

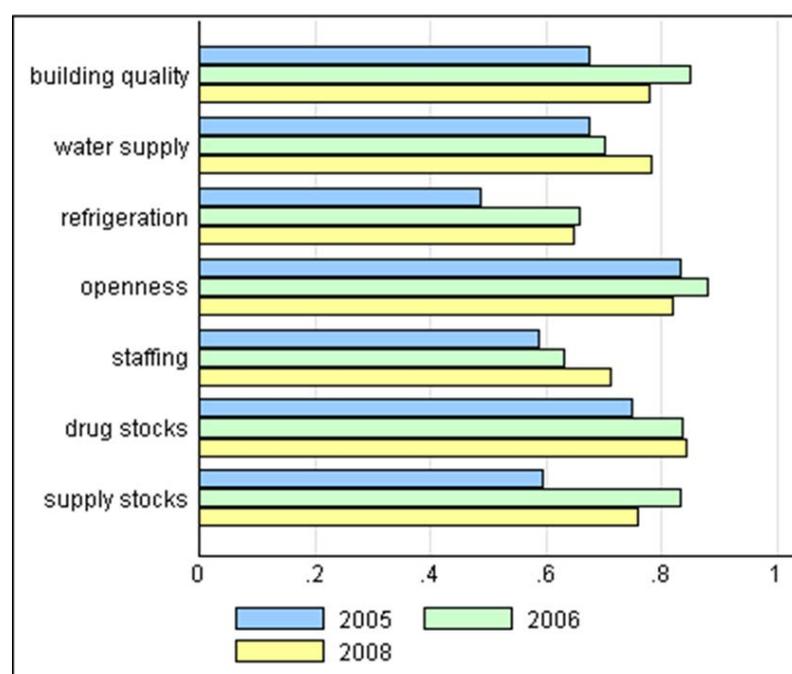
Transformation and Development in Sierra Leone

Background note on Health Infrastructure, Policies and Programmes

Availability of health care has improved dramatically since the war with the establishment of a network of clinics throughout the country (the percentage of people within 60 minutes walk of a clinic rose from 48 to 54% between 2005 and 2007). Staffing of clinics, refrigeration, quality of building, access to drugs and supplies, while far from perfect, have all consistently improved.

Health clinic quality indicators, 2005-2008

(Source: DecSec 2009)



Absenteeism and utilization of health clinics, 2005-2008

(Source: DecSec 2009)

Indicator	2005	2006	2008
Fraction of functional clinics open at arrival	0.84	0.88	0.82
Average fraction of staff positions filled	0.59	0.63	0.71
Fraction of clinics with patients present	0.56	0.53	

However, health outcomes in Sierra Leone are still very poor. UNICEF (2009) estimate that average life expectancy in Sierra Leone is still only 48, despite the very low level of HIV in the country. Currently 17% of children born in Sierra Leone dies before the age of five.

In this note we argue that it is important for Sierra Leone to prioritize cheap and effective health technologies and that doing so can have a major impact on health relatively rapidly. There is growing evidence that investments in improved health for children can have important long term productivity, income (and thus potentially growth) effects. A recent follow up of a mass school based deworming program in Kenya found that treated children worked longer hours once they were in the labour force and those earning wages had 20 percent higher wages.

Prioritising

With limited resources it is important for the Government to prioritise its objectives and interventions in healthcare. The biggest gains in health are often from increasing preventative medicine. Immunisation is one key area in which preventative medicine is both effective and efficient. Interventions that have been proven to be highly cost effective and easy to delivery include:

- i) Childhood immunizations. While precise estimates vary, nearly all experts agree that childhood vaccinations are amongst the most cost effective health interventions there are (Brenzel et al (2006) calculates that the cost per Disability Adjusted Life Year saved of the traditional EPI vaccines can be as little as \$7). Yet at present only 40% of children in Sierra Leone aged between 12 and 23 months are fully immunised. It will also be important to make sure that new vaccines are added to Sierra Leone's childhood immunization schedule as they are developed. Currently, the GAVI subsidized pneumococcus vaccine does not appear to have been added.
- ii) Treatment for parasitic worms through schools. One quarter of the world's population have parasitic worms with particular concentrations in young children. These worms make people anaemic and lethargic. Drugs cost a few cents and mass schools based treatment can cost as little as 50 cents per child per year. By preventing the spread to others in the community it is a highly effective treatment approach. Hellen Keller is doing mass school based deworming in Sierra Leone.
- iii) Insecticide treated bednets are highly cost effective approach to preventing malaria. The government has a program to increase distribution but this needs to be a truly mass campaign and spot checks are needed to assess the percentage of households using nets.
- iv) Diarrheal is one of the major causes of death of under 5s, along with malaria and pneumonia in poor countries. Dilute chlorine is a highly effective and very cheap way of making water potable. Delivering uncontaminated, chlorinated water piped directly to households can reduce diarrhoea by up to 95%, but at an estimated cost of \$20 per month for a household it is prohibitively expensive for most poor countries. A common alternative (particularly common in eastern Africa) is to sell bottles of dilute chlorine to households, or to give them to vulnerable populations, such as pregnant mothers or those with young children. A new alternative being piloted in Kenya and Bangladesh is placing dispensers of free dilute chlorine at water sources (communal taps in urban

areas and wells or pumps in rural areas). When tested this prevented an estimated 689 diarrhoea incidents per \$1,000 spent.

It is worth noting that there is not good evidence on whether more general clinic visits are effective in improving health. There is substantial evidence that general clinic visits are of very poor quality in most poor countries raising questions of how valuable they are. This is true even when health workers are well trained. Detailed evidence from India and Tanzania shows that health care workers tend to spend very little time with each patient, ask very few questions and yet proscribe a lot of medications. For example, during 130 hours of observations in two north Indian hospitals, researchers found that physicians spent an average of 3.8 minutes per patient, asked an average of 3.2 questions, and prescribed on average 2.63 medications (Das and Hammer, 2007). A study of 450 consultations in Tanzania found that in only 29% of cases did the doctor discuss with the patient activities they should adopt or avoid to improve their health. When nurses were asked to give the patient drugs, they only checked to see if the patient knew how or when to take the drug in 32% of the cases (Leonard, 2003). Most disturbingly, evidence from India shows that health workers who correctly identify the disease a theoretical person has when provided with a vignette do not do as well when faced with real patients. There is little reason to think that the health system in Sierra Leone performs substantially better than in other countries at higher levels of income.

This combination of strong evidence on the benefits and cost effectiveness of cheap prevention technologies and the evidence on what capacity to deliver effective curative care or implement effective diagnosis means that most public health experts prioritize mass provision of preventative approaches that require little diagnosis capacity.

Promoting takeup of cost effective health products

This leaves the challenge of how to achieve near universal takeup of technologies such as vaccines, deworming, vitamin A, and insecticide treated bednets. As we discuss in the background note on userfees, keeping costs down is important. Reliability of services is key (and is addressed in the accountability note). Small incentives can also be very effective and convenience matters. We discuss the evidence on both of these conclusions below.

Incentives

Work by Seva Mandir in India evaluated two potential solutions to low take up of preventative health, in this case immunisation. In areas where no intervention was made full immunisation rates were only around 6%. Providing reliable service through vaccination camps more than doubled full immunisation rates, to 18%. In some camps a small food incentive was given to mothers who brought their child in for immunization. In these communities full immunization rates climbed to 39 percent. The positive effect of small incentives has been found in other contexts including returning to collect HIV test results in Malawi (where 10 cents significantly increased collection rates). These results are consistent with the findings from behavioural economics which suggests that seemingly irrational behaviour such as the failure to invest in highly cost effective health measures may reflect procrastination rather than a deep seated resistance. Indeed behavioural economics suggests that even small incentives can have large impacts on behaviour. The WFP has operated programs in Sierra Leone that provide food for those bringing their children to be immunized in Sierra Leone. This

could be a highly effective strategy for boosting take up of one of the most cost effective ways to promote health.

Distance Matters

Even though the average distance people must travel to reach a clinic has fallen dramatically since the end of the war and 22% of the population now have a clinic within their own village, there are still many who do not have a clinic within 60 minutes walk (DecSec, 2008) and the average time to reach a district hospital was over 2½ hours. At the same time, utilization of rural health clinics outside of mother and child health days is often quite low. In other words in a country with a low density of population it would be prohibitively expensive to put a clinic within easy walk of every member of the population and if that was done these clinics would be empty for much of the time.

Yet at the same time, the evidence is that convenient access is critical for increasing the take up of the most cost effective health interventions.

In Malawi, HIV testing sites were randomly allocated and research found that living over one kilometre from a testing site reduced the number of individuals collecting the results of HIV tests by 6% in Malawi (Rebecca Thornton, 2008). Given all the important factors involved in deciding whether or not people want to know their status it is somewhat surprising that a short walk should have such a large influence on the decision, unless procrastination is part of the reason for low take up. In India take up of iron fortified flour to prevent anaemia through flour fortification, fell sharply for those who had to travel over 1.5 kilometres (Banerjee et al, 2010) and vaccination rates fell sharply with distance (Banerjee et al, 2011). In Kenya, people were unwilling to walk far for clean water. This illustrates a general truth that people put off investing in preventative health until tomorrow unless it is very convenient to do.

So how should Sierra Leone solve the problem common to countries with dispersed populations that it is expensive and inefficient to have many clinics but people will not go far out of their way for preventative health, and preventative health is the most cost effective way to improve health. Two solutions have been tried in other countries to this dilemma. BRAC has successfully used local members to distribute preventative health products in Bangladesh. They are attempting to adapt this model in Sierra Leone. One member from each borrowing group is designated as the Community Health Volunteer. This individual is trained to diagnose and treat some basic conditions, and whilst they must still refer individuals with more complicated conditions to clinics they can earn a small income by selling over-the counter medicines and health commodities, a portion of which goes to BRAC to pay for the products. This may be an effective way of making cost effective medicine very convenient where BRAC works (which is only in a relatively small proportion of the where population density is higher). In addition, the small charges may put off some clients as Sierra Leone is much poorer than Bangladesh where the model was developed (for more information on price and take up see the note on user fees).

An alternative model which has proved successful in many countries is to provide some basic health prevention through schools as schools are much more widespread than clinics and tend to be open more often. Worldwide this has been used as a successful channel for the distribution of diverse products including vitamin A supplements, eyeglasses, insecticide treated bednets, and HIV education.

Maternal Health

Sierra Leone has also fallen behind in preventing maternal mortality. Currently only 37% of births take place at a clinic or hospital and less than half of births (42%) are delivered with the help of a health professional. Key to progress in this field is to induce more women to get prenatal check-ups and enable more to give birth in clinics.

One approach that has been tested elsewhere and found successful to encourage more women to come into clinics for prenatal check-ups is to provide free bednets and or bottles of dilute chlorine to those coming for prenatal check-ups. This not only acts as an incentive to the women, but it also makes sure that the bednets and dilute chlorine get to the most vulnerable—pregnant women and children under 5.

Conclusion

A key question facing Sierra Leone on health care is the prioritization of health care spending. The biggest bang for the buck is almost certainly to have mass delivery of some basic health care technologies such as vaccines that can be delivered without expensive doctors (whose absence rates are very high anyway). But this can fly in the face of pressures for improved hospital care in Freetown (which is clearly very bad) and lobbying from doctors. The second big question is how to improve take up and delivery. Going outside the health care system and using schools is a promising approach, as is small incentives. In a country with low density of population where health care workers are very expensive compared to the wages of local people it can be highly efficient to put the health care worker in one place and give an incentive for people to come to her rather than pay for the health care worker to go village to village. While people will not go far for preventative care, they will walk a long way to get an incentive, as work in Malawi and India has demonstrated.

References

Banerjee, Abhijit, Esther Duflo, and Rachel Glennerster. 2011. "Is Decentralized Iron Fortification a Feasible Option to Fight Anemia Among the Poorest?" In: *Explorations in the Economics of Aging*. Edited by David A. Wise. Chicago, University of Chicago Press: 317-344.

Brenzel, Logan, Lara J. Wolfson, Julia Fox–Rushby, M. Miller and Neal A. Halsey. 2006. Vaccine–Preventable Diseases." In: *Disease Control Priorities in Developing Countries*. Edited by Dean T. Jamison et. al. New York, Oxford University Press: 389-412.

Das, J. and J. Hammer (2007), "Money for Nothing: The Dire Straits of Medical Practice in Delhi, India," *Journal of Development Economics*, 83 (1), 1-36.

Decentralization Secretariat, 2008, National Public Services Survey.

Dhaliwal, I. and C. Tulloch (2009), "Cost-effectiveness of interventions to prevent child diarrhea," Abdul Latif Jameel Poverty Action Lab, Available online.

Kremer, Michael and Rachel Glennerster, forthcoming "Improving Health in Developing Countries: Evidence from Randomized Evaluation", in *Handbook of Health Economics*.

Thornton, Rebecca. 2008. "The Demand for, and Impact of, Learning HIV Status." *American Economic Review*, 98(5): 1829–63.

United Nations Population Division. 2009. *World Population Prospects: The 2008 Revision*. New York, United Nations, Department of Economic and Social Affairs