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# Primary school children's perspectives on common diseases and medicines used: implications for school healthcare programmes and priority setting in Uganda

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## Abstract

**Background:** Existing school health programmes in Uganda target children above five years for de-worming, oral hygiene and frequent vaccination of girls of reproductive age.

**Objective:** To assess primary school children's perspectives on common diseases they experience and medicines used in order to suggest reforms for school healthcare programmes and priority setting.

**Methods:** Rapid appraisal approaches, triangulated with a survey, using a semi-structured questionnaire with 80 children aged 8-15 years, were used in data collection. This was done during a three months fieldwork in one primary boarding school in Kampala. An investigation was made into perspectives of children on their recent illness experiences and medicines they used to recover. Other techniques in data collection included participant observation and eliciting children's narratives of diseases they experienced in a two weeks recall. Key informants, who included school teachers, a nurse, 2 paediatricians, 4 matrons and private health service providers in the vicinity of the school, were approached to validate children's narratives.

**Results:** Children named and ranked malaria as the most severe and frequently experienced disease. Other diseases mentioned included diarrhoea, skin fungal infections, flu, and typhoid. The symptoms children recognised in case of illness were high body temperature, vomiting, headache, weakness, appetite loss and diarrhoea. Children were either given medicines by the school nurse or they self-medicated using pharmaceuticals including chloroquine, panadol, flagyl, fansidar, quinine injections, capsules (amoxicillin and ampicillin) obtained from the clinics, drug shops, pharmacies, and other unspecified indigenous medicines from their home and markets.

**Conclusion:** The healthcare needs and priorities of children in primary school are infectious diseases which they could readily identify.

**Key words:** Children, illnesses, school healthcare programmes, priority setting, Uganda.

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## Introduction

The World Health Organisation<sup>1</sup> stipulates that school health programmes should include HIV/AIDS and sexually transmitted diseases, violence and injury, unintended pregnancy and poor reproductive health, helminth infection, poor nutrition and food safety, poor sanitation and water control, lack of immunisation, poor oral health, malaria, respiratory infections, psychological problems, alcohol, tobacco and illicit drug abuse. For the World Bank and the United Nations Children's Fund<sup>2,3</sup>, however, an essential public health package for school health programmes should treat worm infection and micro nutrient deficiency, and provide health education.

In Uganda, school health programmes target children above five only for de-worming, oral hygiene and girls of child-bearing age for vaccination against tetanus<sup>4</sup>. Although vertical health care programmes range from malaria control, reproductive health (RH), AIDS awareness and prevention, and control of sleeping sickness, Tuberculosis (TB), and river blindness disease, to school health, and an expanded programme of immunisation<sup>4,5,6</sup>, in the main, regarding children, these programs are directed to save the under five children from so called killer diseases through immunisation. An extensive programme, code named Integrated Management for Childhood Illnesses (IMCI), similarly targets under-five-year old children. Underlying this focus on younger children is the general idea that children above five years will have developed significant immunity for communicable diseases<sup>7,8</sup>. In Uganda, therapies, both biomedical and indigenous, are readily accessible in the market without prior medical consultation<sup>9,10,11 & 12</sup>.

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The core question to this study was how children above five perceive and seek therapy for the common illnesses that they suffer from. This study is premised on the fact that from age 8 onwards children's thinking becomes logical and children can interpret changes in their bodily experience and act upon it<sup>13</sup>. The study sought to determine common diseases at school and medicines used to restore normality. Sub-questions were a) how children experience common illnesses, b) how they manage their conditions, c) how they know they are ill, d) how they determine severity of illness episodes, e) which medicines they use for illnesses, f) what criteria they use in medicine selection, and g) where they get the medicines? Based on primary school children's own perspectives on health and health care, the article argues for adjustment of existing school health programmes.

## Methods

*Study setting:* The study was carried out from May to August 2003 at one boarding primary school in Kampala. This school was purposively selected because of the head teacher's willingness for the study to be conducted in his school, its easy accessibility, and limited funds and time available to conduct the study. Further, the selected school's typical conditions mirror the general pattern of a substantial number of schools both in urban and rural areas.

This study approached the school as a specific social context in which children experience illnesses and devise means to ensure recovery. The study is an ethnography of one school, making use of a combination of quantitative and qualitative methods with an emphasis on the latter.

Rapid appraisal techniques with 190 children triangulated with a survey with 80 children were used in data collection. In total, 270 children participated in the study. Participation was mainly determined by age (i.e. those aged between 8-15 years), gender and individuals' willingness to discuss the major research themes. The present study to assess children's perspectives concerning their healthcare needs and disease burden with 8-15 year olds differs from the one by Gross, Cohen & Kahan<sup>14</sup> which investigated perceptions of parents, nurses and school principals for prioritisation of healthcare-needs of schools, leaving the children's perspectives out.

**Compositions and narratives:** In discussing "common diseases and medicines children used at school", 70 girls and boys either wrote down or told short stories of their experiences to the first author.

*Focus group discussions:* In total, there were twelve focus

group discussions with children in upper primary classes aged 10-15 years. Each group consisted of 8-12 children. Only in two focus group discussions were participants disaggregated by gender.

**Listing and ranking:** This exercise was administered to children in primary three and primary four. Children were requested to name and rank common diseases they suffer from at school and medicines they used in treatment.

**Individual interviews:** In-depth discussions were conducted with 20 children. In total there were forty in-depth interview sessions.

**Questionnaires:** Through self-administered questionnaires, a survey was conducted with 80 children aimed to elicit their perspectives on the research themes.

**Other techniques** included observation of cases in the school dormitories, examination of past medical records, giving four groups of children disaggregated by gender a camera with instructions to photograph what children themselves perceived as factors contributing to the common diseases at school and what children think is the cause of, or contributes to the common diseases at school.

**Key informants:** Two public health doctors, 2 paediatricians and the school nurse were interviewed to verify children's assertions concerning their health status. Non-professional healthcare givers - including 6 drug-shops owners near the school, 4 matrons, 1 medicine hawker, 5 school administrators, 2 canteen managers (who also sold pharmaceuticals) and 4 parents - were interviewed to determine the profile of diseases and medicines used by boarding school children and to elicit the respondents' perspectives concerning how they interact with children as independent healthcare seekers.

## Data analysis

Quantitative data were coded and analysed with Statistical Package for Social Scientists (SPSS) programme version 9.0. Since there were multiple responses for major categories, a summary of statistics was obtained from a multiple response analysis procedure. Statistical summaries of results in tables are given below. Recorded qualitative information was literally transcribed and categorised into major themes. Some themes in narratives and compositions, focus group discussions and in-depth interviews were selected for verbatim presentation in the main text below.

## Ethical considerations

Study objectives were presented to the school administration, teachers, children and some support staff. Respondents were informed of their freedom not to participate in the study or to opt out of the study. Permission to access each dormitory was granted by the matron of the respective dormitory. In addition, children

and administrators were assured of confidentiality and anonymity in case information contrary to school regulations was disclosed. Since the main respondents in this study were children below 18 years, permission for them to participate in the study was granted by their parents, legal guardians or their school head-teacher. Permission was also sought from children, who were approached as individuals in their own right.

**Table 1: Gender disaggregated data for children aged above 8 years and above and the school staff 2003**

Class of study	Boys	Girls	Title	Male	Female
Primary three (3C) & (3J)	48	55	Head teacher	1	
Primary four (4C) & (4J)	72	82	Deputy head teacher	1	
Primary four (5V) & (5M)	54	73	Class teachers	4	8
Primary six (6M) & (6B)	56	64	Nurse	1	
Primary seven (7)	30	42	Matrons	4	
			Cooks	3	5
			Canteen managers	2	—
<b>Total</b>	<b>260</b>	<b>316</b>			

\* The study population for (children 8 years and above) was 576 children in 2003.

## Results: Quantitative data

**Student population and staff at school:** In the year of the study, 2003, the school had a student population of 890 children. Of these, the study population for

children aged 8 -15 years consisted of 576 children: 260 boys and 316 girls. A total of 270 children actively participated in the study.

**Table 2: Gender disaggregated data for common diseases children experienced at school**

Diseases	Count boys	Count girls	%of cases	% responses boys	% responses girls
Malaria	35	38	91.3	25.4	26.0
Diarrhoea	34	32	82.5	24.6	21.9
Ringworm	25	28	53.8	18.1	19.2
Cough	20	23	66.3	14.5	15.8
Flu	16	16	21.3	11.6	11.6
Typhoid	8	9	40.0	5.8	6.2
<b>Total</b>	<b>138</b>	<b>146</b>	<b>355</b>	<b>100</b>	<b>100</b>

## Common diseases and common symptoms:

Children named and ranked infectious diseases such as malaria 73(91.3%), diarrhoea 66(82.5%), skin fungal infections 53(66.3%), cough 43(53.4%), flu 36(40%) and typhoid 17(21.3%) as common diseases children above five years of age experience. The percentages given

are high because children had multiple responses for common diseases at school. Signs recognised in case of these illnesses were high body temperature, vomiting, headache, weakness, appetite loss and diarrhoea. No child mentioned an experience with helminths in a 2weeks-1 month recall.

**Table 3: Gender disaggregated data of common pharmaceuticals used at school**

Name	Count	Boys	Girls	% cases	% responses Boys	% responses Girls
Chloroquines	76	36	40	95.0	22.8	21.4
Panadols	59	29	30	73.8	18.4	16.6
Flagyl	48	19	29	60.0	12.0	15.5
Fansidar	44	20	24	55.0	12.7	12.8
Quinine	41	18	23	51.3	11.4	12.3
Capsules	29	15	14	36.3	9.5	7.5
Hedex & Action	25	12	13	31.3	7.6	7.0
Magnesium & others	12	6	6	15.0	3.8	3.2
Vitamins	11	3	8	13.8	1.9	4.3
<b>Total</b>	<b>345</b>	<b>158</b>	<b>187</b>	<b>431.3</b>	<b>100</b>	<b>100</b>

**Common medicines used at school:** Children used a variety of pharmaceuticals including chloroquine 76(95%), paracetamol 59(73%), metronidazole 48(60%), fansidar 44(55%), quinine injections 41(51%), capsules (amoxicillin and ampicillin) 29(36.5%), hedex and action 25(31%), magnesium and other unspecified pharmaceuticals 12(15%) and vitamins 11 (13.8%) in

treatment. The children obtained these from private clinics (95%), drug shops (64%), pharmacies (65%), or at home or markets without prior medical consultation (22%). Some children got the pharmaceuticals from the school nurse and matrons. The school commonly allowed children to come with and use their own medicines.

**Table 4: Gender disaggregated data showing source of medicines**

Name	Count	Boys	Girls	% cases	% responses Boys	%responses Girls
Clinic	74	38	36	94.9	30.9	28.1
Pharmacy	51	21	30	65.4	17.1	23.4
Shop	50	22	28	64.1	17.9	21.9
Hospital	29	16	13	37.2	13.0	10.2
Home	29	16	13	37.2	13.0	10.2
Market	18	10	8	22.1	8.1	6.3
<b>Total</b>	<b>251</b>	<b>123</b>	<b>128</b>	<b>321.8</b>	<b>100</b>	<b>100</b>

### Sources of medicines at school.

## Results

### Qualitative data

#### Focus group discussions and in-depth interviews

During focus group discussions, children shared their experiences with frequently occurring illnesses such as malaria, diarrhoea, cough and flu. Their accounts show a logical flow from the appraisal of body changes to self diagnosis. For example, in one group a girl gave this account:

*Last week I woke up feeling very cold, yet my body was hot. I had a headache. I went to brush my teeth outside, but even my mouth was bitter. When I took some tea, I vomited it due to malaria.*

In an exercise to rank common diseases, both boys and girls ranked malaria as the most common, followed by

diarrhoea, cough and flu, skin infections and typhoid. A rise in body temperature as a sign of illness was the highest ranking symptom. Where focus group discussions were disaggregated by gender, boys emphasised body weakness and vomiting, and girls appetite loss and headache as major signs of illness. The most common medicines used were chloroquine, paracetamol, metronidazole (flagyl) for diarrhoea and amoxicillin capsules - often described by children as "the red and yellow; and red and black capsules" - which they bought or were always given to them by the nurse if they had a cough. Here is how one child described flagyl effectivity for an episode of diarrhoea: "this one (flagyl) works so fast, and just after two hours of swallowing it, you can go to the toilet, but you find you are well already". Only 12 children of the 270 study population named Oral Rehydration Salts (ORS) in the management of a recent episode of diarrhoeal disease. By observation neither the matron or school nurse had

ORS packets, neither did they mention the use ORS in the management of diarrhoea at the school. Noticeably, there was no discussion or interview where children mentioned commonness of worms. Children frequently asserted that they did not see worms when using flush toilets even after taking albendazole – a de-worming medication.

Here is one paediatrician's argument concerning children's perspectives that whereas the nurse frequently gave them medicines for de-worming, they did not see the worms when they used flush toilets:

*Children should be able to see the worms after taking anthelmintics when they use flush toilets if the worms are the askaris type. This is because roundworms (which are the most dangerous species of worms) multiply fast, can block the gut and cause discomfort. However, if children could not see the worms, they may not be infected with roundworms but the microscopic types of worms. Such species are however not life threatening to children*

Information provided by the school nurse showed that the commonest medicines available to the children were largely anti-malarials such as chloroquine, quinine and fansidar; antibiotics such as clotrimoxazole, crystalline and procaine penicillin, gentamycin, amoxicillin and ampicillin for cough while for other infective conditions like diarrhoea, amodium and metronidazole were administered. The children used paracetamol, ibuprofen and aspirin in the treatment of pains and aches. Medicines for de-worming included ketrax, albendazole and zentel. The nurse however added:

*There are a wide variety of medicines to choose from, and at the pharmacies, I am always told about and even reminded of other drugs to buy. Some of those may be of the same kind like the ones I have already bought. But still the sellers always insist that I should try them as well. What I choose just depends on what I think works best for the children.*

### **Sources of medicines**

Children revealed various sources of medicines including friends in the dormitories, clinics, school canteen, pharmacy nurse, and home. Various boys underscored the importance of a fellow pupil called "the herbal man" who was a vital source of medication to ill boys in the dormitory.

### **Observation**

The school had no clinic and sick children were given medicines from the dormitories by the nurse who came only once in a week. Each of the four matrons had plastic containers in which a wide range of pharmaceuticals were kept and administered to any sick child. The nurse reported to the school to review children who did not

respond quickly to medicines. Often, such a child was given a gate pass to go home for medications. More girls (58) than boys (21) obtained gate passes in order to seek medical attention in June 2003. Although the school administration always referred to a regular visiting paediatrician, he did not visit the school during the three months research period.

The school sanitation was poor. Flush toilets had no flowing water and each child was obliged to fetch water from the only school tap available with a bucket and use it for flushing after use. However pit latrines were in an appalling condition. After a heavy downpour dirty water would flow through some classrooms and one dormitory, and the garbage container was left unattended to for the entire three months. This attracted houseflies, the vectors for diarrhoea causing pathogens.

The dilapidated dormitories were poorly maintained, with three of the six dormitories having no windows. Dormitories were congested, with children sleeping on closely arranged triple decker beds.

It was a common occurrence that over five children would be asleep in dormitories or sit under the sun for warmth due to fever during class hours. The commonest response from such children was that they were suffering from malaria or diarrhoea.

In a one week observation exercise at one drugstore near the school and inspection of records of sales of pharmaceuticals to children at another, it was found that 40 children bought paracetamol for headache and 35 children bought chloroquine for malaria, but all in less than the recommended doses. For instance, children often bought 3 or 4 tablets of chloroquine instead of 10 tablets as per recommended dose. The main determinant being the amount of money they had for medications.

### **Write-ups and narratives**

Narratives and write-ups provided by 70 children reiterated malaria, diarrhoea, cough and flu as the most common diseases children suffer from at school. In line with statistical data above, pharmaceuticals children frequently wrote about were chloroquine, various kinds of paracetamol, metronidazole, and herbal remedies in the treatment of the above conditions.

### **Photographs**

Although the school environment officer did not like the exercise of exposing the most dilapidated and unhygienic conditions of the school, both boys and girls were excited to photograph the un-attended to garbage bin, the dirty flush toilets, the muddy kitchen and trenches through classrooms. Boys also photographed an injured child whose arm was dressed in plaster; broken dormi-

tory windows and the only congested water tap at school to show their concern for their health situation at school.

## Discussion

### Commonness of infectious diseases

Children's perspectives suggesting that infectious diseases such as malaria, diarrhoea, cough and flu, skin infections and typhoid are the common diseases they experience are not consistent with the pre-set essential public health package for school health programmes. Further, results indicate that school children are able to tell when they are ill, what symptoms they use to 'diagnose' their illness episodes and appropriately take steps to manage their conditions in conjunction with professional and non-professional healthcare providers. The implication here is that it appears that in Uganda, school health programmes need to integrate infectious diseases into planning to enhance its relevance.

### Children easily access pharmaceuticals

Results show that children self-medicated and readily obtained pharmaceuticals without prior medical consultation. Children largely accessed pharmaceuticals in less than the recommended doses. The nurse and matrons administered only chloroquines and panadol for malaria. Such findings are contrary to Uganda's Ministry of Health recommendation for combined treatments (i.e. use of chloroquines and fansidar in complete dosage) for episodes of malaria. The implication here is that apparent poor management of episodes of malaria generates drug-resistant strains of malaria causing parasites. There could also be over-use, mis-use and under-use of pharmaceuticals for common symptoms.

### Children do not see the worms

It appears that worm infections may not be common in these school age children since children do not see worms after use of flush toilets even after taking deworming medication. This finding is neither consistent with an emphasis in school health programmes for deworming: nor is it in line with publications<sup>15, 16, 17</sup> which underscore the importance of schistosomiasis and helminth infections as leading cause of morbidity in adolescents after malaria.

### Poor hygienic practices at school

Findings point to high prevalence of diarrhoeal diseases at this school. This could be due to the school's poor hygienic conditions thereby providing opportunistic conditions for oral-faecal transmission of diarrhoea caus-

ing pathogens. The school therefore needs to ensure better hygienic and living environment for the children. In particular we recommend a move from its present therapeutic model of managing diarrheas with antibiotics to preventive measures.

## Conclusion

Findings where primary school children identify infectious diseases including malaria, diarrhea, cough and flu, skin infections and typhoid as diseases they commonly experience challenge the relevance of the essential package for school health programmes in Uganda. If the school health programmes are underdeveloped world wide due to scant resources, then it is absolutely necessary to align the scant resources to the disease burden as suggested by children of school age.

## Limitations of the study

This study was conducted in only one boarding primary school due to limited time and funds available. Clearly the sample size is small and results of this study may not be generalisable to the rest of primary schools whether in rural or in urban settings. Nevertheless, the primary school studied mirrors urban poor settings which are likely to have similar characteristics of living conditions of the rural poor. It is therefore likely that common diseases experienced by children aged above five years in this school's setting are also common among the rural poor children, since over 80% of Uganda's population live in rural poor settings. Further, diseases like malaria are endemic nationwide and therefore this study's finding might be generalisable at national level.

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