1], T. Awazawa[1], S. Hanafusa[1], D.A. Boakye[1], M.A. Appawu[1], I. Ayi[1], D. Boamah[1], J.K. Asigbe[1], J.K. Quartey[1], K. Morinaka[1], H. Ogiwara[1], N. Ohta[2], D. Ofori-Adjei[1], A. Nyarko[1] and T. Takeuchi[3]

[1]Noguchi Memorial Institute for Medical research, University of Ghana, Legon-Ghana
[2]Section of Environmental Parasitology, Dept of International Health. Tokyo Medical and Dental University, Tokyo, Japan
[3]Department of Tropical Medicine and Parasitology, Keio University, Tokyo, Japan

Summary

KAP and parasitological surveys were conducted in (2002, 2005 and 2007) among primary school children in the model site of West African Center for International Parasite Control (WACIPAC) in Ghana. School-based health intervention was used as a means of controlling Soil Transmitted Helminth (STH) and Shistosomiasis. Comprehensive health promoting activities, including health education and mass de-worming was conducted in all 10 primary schools in communities in the area. The KAP study showed that hygienic and de-worming practices and knowledge about deworming had improved. Parasitological surveys also showed that the prevalence of both STH and schistosomiasis decreased sharply over the 5 years. Interestingly, knowledge related to the causes and transmission of parasitic diseases did not show improvement.

Introduction

In recognition of the huge burden of parasitic worm infections, and the effects on socio-economic development in endemic countries, WACIPAC

embarked on a programme to facilitate the implementation of parasitic disease control within the sub-region. The strategy is to use school-based health interventions as a means of promoting control of STH and schistosomiasis in schools and communities. The programme promotes strong inter-sectoral collaboration between the health and education sectors, as a means of facilitating health promotion and deworming among school-age children. It also stimulates active community participation for sustainability. The study reported here was conducted at the WACIPAC model site in Ghana.

Materials and Methods

The study was conducted in all 10 primary schools in the WACIPAC model site, Ada-Foah, Damgme East District, Ghana. Health promoting activities included teacher training, heath education for personal and environmental hygiene and de-worming. In 2002, there were 10 primary schools with total enrolment of 2690 pupils, and 3152 pupils in 2007. All class 3 children in the 10 schools were selected for the study. KAP surveys were performed in 2002 and 2007, whilst parasitological screenings were conducted in 2002, 2005 and 2007. The Kato-Katz technique was used for stool analysis, and urine was examined by the filtration technique (WHO 2003). Mass deworming of school children was carried out occasionally in some years. Children who were not available on the day of survey were excluded. The results from KAP and parasitological surveys were analyzed using Microsoft Excel.

Result

512 and 408 children were surveyed for KAP in 2002 and 2007, respectively (Table 1).

In terms of hygienic practices, the KAP survey showed that the proportion of pupils who used stream/river as a source of water decreased from 19.7% in 2002 to 10.8% in 2007. On the other hand, the use of well water increased from 71.1% in 2002 to 74.5% in 2007 (Figure 1.).

Table 1. General characteristics of study pupils

	2002 (512)	2007 (408)
Mean age (S.D.)	11.1 (2.5)	11.5 (2.6)
Sex		
Male (%)	312 (60.9)	239 (58.6)
Female (%)	200 (39.1)	169 (41.4)

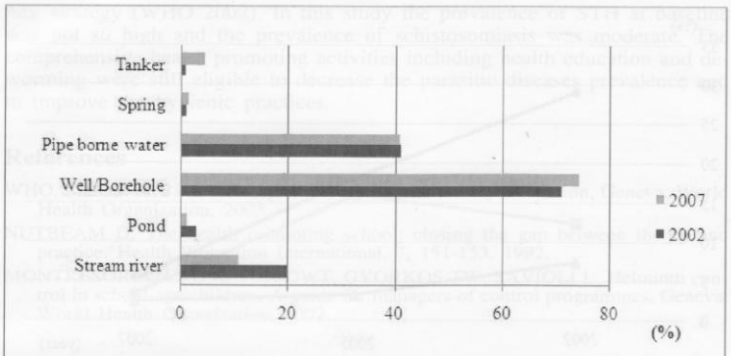


Figure 1. Variations in the use of water from diffrent sources

The proportion of pupils in 2007 who used sanitary toilet (KVIP, Water closet and Pit) at home (28.4%) was more than those in 2002 (14.6%). With respect to rubbish disposal at home, the proportion of pupils who used rubbish dump increased from 58.2% in 2002 to 71.1% in 2007, while the proportion of pupils who used bush decreased from 31.3% in 2002 to 18.4% in 2007. From the responses, the availability of soap increased from 38.0% at school and 62.4% at home in 2002, to 68.0% at school and 75.7% at home in 2007. However, pupils who ever discussed health issues at home deceased from 65.4% in 2002 to 30.6% in 2007. The children usually discussed health issues with either mother and/or father in both 2002 and 2007.

For knowledge about parasitic diseases, 21.1% of pupils in 2002 answered yes to soil contact as a possible cause of STH infection, compared to 17.6% in 2007. With respect to transmission of shistosomiasis, 45.9% of pupils answered yes to water contact as possible cause in 2002 compared to 14.0% in 2007. In 2007, about 20% of pupils replied that the best way to prevent STH infection was "regular de-worming", however, this was lower (8%) in 2002. From the responses, de-worming of the children is being conducted at home, the health centre and at school, and the frequency increased from 2002 to 2007, (more than once 33.7% in 2002, 47.6% in 2007)

Parasitological survey showed that STH (*Ascaris lumbricoides*, *Hookworm, Trichuris trichiura*) prevalence decreased from 29.1% in 2002, 18.3% in 2005, to 5.4% in 2007. *S. hematobium* prevalence was from 12.5% in 2002 to 3.5% in 2007 and *S. mansoni* prevalence was from 7.5% in 2002 to 2.5% in 2007 (Figure 2).

The KAP study showed that some symptoms which might be related to

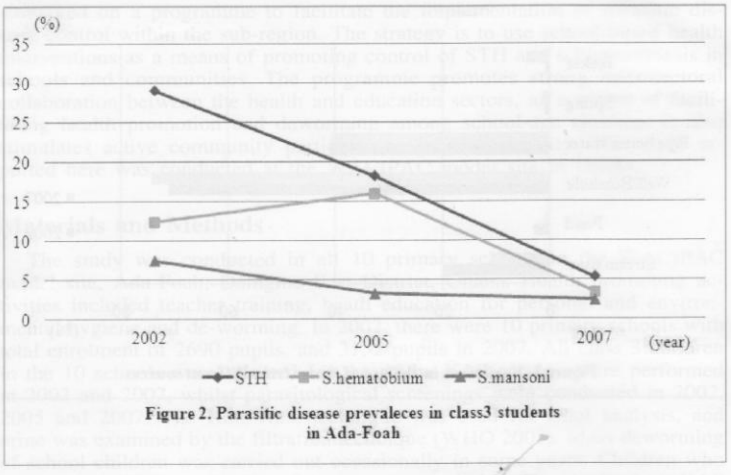


Figure 2. Parasitic disease prevaleces in class3 students in Ada-Foah

parasite infection were also less perceived. Experience of wheezing decreased from 43.7% in 2002 to 23.8% in 2007. Also, the proportion of children who had ever experienced blood in urine decreased from 78.8% in 2002 to 49.1% in 2007.

Conclusion

In line with the Declaration of Alma-Ata, the health promoting school initiative stresses participatory approaches, in which school commitment and involvement are regarded as key to success (NUTBEAM D 1992). At the WACIPAC model site, participatory learning activities for teachers and students were conducted frequently not only through the project but also by other local stakeholders. This might partly explain the improvement of hygienic situation and decline of STH and schistosomiasis prevalence. There were some limitations to compare in some parts of the questionnaires due to the structural differences. However the lack of clear improvement of disease related knowledge among the children in 2007 may be influenced by variations in the intensity of health educational activities during the project period.

When the intensity of worm infection is high, drug treatment should be considered as a first line rapid control measure. Improvements in situation and behavioral modification through health education are long-term measures, which should be considered for inclusion in a comprehensive commu-

nity strategy (WHO 2002). In this study the prevalence of STH at baseline was not so high and the prevalence of schistosomiasis was moderate. The comprehensive health promoting activities including health education and deworming were still eligible to decrease the parasitic diseases prevalence and to improve the hygienic practices.

References

WHO, Manual of Basic techniques for a health laboratory 2nd edition, Geneva, World Health Organization, 2003.

NUTBEAM D, The health promoting school: closing the gap between theory and practice, Health Promotion International, 7, 151-153, 1992.

MONTRESOR A, CROMPTON DWT, GYORKOS TW, SAVIOLI L, Helminth control in school-age children, A guide for managers of control programmes, Geneva, World Health Organization, 2002.

Volume ISBN 978-88-7587-459-9
CD ISBN 978-88-7587-460-5

MEDIMOND S.r.l.

MONDUZZI EDITORE
INTERNATIONAL PROCEEDINGS DIVISION

Via Maserati 5, 40128 Bologna, Italy
Tel. (+39) 051 4151123 · Fax (+39) 051 370529
www.medimond.com