

Primary health care: why has water been neglected?

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Since primary health care became 'selective' the need for clean water sources has largely been neglected. This paper highlights both the economic and philosophical necessity to look again at the approach to primary health care. An observational study from Nigeria is used to exemplify a community where a clean water source was the most urgent need, yet was ignored. Guinea worm infestation therefore caused serious disability in the community and resulted in a reduced uptake of the very forms of 'selective' primary health care that have been favoured internationally - breastfeeding, immunizations, malaria treatment and oral rehydration therapy. In particular, the effect of such disability on women - who have prime responsibility for the health and welfare of their families - was seriously underestimated, to the detriment of child health and survival. A clean, convenient water supply should be an essential component of primary health care.

At the Alma Ata conference in 1978, the necessity for improved water sources entered the mainstream of comprehensive primary health care (PHC).¹ Unfortunately, this wisdom was quickly undermined. The next year, in Bellagio, Italy, at a joint Ford and Rockefeller Foundation Symposium of Health Services, Drs JA Walsh and KS Warren revised the scope and definition of PHC to discourage any focus whatever on water. Instead, they advanced a PHC alternative known as selective primary health care, or SPHC, as a more cost-effective approach to the select few diseases they thought responsible for preponderant death and morbidity.² They also claimed that Alma Ata's approach to PHC was too expensive for most countries, and urged instead that each separate element of the health care agenda be scrutinized for its cost and effectiveness in reducing infant mortality.

Having conducted their own investigation, they then pressed for a five-part 'package' that featured long-term breastfeeding, tetanus toxoid for women of child-bearing age, immunization for all children, chloroquine for those with malaria, and oral rehydration therapy (ORT). They estimated the cost at \$US 200 to \$250 per child death averted, compared with \$US 3600 to \$4300 for projects in improved water supply and sanitation (WS&S). And, ultimately, from this

comparison came the change in thinking that deleted WS&S from the list of favoured interventions.

At this point, the primary focus of international health turned to immunization and ORT, which donor agencies found both politically and programmatically attractive. Along with their high visibility and ease of quantifying results - from the sheer numbers of those immunized or given ORT packets - their seemingly low cost was a magnet for consensus. So it is not surprising that such agencies as UNICEF and USAID found this selective approach more easily marketable than unselective primary health care.^{3,4} And such was the trend through 1986, when WS&S was not even a part of the Child Survival Report to Congress,⁵ a tragic development that served to divert funds and attention from the causes to the symptoms of diarrhoeal disease. It also turned the focus to interventions such as ORT, whose functions, though vital, were nonetheless useless for prevention and strictly limited for cure.

This is frequently the state of imbalance in international health priorities, and shows the danger of calculations as incomplete as the ones underlying Walsh and Warren's original proposals. It is hard to tell how they arrived at their figures for WS&S activities, and harder still to fathom how

they missed the mark so badly with respect to broader development issues.⁶ But one thing is certain. Generalized cost comparisons can be as reckless as they are misleading, especially with disparate development activities that must be closely linked to enhance economic growth. It is also the case with WS&S projects because sectoral experience has demonstrated that water is universally the first and most immediate need that communities recognize. It is true that piped water systems can be an expensive luxury, but what is at issue here is something quite different, an array of low-cost, rural technologies primarily for drinking, but with the additional prospect of complementing extant water sources for activities such as washing floors or watering garden plots, where the purity of the water is of little consequence. These are simple technologies like handpumps, hand-dug wells, and water catchment jars, whose cost may range from \$US 14 to \$38 per capita. Or they are basic sanitation facilities with costs as low as \$US 3 to \$5.50, and a predictable life span of 20 years or more.⁷

Water costs versus other forms of PHC

Data from the Togo Rural Water and Sanitation Project help to put expenditure into focus. The real cost of implementing this integrated intervention, which was undertaken with full community participation and a programme of hygiene education - in addition to the water and sanitation technologies - was \$US 24 per person over the six-year life of the project, or \$US 4 per person each year.⁸ About a fourth of the cost was for intensive effort in developing the target community's capacity to manage its improved sources. In Malawi, costs were even lower, with estimates of \$US 0.24 per person in annual expenditures for WS&S operations and maintenance.^{9,10}

These costs compare favourably with child-survival interventions. The lowest cost, on average, for fully immunizing a child is now \$US 11.75.¹¹ A mass media project promoting the use of ORT in The Gambia was \$US 0.75 per diarrhoeal episode treated, or \$US 1.56 per child annually.¹²

Comparisons such as these should underscore the value of combining interventions for their synergistic impact. A united front will generally

yield the best results. Thus, attempting to isolate individual programmes and assess them on a purely cost basis is an exercise without merit. It not only takes the programme out of context for purposes of evaluation, but in practice dilutes the effect of programmes across the board. The evidence is clear that when communities engage in WS&S projects on a participatory basis, their involvement in immunization campaigns jumps 10-50% beyond that of non-participatory communities. Indeed, these target groups have consistently demonstrated the enhanced communication and problem-solving skills to avail themselves of other development services.¹³

In the light of these linkages, attempts to assess the value or cost of WS&S must take into account the lowered incidence of diarrhoeal and child deaths. Yet even the decline in diarrhoeal disease is only part of the picture. The transformation - in fact, the hope - that improvements in WS&S can bring to a community is something even greater. As a rural woman in Togo put it, 'Now that we don't spend five hours a day carrying water, we can begin talking about our community'.

The significance of WS&S in the child-survival revolution has not passed unrecorded. J Briscoe, in particular, has emphasized the case.¹⁴⁻¹⁶ The crux of the matter is that, given the time-intensive character of so many child-survival activities (breastfeeding, ORT, preparing and administering supplemental foods), the lack of a clear, convenient water supply makes still further demands on a mother's precious time. In many poor, rural communities, the hours spent collecting water can threaten the time and energy remaining to execute child-survival measures. In fact, in countries where infant mortality rates have taken a precipitous drop (from 68 to 20 per 1000 in Costa Rica), researchers have given three-quarters of the credit to the water and sanitation developed as part of rural community health programmes in the 1970s.¹⁷

But the view from above has not yet distinguished this reality below. From a policy perspective, most international agencies still rely on the reigning fiscal assumption that WS&S interventions may be appropriate at relatively advanced

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stages in the development process, but in the earliest stages are not as cost-effective as immunization, ORT or family planning.

Water supply and guinea worm disease: an example

Dracunculiasis, or guinea worm disease, is one example of a disease that is perpetuated by failure to improve water sources. It is a brutal disease that erodes all aspects of rural social and economic life and leaves its victims incapacitated at critical stages of the agricultural cycle. It strikes an estimated 5-15 million of the 140 million persons it threatens each year through tropical Africa and Asia.

It is also a disease that is much out of mind. The 'forgotten disease of the forgotten people', as it once was known, guinea worm is rarely found in cities but thrives in the rural towns and villages where it enters its victims through their unprotected water supplies. Yet for all the havoc it brings to millions of families, it does not kill, at least, not by itself. And perhaps for that reason, this disease has been as much overlooked by international health planners and donor agencies as by the indigenous governments so often out of touch with their rural populations.

The disturbing irony in this neglect is how easily the disease is controlled. It does not require a complex technology. Its vector, a small flea called cyclops - visible to the naked eye - can be filtered from drinking water with an ordinary piece of cloth. To stop the chain of infection in a village one need only take measures to protect existing water sources and the rates of infection will plummet drastically. Later, when the community is ready, a simple borehole can finish the job, eliminating the disease altogether as long as the hand-pump is conveniently sited for exclusive local use as a source of drinking water. It is critical, too, that the pump be introduced through a programme of health education that gets the whole community actively involved. Such basic interventions have dramatic effects and can reduce endemicity from levels greater than 50% to points at or near zero in only two or three years. In fact, so inseparable is the relationship between guinea worm and polluted water sources that the mere incidence of the disease

becomes a test of the success of water and sanitation projects in fostering better health.

Despite this simplicity of control, it is only recently that a few afflicted countries have spelled out policies to eliminate the disease. India and Pakistan are making substantial progress in their own national control campaigns,^{18,19} but the bulk of guinea worm cases continue to be found in sub-Saharan countries where national action has been slow to evolve. Unfortunately, the development focus has tended to turn mainly to figures that establish economic loss from the guinea worm, and not to the sociological issues and broader economic consequences which have been less publicized.

The Nigerian study

The objectives of the short-term study in Nigeria were to examine the dynamics of guinea worm disability, to develop a human perspective on the problem of the infection, and to clarify its linkages to child-survival policies and maternal well-being. It probed beyond the usual 'days lost/cash lost' enquiry into productivity and cash flow, and affirmed the critical role women play in the welfare and economy of their families and communities. Subjective observational methodology was used to highlight the issues relevant to policy makers working on child-survival and/or other disease-specific interventions.

The study was based in two separate areas, Idere Town in Oyo State, where the population is about 8000, and the Asa and Moro local government areas in Kwara State, where inhabitants are clustered in villages of 250-300 people. Conducted in the 1987-88 dry season, it took a comprehensive look at 21 mothers from each area, each of whom had children aged 2 years or under at the time of affliction. It also sampled women where the installation of improved sources had brought the disease under control.

Study findings

Incapacitation of mothers

Demands upon mothers are onerous throughout most of the Third World,²⁰ but they are nothing to the burden that the guinea worm brings.²¹

Sixteen mothers were bedridden while another 12 could only move with the aid of a stick. Nine managed to limp without a stick, and of the 5 who could walk, 2 suffered guinea worm ulcers on their hands so severe they could barely feed or suckle a child.

In addition, the high rates of prevalence in the two areas bore heavily on the mother's chance of getting help from family or friends. In Idere Town, prevalence ranged from 10-50% per ward, and averaged about 30%. The rate in Kwara was 60% per household. With such an extent of infection over a period of incapacity that on average approached 9 weeks - though it could extend to 18 weeks - there were few left in these communities to assist mothers or their children.

Maternal self-care

The study clearly showed that these women, almost always reluctant to ask for help, suffered extreme neglect of their own personal needs. Their immobility meant that physical efforts in bathing, or in crawling or hobbling from the home to defaecate, involved such a great struggle that it was simpler to do without. Lack of money to buy food, embarrassment at needing assistance to egest, and the pervasive loss of appetite that was part of the illness often led them to suppress their food intake. Efforts to treat themselves were mainly ineffectual. They used herbs or palliative oils on the ulcers that appeared serially and that were generally open to infection, and they also tried a variety of medications on the newly emerging worms - often at the excruciating stage when they were burrowing out from the knee or ankle.

Domestic activities

These women had many domestic responsibilities, including going to market, collecting leaves and vegetables, gathering firewood, and carrying water. They also had to cook, do the washing and keep the house clean. Yet only 2 of the women got through their illnesses without abandoning these responsibilities. Eleven could cope with homebound duties, but 30, the vast majority, were barred from all or at least some of their obligations. An assortment of mostly female friends and relatives - including girls as young as 9 years - tried to help, but in homes where many were attacked and the others had to

travel daily in their trade, the sick mother and her children were left to fend for themselves.

Economic pursuits

Problems were exacerbated because the mothers played such a critical role in generating income for the family - and especially for the children. All women must work. Two of those from the study sample were employed - one as a typist, the other as a goldsmith - while the others were mainly engaged as farmers, traders or food processors. Only 12 of these women revealed income data: they reported losses averaging \$US 70 when they were afflicted with the guinea worm, a large part of their average annual income of \$US 125 per capita.

Such a loss not only meant that daily food supplies could go unreplenished but also that the children's education was undermined, as even though the male heads of households paid school fees, women remained responsible for books, uniforms and other recurrent school expenses.

Child care

Child care became inordinately taxing for the afflicted mothers. In addition, those in most of the Kwara villages had no access to a government maternity centre, the one place they might have received information and assistance on the very interventions favoured by selective PHC - breastfeeding, immunization, prompt treatment of malaria and the administration of ORT for diarrhoea.

Yet, with or without help, stricken mothers made every effort to breastfeed their infants, despite the belief that a nursing mother passed illness on to her child. Of the 40 women still breastfeeding, 2 suffered guinea worm lesions on their breasts, with 1 choosing to cut back on her child's feeds and the other deciding to stop altogether. Six others found nursing painful from more general effects of the disease.

The devastation of guinea worm on a household budget left children especially vulnerable through infancy and weaning. By the age of 4-6 months, children were often changed to a diet of corn-meal gruel-known as pap, which has an extremely low nutritional content. At least seven of

the children observed in the interviews were poorly nourished.

In addition, 15 known episodes of child illness were either untreated or subjected to traditional nostrums and unprescribed medicine. Some of the illnesses, such as malaria, were serious, but the mothers' time and strength - and lack of finances - were unequal to the task.

Underutilization of ORT was another problem. It was not known at all in the Kwara sample and even in Idere, with its ample access to health workers and facilities, the 3 mothers with children with diarrhoea never took advantage of the ORT option. Two of them did nothing at all, while the third acquired some patent medicine from a shop.

The expanded programme of immunization (EPI) in Nigeria currently recommends five visits for each infant. BCG is to be given at birth, and is followed in 6-8 weeks with a monthly series of four inoculations, three DPT and an oral for polio, given in three doses. Vaccination for measles is given at 9 months. But although women in Idere had weekly access to an EPI clinic, 8 of the 15 women who defaulted did so for reasons clearly related to guinea worm disability, a threatening statistic for child-survival initiatives.

Conclusion

Studies have shown that rural water supplies are not only reasonably priced, but that they enhance the effectiveness of other development interventions.^{13,16} The Nigerian study highlights that, far from achieving some cost-effective ideal, failure to invest in water programmes actually undermines child-survival initiatives: immunizations are missed, diseases are improperly treated, breastfeeding and good nutrition are neglected.

It is time to rethink the prevailing 'logic', because women are properly the subject, not the object, of international health programmes. To mount a rational initiative in child survival and maternal health demands the active participation of local women, as they are front-line health workers. Immunization, rehydration therapy,

malaria treatment, breastfeeding and household hygiene all hinge more on the relationship of a mother to her child, her family, and to her community, than on any other factor.

Faced with a disabling illness such as guinea worm a mother cannot possibly maintain health initiatives. Improved vaccines and ORT mixtures are simply not enough. Mothers must have the time, resources and good health to take advantage of these services.

Who selects the elements in selective primary health care? Until now, decisions have mainly been imposed from without. But true primary health care derives from a broader spectrum of opinion that depends on a community's full involvement and approval. One of the first steps towards achieving this goal is to get the community to express its needs. In this Nigerian study area - as in other studies - people voiced an unmistakable need for clean water.²²

This study highlights two issues:

- why is it that agencies have decided that water is no longer a priority, when clearly a clean, convenient water supply is badly needed?
- why do we ignore women's time?

For those in the development community, it is both philosophically and economically imperative to respond to these issues.

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