Elizabeth Cuffy, Fundaye Community, New Kru Town, Liberia. Credit: Renata Rendón/Oxfam

NEVER AGAIN

Building resilient health systems and learning from the Ebola crisis

EMBARGOED UNTIL 00:01 HRS GMT DAY 16 APRIL 2015

It took the threat of a global health crisis to illustrate the failings of Africa’s health systems. Resilient health systems, free at the point of use, are evidently a global public good. They are essential for the provision of universal health coverage and for a prompt response to outbreaks of disease.

Resilient health systems require long-term investment in the six key elements that are required for a resilient system: an adequate numbers of trained health workers; available medicines; robust health information systems, including surveillance; appropriate infrastructure; sufficient public financing and a strong public sector to deliver equitable, quality services. Global investment in research and development for medical products is also critical.

OXFAM

SUMMARY

It is just over a year since the Ebola virus took hold in West Africa, spreading fear across the region and beyond. By March 2015, the disease had claimed the lives of more than 10,000 people, mainly in Liberia, Sierra Leone and Guinea, and has devastated communities at both an economic and a psychosocial level.[1]

The Ebola outbreak has been an exceptionally challenging 'stress test' of the ability of health systems in the affected countries to respond to such an emergency, and also a severe test for the international community.

How did health systems perform in this critical test? What has been learned from the Ebola crisis to ensure that future health systems have the resilience to safeguard the health needs of all populations faced with major threats to public health?

Sierra Leone has the highest under-five mortality rate in the world: one in three children dies, mainly from malaria, diarrhoea or pneumonia. [2]

Long before the crisis, access to health services and to safe drinking water and sanitation in West Africa were inadequate. There were marked inequalities between regions, socioeconomic groups and genders.[3] The cost to individuals of paying for health services led to increased poverty and greater levels of inequality. Many health centres, if they existed at all, were unable to safely provide the services needed, as they lacked staff, medicines and health information. This situation is reflected in the lack of capacity in these countries to manage childhood infections and deliver safe births.

When Ebola struck, the affected countries had little capacity for surveillance, laboratory testing, contact tracing or infection control. Fear, stigma and a lack of trust in health facilities delayed effective responses.[5] Health systems were unable to handle the emergency, let alone continue to run existing services. Vaccination programmes, for example, have been suspended, making a million children in the worst affected countries vulnerable to measles.[6] Affected countries were unable to contain Ebola within their borders.

Before the Ebola outbreak, out-of-pocket payments reached 35 percent of total health expenditure in Liberia, almost 65 percent in Guinea and 76 percent in Sierra Leone. [4]

Chronic low public expenditure on health has diminished the availability, affordability and quality of health services, leading to both a lack of facilities and medicines and the introduction of user fees. As a result, people living in poverty are forced to seek care elsewhere, often from unqualified private providers. People face a choice between suffering ill health and bearing the cost burden of paying for poor-quality healthcare. Such choices drive people further into impoverishment and exacerbate inequality.

It is therefore clear that re-prioritizing investment in healthcare is for a global public good, protecting people's health and preventing the spread of diseases. This requires long-term commitment from national governments and international donors to support resilient health systems

and ensure universal coverage of health services that are free at the point of use and have the ability to respond to outbreaks of disease. The Ebola crisis has shown that global action to protect health is essential, since infections do not respect borders.

The Ebola crisis has revealed several critical issues that should be integrated into national planning. For example, community engagement in the protection and promotion of health has been vital in controlling the outbreak. Community health workers (CHWs) and volunteers have played a key role in controlling the spread of infection by disseminating accurate information, undertaking surveillance and contact tracing and promoting hygiene practices and safe burials. Respondents to Oxfam research in the Monserrado district in Liberia, for example, stressed the importance of continued social mobilization and of disseminating hygiene information.[7]

Six foundations for resilient health systems

Resilient systems require six essential elements:

- An adequate number of trained health workers, including non-clinical staff and CHWs;
- Available medical supplies, including medicines, diagnostics and vaccines;
- Robust health information systems (HIS), including surveillance;
- An adequate number of well-equipped health facilities (infrastructure), including access to clean water and sanitation;
- Adequate financing;
- A strong public sector to deliver equitable, quality service.

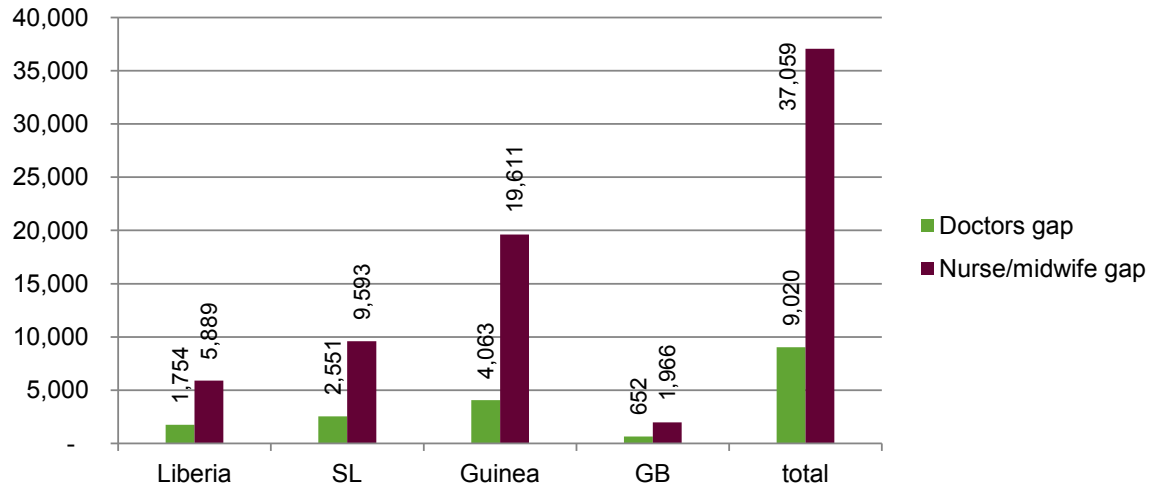
Liberia, Sierra Leone, Guinea and Guinea-Bissau require $420m to train 9,020 medical doctors and 37,059 nurses and midwives.

Once they were trained, a total of $297m annually would be needed to pay their salaries for 10 years.

An adequate number of trained health workers: Based on the WHO standard of a minimum of 2.3 doctors, nurses and midwives per 1,000 people, Oxfam has calculated the health workforce gaps in the worst affected countries and the costs of training the missing clinical staff and paying their salaries over 10 and 20 years (see Annex 1). Liberia, Sierra Leone, Guinea and neighbouring Guinea-Bissau require $420m to train the 9,020 medical doctors and 37,059 nurses and midwives needed to fill the gaps in their workforce. Once they are trained, a total of $297m annually would be needed to pay their salaries for 10 years.

The health workers gap is not unique to these countries. Africa has the highest disease burden in the world, but has only 3 percent of the global health workforce.[8]

Figure 1: Estimated gap in numbers of doctors, nurses and midwives in Liberia, Sierra Leone, Guinea and Guinea-Bissau



Note: Estimates by Oxfam, based on the WHO minimum standard of 2.3 doctors, nurses and midwives per 1,000 persons. See Annex 1 for calculations.

Access to sufficient medical supplies, including medicines, diagnostics and vaccines: The Ebola crisis highlighted the failure of the global research and development (R&D) system. The system depends on monopolies of intellectual property (IP), and therefore commercial interest, to incentivize pharmaceutical companies to conduct research into new products. Clearly there is no commercial interest in R&D for Ebola. In the meantime, these IP monopolies enable companies to dictate high prices for new products. The Ebola crisis illustrates the need to change this system so that public health needs dictate the global research agenda and prices of new products are affordable. The current vaccines and medicines being tested for Ebola have been developed using public financing, but it is unclear how the pharmaceutical companies will set the prices of these potential products.

There are 0.8 hospital beds per 10,000 people in Liberia and 0.3 in Guinea. This is compared with an average of 50 beds per 10,000 people in OECD countries. [9]

Robust HIS: Weak surveillance capacity, coupled with community fear and lack of trust in health services, made it difficult to obtain accurate data during the Ebola crisis. Data collection depends on trained and motivated health workers and on community engagement in the process. Effective surveillance must be an integral part of information systems. Robust HIS are essential for decision making on policies and resource allocation

An adequate number of well-equipped health facilities (infrastructure): Statistics on hospital bed ratios illustrate the low coverage of health infrastructure in the Ebola-affected countries. There are 0.8 hospital beds per 10,000 people in Liberia and 0.3 in Guinea. This is compared with an average of 50 beds per 10,000 people in Organisation for Economic Co-operation and Development (OECD) countries.[10] Building resilient health systems requires scaling up the number of well-equipped health posts and district hospitals to provide appropriate coverage of community health needs. Clean water, sanitation and hygiene promotion must be explicitly included within infrastructure plans.

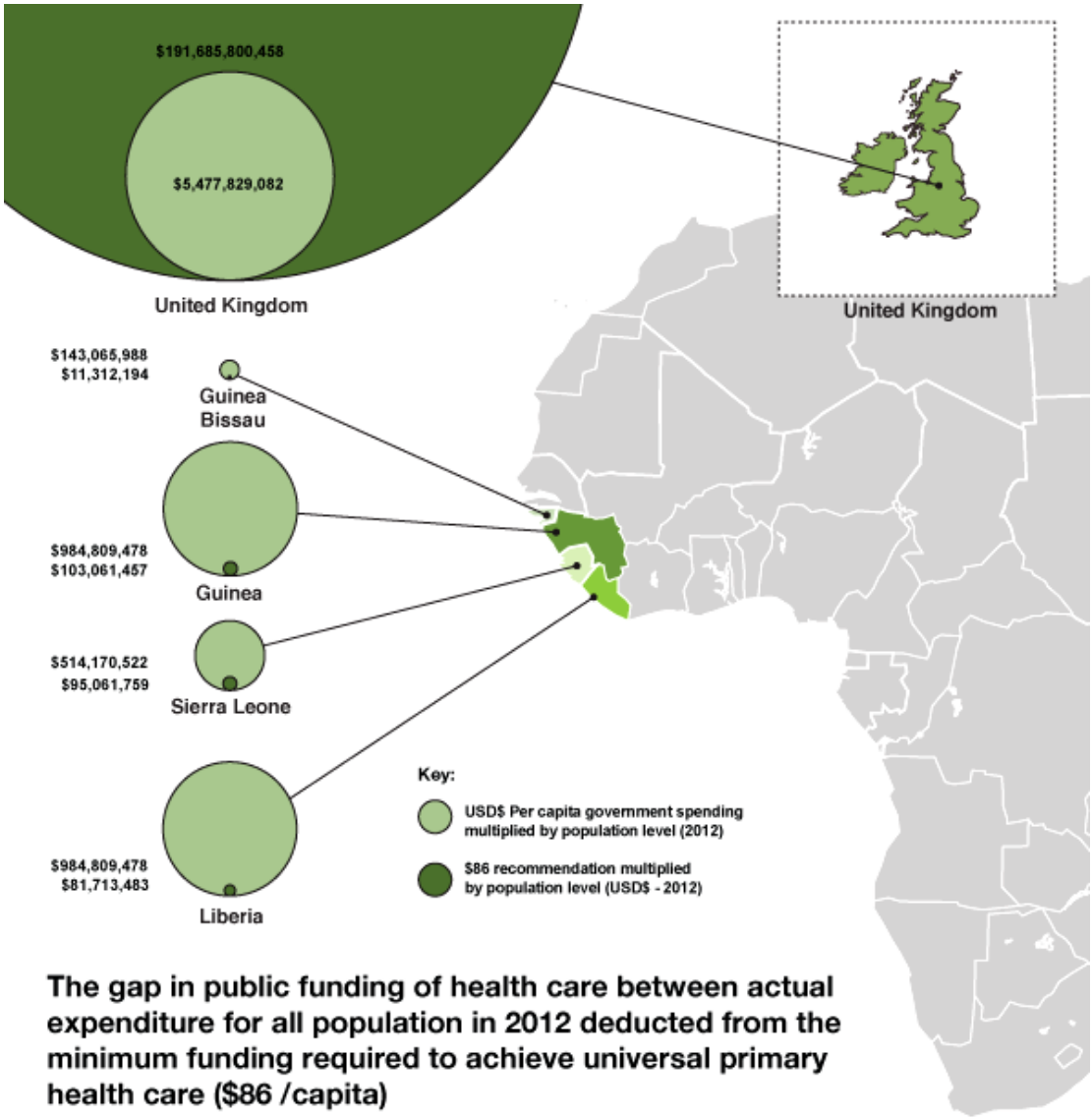
Adequate financing: Current levels of funding, although higher since the end of civil wars in Liberia and Sierra Leone, are still insufficient. Based on a figure of $86 per capita – the latest estimate of the minimum funding needed to provide universal primary healthcare[11] – Oxfam has estimated the total funding gap by country (see Figure 2 on the next page).

The annual funding gap that must be covered in order to achieve universal primary healthcare is approximately $419m for Sierra Leone, $279m for Liberia, $882m for Guinea and $132m for Guinea-Bissau.

Assuming that for each country the level of funding given to healthcare remains the same as it was in 2012, the annual funding gap that must be covered in order to achieve universal primary healthcare is approximately $419m for Sierra Leone, $279m for Liberia, $882m for Guinea and $132m for Guinea-Bissau. Although the gap seems large, it is feasible to fund it via tax revenues, supported by contributions from donors. Tax financing is the most equitable and sustainable system for raising and distributing funding for healthcare. User fees, on the other hand, are recognized as 'the most inequitable method for financing healthcare services' and one that 'punishes the poor'.[12] Given the negative impact of Ebola on household economies, especially female-headed households, if user fees are introduced it would be a regressive act that would drive more people into poverty.

A strong public sector to deliver an equitable, quality service: This is essential to providing universal health coverage (UHC) as the weak public sector in Ebola-affected countries demonstrated when it was unable to maintain normal health services, let alone deal with the outbreak. Private provision risks creating two tiered systems, where people living in poverty pay for dubious quality services like drug peddlers, while people who are wealthy can afford five-star hospitals.

Figure 2: Map of financial gap in Liberia, Sierra Leone, Guinea and Guinea-Bissau compared to the UK.



Note: Calculation is based on public spending and population number in 2012 and estimated spending for the same population if per capita spending is raised to $85/capita.

Experience from other countries

Experience from previous Ebola outbreaks in other countries highlight a number of factors that can contribute to the control of the disease. These include effective health systems, rapid government action and community participation, the use of media to disseminate information and rapid coordinated international response. Demographic factors, such as the mobility of a population, can also increase the risk of spread of the disease. However, in-depth research is needed to understand the relative importance and combination of factors within specific contexts.

Effective health systems: In Uganda, health services acted quickly to set up effective surveillance, clinical case management systems and strict enforcement of infection control measures, as well as training of health workers.[13] The Democratic Republic of Congo (DRC) has developed expertise due to six previous Ebola outbreaks and was able to rapidly deploy a team of experts to control the 2014 outbreak.[14]

Community participation and rapid national action: In West Africa, a lack of community trust delayed reporting and thus control of the Ebola outbreak. Mistrust reached a terrible level in one case in southern Guinea, where villagers killed a group of health workers.[15] However, intensive work in communities has in some cases resulted in people changing centuries-old burial practices. In Nigeria, a rapid response by the authorities saw a quick redeployment of resources from the country's polio eradication campaign to control of Ebola.[16]

In previous outbreak in Uganda and DRC, the authorities engaged with communities through traditional community groups and NGOs.[17]

Using media: Nigeria used mobile phone technology to disseminate messages while the Ugandan Ministry of Health trained journalists to report safely on the disease. Both resulted in dissemination of valuable information to the population.[18]

The demographics of infected populations affect outcomes: Infections in remote rural areas, as in DRC and Uganda, decreased opportunities for contact.[19] However, people in remote areas do not have access to information or services, which makes contact tracing difficult. In West Africa, a highly mobile population has helped to spread the infection across countries. [20]

Timely international response: Quick, coordinated and efficient international support has been critical to national work for the containment of previous outbreaks.

Conclusion and recommendations

It is time that decision makers recognize that resilient health systems are a global public good to which everyone should have access. These systems[21] provide universal coverage of health services that are free at the point of use and have the capacity to respond to potential outbreaks. Free health services remove the financial barriers that hinder people who

are living in poverty from accessing services. Investment in resilient health systems challenges traditional donor/recipient relations which usually focus on short-term programme funding rather than long-term comprehensive health service financing. Aid must be considered as a financial contribution that mutually benefits all populations. National health systems become part of a globally coherent vision for health, one in which local and international efforts are mutually reinforced through principles held in common: this is the vision that universal health coverage offers. As affected countries develop their recovery plans, both the countries and donors must take a long-term view to developing resilient health systems.

Countries, especially those affected by the Ebola outbreak, need to:

- Invest in comprehensive public health systems as a central part of national plans to achieve UHC and to ensure future outbreaks can be dealt with. Governments must develop long-term costed plans to build resilient health systems that can serve health needs and health security. These should include health worker training and retention, including of CHWs; access to medicines and health technologies; HIS, including surveillance; and infrastructure, including water and sanitation;
- Progressively increase public resources in order to fill the annual health financing gap. Use progressive tax systems to finance resilient health systems in order to provide effective, efficient and equitable services free at the point of use;
- Foster trust amongst communities by ensuring participation in decision making and integration of the CHWs and volunteers that were trained during the Ebola outbreak into the health workforce.

Donors and international agencies should:

- Support governments' plans for post-Ebola recovery through building resilient health systems as a global public good that extends universal health coverage, free at the point of use, and responds to outbreaks. Donors should rethink traditional donor/recipient relationships that in the past have skewed the provision of health services towards specific projects and policies, at the expense of comprehensive free health care;
- Commit to longer-term funding for health systems, making annual allocations for financing the development of health services over a 10 year period, providing that plans are well implemented;
- Support countries to introduce effective measures to enable them to raise domestic resources via fair taxation;
- Contribute to creating a global tax system that is based on fairness and transparency.

Governments and international health agencies should:

- Endorse a R&D treaty which promotes public funding for R&D and is focused on the needs of public health so as to provide vaccines, diagnostics and medicines for diseases such as Ebola. Financing of R&D must be unlinked from the price of products that result from it;
- Enable civil society organizations to play their role in ensuring accountability and transparency by all stakeholders and in enabling communities to engage in decision making at the highest political levels, as well as in monitoring policies and financing for pro-poor health systems.

1 INTRODUCTION

The Ebola outbreak in West Africa has already killed more than 10,000 people[23] and had an enormous economic and psychosocial impact on communities. Households living in poverty have been severely affected by the deaths of breadwinners and the loss of livelihoods. The crisis has revealed how precariously weak and chronically underfunded health systems are in West Africa – the result of long-term neglect of healthcare and reduced public expenditure over decades, which can be partly attributed to donors' policies.[24]

'Ebola is not a normal disease. This kind of thing has never happened before. Doctors were dying, nurses were dying, cleaners were dying. People didn't know what to do in the beginning, until we were trained. Training upon training has helped us to adapt. But in the future, all medical practitioners should be trained in Ebola.'

Alice Stevens, matron at a government hospital in Jui in western Sierra Leone[22]

Long before the crisis, access to health services and to safe drinking water and sanitation was inadequate. There were marked inequalities based on geography, socioeconomic status and gender.[25] The cost to individuals of paying for health services increased poverty, contributing to a wider inequality gap. Many health centres, if they existed at all, were unable to safely provide the services needed, as they lacked staff, medicines and health information. This has been reflected in countries' low capacity to manage childhood infections and deliver safe births. Sierra Leone has the highest under-five mortality rate in the world: one in three children die, mainly from malaria, diarrhoea or pneumonia.[26]

When Ebola struck, the affected countries had little capacity for surveillance, laboratory testing, contact tracing or infection control. Fear, stigma and lack of trust in health facilities delayed an effective response.[27] Health systems were unable to handle the emergency, let alone continue to run existing services. Vaccination, for example, has been suspended, making a million children in the worst affected countries vulnerable to measles.[28]

It is evident therefore that re-prioritizing investment in health is a global public good, protecting people's health and preventing the spread of diseases. This requires long-term commitment from national governments and international donors to support resilient health systems and ensure the provision of free and public UHC that has the ability to respond to outbreaks of disease. The Ebola crisis has shown that global action to protect health is essential, since infections do not respect borders.

The Ebola crisis has revealed several critical issues that should be integrated into future planning. For example, community engagement in the protection and promotion of health has been vital to controlling the outbreak. CHWs and volunteers have played a key role in controlling the spread of infection by disseminating accurate information, undertaking surveillance and contact tracing and promoting hygiene practices and safe burials. Respondents to Oxfam research in the Monserrado district in Liberia, for example, stressed the importance of continued social mobilization and of disseminating hygiene information.[29]

2 FRAGILE HEALTH SYSTEMS BEFORE EBOLA, BUT SIGNS OF PROGRESS

Over the past 10 years, both Liberia and Sierra Leone have been recovering from devastating civil wars. Both countries have suffered from severe shortages of health workers, health facilities, medicines and HIS. Most of their public hospitals, like those in neighboring Guinea, lack electricity, running water, equipment and supplies to provide essential services such as emergency obstetric care.[30]

> *'The Ebola crisis today is a reflection of long-standing and growing inequalities of access to basic health care. Guinea, Liberia and Sierra Leone do not have the staff, stuff and systems required to halt the outbreak on their own.'*[31]

The Ebola crisis has exposed severe shortages in the number of health workers in these countries. For example, in Sierra Leone there is one doctor for every 50,000 people and in Liberia one for every 100,000 people, compared with one for every 100 people in the UK.[33] Furthermore, these national averages hide large inequalities, as most trained personnel work in major cities and towns, leaving rural areas to unqualified private providers. The shortage of health workers is a global problem, but Africa – with the highest disease burden in the world – has only 3 percent of the global health workforce.[34] The International Monetary Fund (IMF)'s Structural Adjustment Programs to cut public expenditure have been blamed for cuts in health spending.[35]

One year after removing user fees, the percentage of children in Sierra Leone receiving diagnoses and approved treatment for malaria had increased from 51 percent to 90 percent.[32]

Yet there have been signs of progress. Since the end of their respective civil wars, the governments of Liberia and Sierra Leone, with donor support, have increased investment in healthcare and have adopted a policy of free care for pregnant women and children. In Sierra Leone, this policy has resulted in a 45 percent increase in women delivering their babies in clinics or hospitals and an increase of 150 percent in the number of delivery complications treated in health units.[36]

These health outcomes have resulted from political will to prioritise pro-poor health policies, such as free public services and higher salaries for health workers.[37]

Figure 3: Pre-Ebola per capita public expenditure on health as % of total governement expenditure

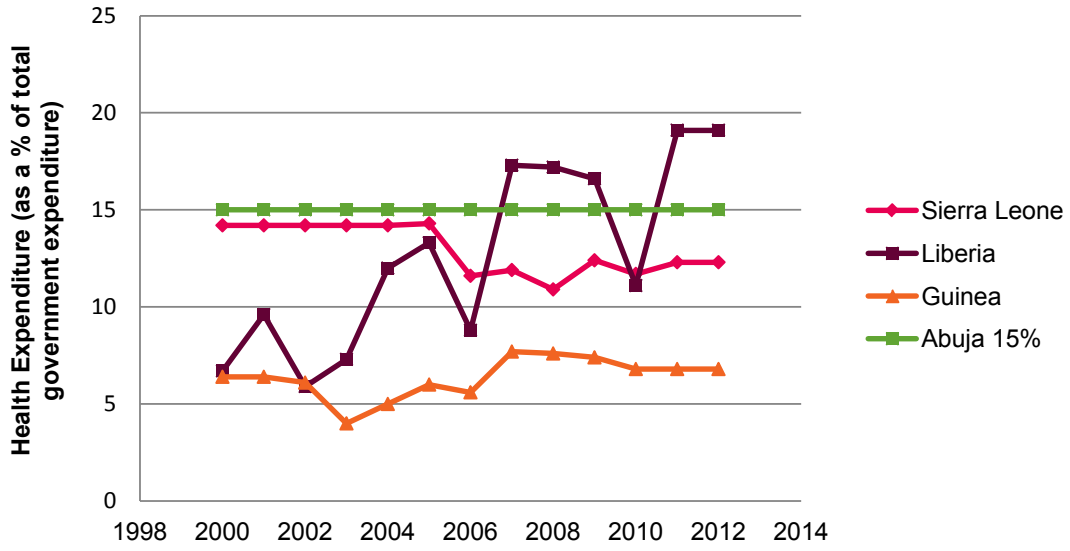


Figure 3 illustrates the inadequate levels of government spending on healthcare, compared with the Abuja target of spending 15 percent of the public budget on health.[38] Only Liberia has reached this target and even then it is well below the figure of $86 per capita per year, which is the most recent estimate of the minimum public spending needed to achieve universal primary healthcare.[39]

3 A FORMULA FOR RESILIENT HEALTH SYSTEMS

Ebola has been a stress test for the resilience of health systems in the countries affected by the outbreak. A resilient health system is defined as 'one able to absorb the shock of an emergency like Ebola and at the same time continue to provide regular health services, leaving other sectors of the country fully functioning'.[40]

Resilient systems require six essential elements:

- An adequate number of trained health workers, including non-clinical staff and CHWs;
- Available medical supplies, including medicines, diagnostics and vaccines;
- Robust HIS, including surveillance;
- An adequate number of well-equipped health facilities (infrastructure), including access to clean water and sanitation;
- Adequate financing;
- A strong public sector to deliver equitable, quality service.

These six elements are the foundation of a resilient health system. Health financing policy determines who uses services as expensive and privately delivered health services exclude the majority of the population. Women bear the greatest burden of care and tend to delay seeking care for their own health needs if payment is involved.[41] The Ebola crisis has also highlighted the importance of community participation in promoting and maintaining public health.

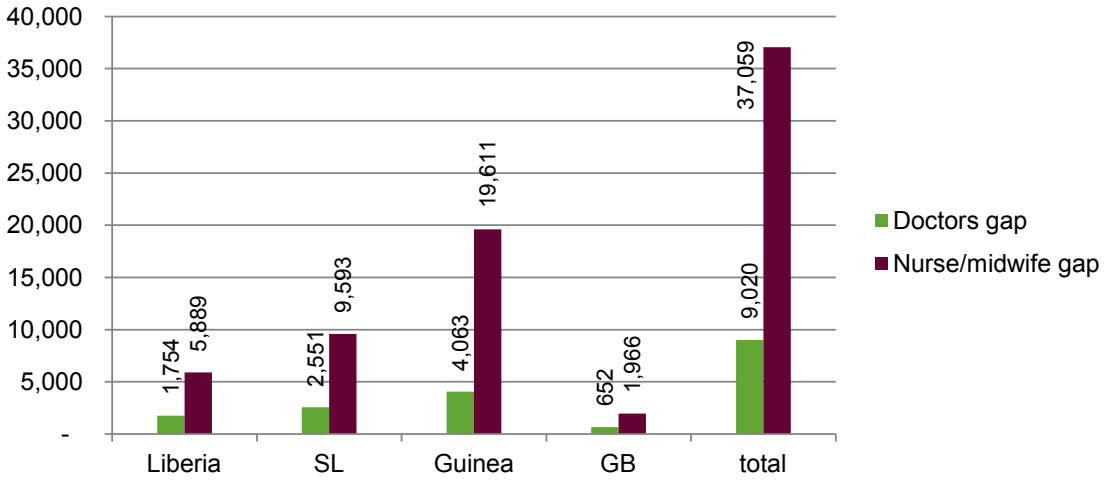
An adequate number of trained health workers

At the height of the Ebola crisis, international agencies were recruiting doctors, nurses, epidemiologists, hygienists, community mobilizers, logisticians and programme managers. This highlighted the shortages in a wide range of health worker categories. Ebola has exacerbated the shortfall in the health workforce in the three worst affected countries where, as of 1 March 2015, 492 medical staff had died from the disease.[43]

'Because many nurses have died, it is time for the government now to train more nurses'.

Bernadette Samura, health worker, Pamaronkoh, Sierra Leone[42]

Figure 4: Estimated gap in numbers of doctors, nurses and midwives in Liberia, Sierra Leone, Guinea and Guinea-Bissau (see Annex 1 for calculations)

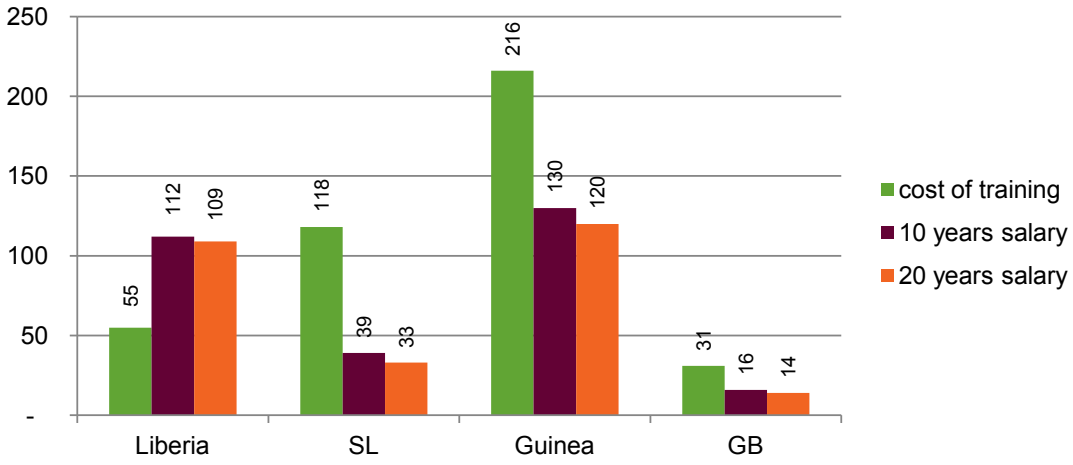


Note: Estimates by Oxfam, based on the WHO minimum standard of 2.3 doctors, nurses and midwives per 1,000 persons.[44]

Low salaries and late payment often results in health workers demanding out-of-pocket payments for services that should be provided free. At one clinic in Sierra Leone, lack of promised hazard payments resulted in workers going on strike, even during the Ebola outbreak.[45]

Oxfam has calculated that Liberia, Sierra Leone, Guinea and Guinea-Bissau (a country at high risk from Ebola) would require $420m to fund the lengthy training required for 9,020 medical doctors and 37,059 nurses/midwives. Once these personnel were trained, a total of $297m annually would be needed to pay their salaries over a period of 10 years.[46] Long-term investment is more efficient because it decreases the cost over time and ensures the retention of adequate numbers of well trained workers.

Figure 5: Estimated cost of training and salaries (for 10 years and 20 years) to fill the gap in the number of doctors, nurses and midwives ($ millions)



Note: Estimated by Oxfam; see Annex for methodology

Planning and training of health workers should correspond to community and national health needs. There are useful lessons to be learned from HIV treatment, in terms of task-shifting from doctors to nurses and other health workers.[47]

For example, in Sierra Leone approximately 2,000 CHWs were retrained to detect and report Ebola cases. They played a critical role, but as the outbreak abates, these workers revert to their original role which was limited to malaria.[48] Liberia used thousands of community health volunteers who were motivated by the responsibility they were given for social mobilization, contact tracing, surveillance, psychosocial support, case management and promoting safe and dignified burials. CHWs and volunteers have played a critical role in dealing with the Ebola outbreak in West Africa and they should be integrated more closely into health systems moving forward.

Available and affordable medicines

The absence of effective vaccines and medicines has exacerbated the Ebola outbreak. This highlights two separate issues: the global rules that govern research and development (R&D), and weak national capacity to manage supplies of health products.

Global rules for R&D

'A profit driven industry does not invest in products for markets that cannot pay.'

Dr Margaret Chan, director-general of the WHO[49]

The existing research system does not serve the interests of public health well because it relies on market incentives that skew the R&D agenda in favour of products that maximize profits for pharmaceutical companies. These companies are granted monopolies on products through intellectual property (IP) rules which enable them to set prices for new ones.

For example, although the vaccines and medicines currently being tested have been paid for through public funding, it is not clear how the pharmaceutical companies will set prices. Gavi, the Vaccine Alliance, has allocated $300m to finance the purchase of Ebola vaccines, but has not indicated the price it is prepared to pay.[50]

There are calls for a global treaty on R&D that promotes public and innovative financing for priority public health needs and unlinks funding from the end price of medical products.

National drug supply chains

Although currently there are no vaccines or medicines available to prevent or treat Ebola, 'supportive' treatments can save lives. However, the logistics of drug supply chains are a weak element in most African health systems. Health centres and hospitals suffer from erratic and inadequate supplies of necessary health products. It is therefore essential that governments, with donor support, improve regulatory and procurement functions, as well as the distribution of medical supplies.

Robust HIS

As with other aspects of health systems in the countries affected by the virus, the Ebola crisis has demonstrated that surveillance capacity is lacking. HIS provide the data for planning, resource allocation and monitoring and evaluation of health policies and programmes. Their effectiveness depends on efficient data collection, compilation, analysis and dissemination.

Surveillance depends on data collection by trained and motivated health workers and on trust and cooperation by communities. In many cases, community fears and lack of trust have resulted in under-reporting of Ebola cases or in people who are sick avoiding contact with health services.[51] Mobile phone technology could be harnessed for data collection and dissemination of information, given its increased use in the affected countries.[52]

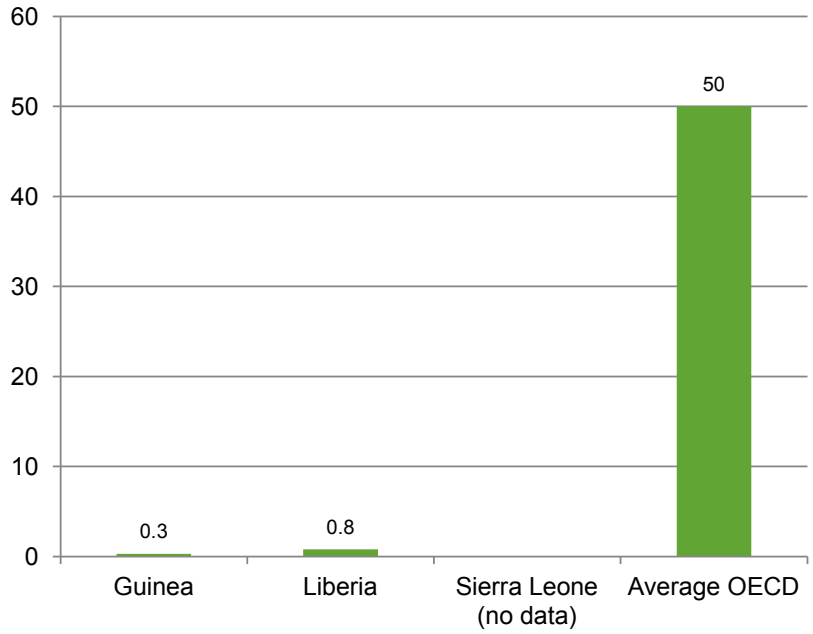
Governments need to build on the knowledge and experience gained, especially by CHWs, to improve health data in general and to establish surveillance for Ebola and for other diseases such as measles, meningitis and Lassa fever.

Adequate health facilities (infrastructure)

The shortage of well equipped health facilities contributed to the delay in controlling the Ebola outbreak. Geographical access to well functioning health facilities that provide quality services is critical for community health, especially in rural and remote areas. These centres must also be equipped with clean water and sanitation. Community-based health posts can act as centres for activities that promote healthy behaviour, such as good hygiene practices, and for disease surveillance and community education in the case of an outbreak.

However, in order to provide quality care and to inspire trust, these rural facilities must be linked to functioning referral facilities. Yet the current number and density of health facilities is not sufficient to provide basic care, let alone respond to more complex needs or to outbreaks of disease.

Figure 6: Hospital beds per 1,000 people, 2006–12[53]



Development partners should support countries to plan, cost and establish functioning health posts and district hospitals that serve health needs and that also connect with referral systems. Clean water, sanitation and hygiene promotion must be explicitly included in plans.

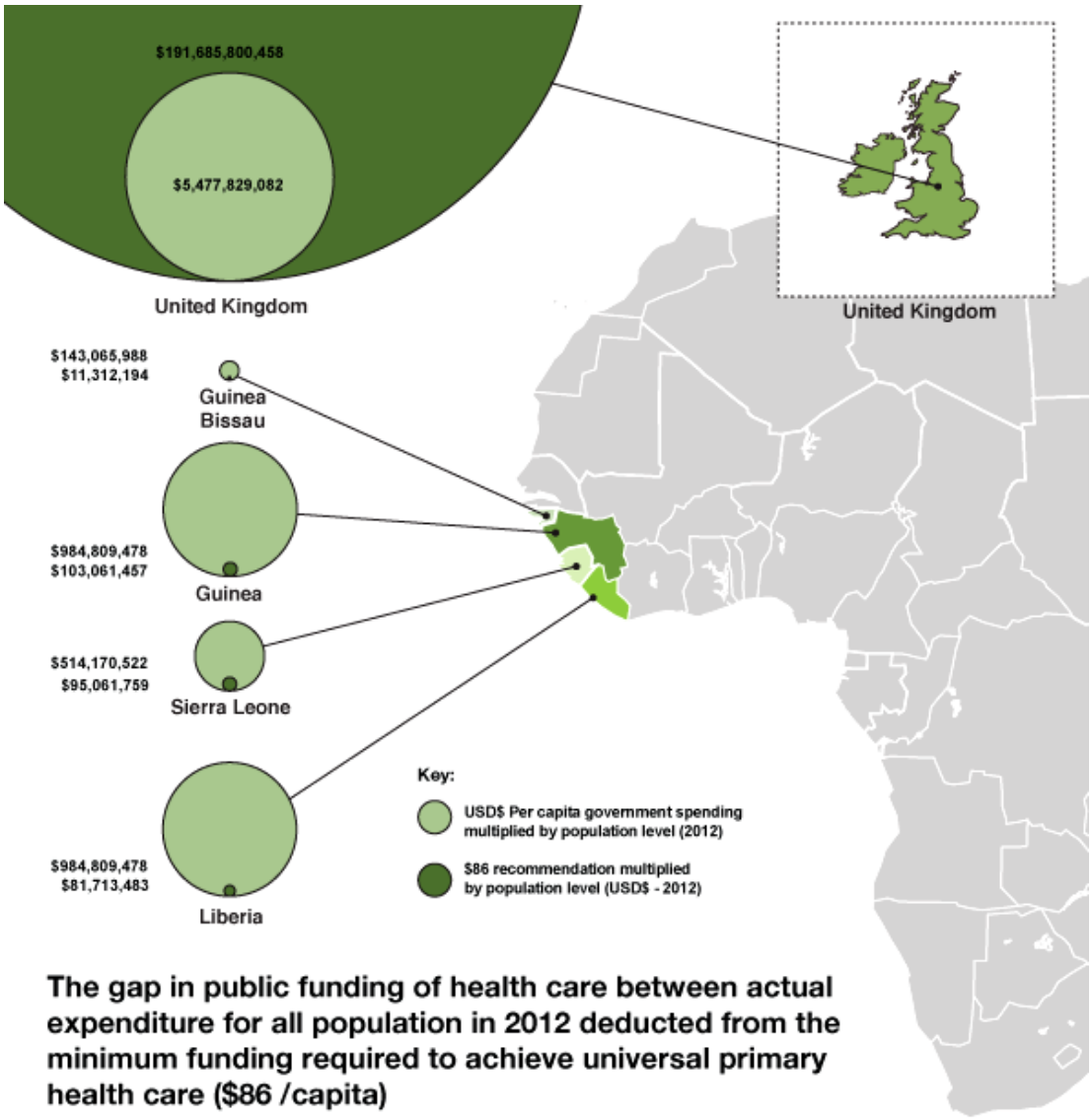
Adequate financing

Before Ebola, low levels of public spending on healthcare were reflected in high out-of-pocket payments. These reached 35 percent of health expenditure in Liberia, almost 65 percent in Guinea and 76 percent in Sierra Leone.[54]

Over time, building resilient health systems will require increased national budget allocations, with shortfalls being supplemented by donors. Based on the $86 per capita figure[55] – the minimum funding needed to provide universal primary healthcare – Oxfam has estimated the total funding needed for populations in the worst affected countries in West Africa, as shown in Figure 7.

The annual funding gap that must be covered in order to achieve universal primary healthcare is approximately $419m for Sierra Leone, $279m for Liberia, $882m for Guinea and $132m for Guinea-Bissau.

Figure 7: Map of financial gap in Liberia, Sierra Leone, Guinea and Guinea-Bissau compared to the UK.



Note: Calculation is based on public spending and population number in 2012 and estimated spending for the same population if per capita spending is raised to $85/capita (see Annex 1).

However, the decisions on financing healthcare can act either to reduce or increase inequality. The impact of having to pay for services has been summarised by Jim Yong Kim, President of the World Bank:

> *'Anyone who has provided health care to poor people knows that even tiny out-of-pocket charges can drastically reduce their use of needed services. This is both unjust and unnecessary. Countries can replace point-of-service fees with a variety of forms of sustainable financing that don't risk putting poor people in this potentially fatal bind. Elimination or sharp reduction of point-of-service payments is a common feature of all systems that have successfully achieved universal health coverage'.*
>
> Jim Yong Kim, speech on 'Poverty, Health and the Human Future', 2013[56]

Moreover, most out-of-pocket medications and surgical supplies have to be purchased from private pharmacies, thus increasing the cost of healthcare for individuals. All forms of payment discourage people who are living in poverty from accessing health services, forcing them to seek out the cheapest alternative possible, often leading them to use unqualified and unregulated private providers such as drug hawkers, or to do without. Writing on the subject of UHC, Nobel Laureate Amartya Sen points out:

Every second, three people in developing countries are pushed into poverty due to the cost of healthcare.[57]

> *'Given the hugely unequal distribution of incomes in many economies, there can be serious inefficiency as well as unfairness in leaving the distribution of healthcare entirely to people's respective abilities to buy medical services. UHC can bring about not only greater equity, but also much larger overall health achievement for the nation, since the remedying of many of the most easily curable diseases and the prevention of readily avoidable ailments get left out under the out-of-pocket system, because of the inability of the poor to afford even very elementary healthcare and medical attention."*[58]

Therefore, countries affected by Ebola need to continue with their pre-Ebola policy of free services and expand it beyond pregnant mothers and children.

In order to finance healthcare, some countries use a **combined system of social insurance and tax revenue** to provide UHC. But providing services only to those who can pay, or who are covered by an insurance scheme, will do nothing to protect public health unless everyone else is also covered.

In 2012, tax incentives awarded to six foreign companies in Sierra Leone were estimated to be worth eight times the national health budget.[59]

Financing from taxation is the most equitable and sustainable system for fairly raising and distributing funding for healthcare for the whole population. It is feasible for tax to finance healthcare, but many countries do not make use of the potential tax revenue they could add to the health financing pool. Developing countries only reach a maximum of 15–20 percent tax-to-GDP ratio, compared to an average 34 percent for OECD countries.[60]

Oxfam estimates that if low- and middle-income countries – excluding China – closed just half of their tax revenue gap, they would gain almost

$1 trillion in revenue.[61] Even the poorest countries can increase domestic tax revenue for health through measures such as scaling up progressive taxation of high-income earners and companies. The recent scandal involving Swiss banks revealed that 58 individuals in Liberia had hidden $288m in secret accounts in the Swiss subsidiary of HSBC, to the loss of the Liberian exchequer.[62] Oxfam estimates that at least $18.5 trillion worldwide is hidden by wealthy individuals in tax havens.[63]

Tax avoidance by large companies and the tax breaks they receive from governments are costing developing countries around $100bn a year.[64] In 2012, tax incentives awarded to six foreign companies in Sierra Leone were estimated to be worth eight times the national health budget.[65]

International tax rules should be reformed to prevent tax evasion, end harmful competition by tax havens and stop countries from competitively lowering taxes to attract foreign direct investment.[66]

A strong public sector to deliver equitable, quality service

Financing healthcare is closely linked to the way that services are delivered, which may be through public, private or non-profit providers, or a mixture. Private providers range from five-star hospitals to unlicensed street hawkers of medicines. Where people cannot afford quality healthcare, they resort to using cheap private services that are in many cases unqualified and unregulated.

Vested interests may work against planned improvements to public healthcare. In South Africa, for example, private health insurance companies were accused of lobbying against a new National Health Insurance scheme that promises to provide essential healthcare to all.[67]

The enormous discrepancies in the quality of health services in a two-tier system present a significant risk to their overall resilience. When people who are living in poverty pay out-of-pocket for low-quality or even dangerous services from the informal private health sector, they get the worst deal of all. Yet safety concerns are not limited to street drug sellers or unlicensed small shops. The inherent profit motive in the private sector can lead to excessive use of medical interventions, even when they are harmful. In 2012, for example, it was reported that thousands of Indian women suffered unnecessary hysterectomies undertaken by profit-seeking private doctors.[68]

Public private partnerships (PPPs) are often portrayed as delivering the best of the public and private health sectors. However, in Lesotho a PPP venture that has built and is now running a new hospital in the capital Maseru has been shown to have profoundly undermined the country's health system. The PPP hospital was expected to provide high-quality services more efficiently, but Oxfam found that in 2014 it was costing 51 percent of the total public health budget.[69] While this financial burden has seriously depleted public coffers, private shareholders were expected to see a 25 percent return on their original investment.[70]

Public systems were not able to provide resilient health services in the Ebola-affected countries, but private providers failed too. This raises the question of where to invest the limited resources that are available for building resilient health systems. While public provision has historically suffered from chronic under-investment and faces concerns over the quality of services, the evidence shows that it is still the most effective and equitable model to deliver health for all. In Asia, all low- or middle-income countries that have achieved universal or near-universal access to healthcare have relied either solely or predominantly on tax-funded public sector delivery.[71]

4 INVESTING IN HEALTH SYSTEMS AS A GLOBAL PUBLIC GOOD

The Ebola crisis has brought a new reality to the way the world considers health systems and the relationship between donors and recipients.

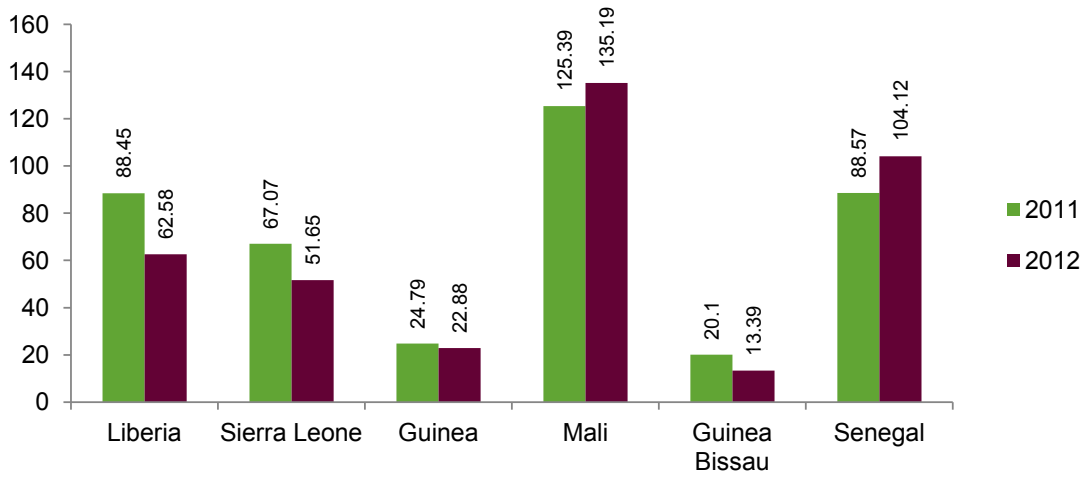
Traditionally donors' decisions on funding are affected by their choices of priority sectors, their relationships with recipient countries and their development ideologies. These factors affect decisions relating to the level and predictability of funding, its duration (short-term of 1–3 years or longer-term), modality (sector budget support or project funding) and policies (e.g. promoting private health services).

Figure 8 shows the importance of donors' financial support to national health expenditure in six West African countries. The figures cover bilateral and multilateral aid, including resources targeted to specific diseases rather than to the health system as a whole. Alarmingly, donors' financing to the three countries most affected by Ebola has decreased in recent years and, even after the epidemic, donor commitments have not yet been made to help these countries rebuild their health services.

'My hopes? It's my prayer that the international community will not stop coming to Liberia. They should keep helping the government to make a Liberia a better place for our children's future.'

Jacob Myers, Central New Kru Town, Liberia

Figure 8: Donors' contributions to health services in six affected countries ($ millions)



Note: The % figure denotes donors' contribution to total health expenditure. Source: WHO Country Planning Cycle Database[72]

The Ebola crisis has brought a new reality to thinking about the financing of healthcare at a global level and has demonstrated that, in order to stop infection spreading, it is necessary to stop it in the countries that are most directly affected. Future prevention plans could benefit from the rapid deployment of financial and human resources by establishing global financing mechanisms and medical/health corps. However,

international emergency action cannot be effective unless there is a global commitment to invest in the capacity of local health systems.

Resilient health systems are a critical element in reducing inequality between and within countries. Inadequate access to healthcare increases ill health for people living in poverty and excludes them from contributing to and benefiting from economic growth. Moreover, paying for healthcare increases people's financial burden and deepens poverty, especially in the case of women. In addition to improving their health, free public health services have the effect of putting extra cash in the pockets of people living in poverty, removing a financial burden and eventually reducing inequality.

Global public goods are defined as those from which nobody should be excluded and the use by one person does not reduce use by others.[73] Interventions such as basic vaccinations for children are considered a necessary public good and are provided by governments.[74] Viewing investments in resilient health systems as a global public good would challenge historical donor/recipient relationships, and change 'aid' into a contribution to mutual benefit for all. Instead of focusing on a particular programme or policy, donors 'aid' to a country becomes a contribution to financing of resilient health systems in that country to benefits its citizens and those outside its border.

5 LEARNING FROM COUNTRIES THAT HAVE SUCCEEDED IN CONTROLLING EBOLA

The experiences of several outbreaks in countries such as Uganda, DRC, Senegal and Nigeria indicate several factors important in preventing the spread of Ebola. However, in-depth research is required to examine their relative value in preparation for future outbreaks. Some of these factors are presented below.

'It is [ ] unlikely that the particularly devastating course of this epidemic can be attributed to biologic characteristics of the virus. It is more likely to be a result of the combination of dysfunctional health systems, international indifference, high population mobility, local customs, densely populated capitals, and lack of trust in authorities after years of armed conflict.'

J.J. Farrar and P. Piot (2014)[75]

The role of health systems

In an outbreak in 2000, **Uganda's** health system responded quickly by setting up effective surveillance, clinical case management systems and strict enforcement of infection control measures.[76] The Ministry of Health (MoH) trained health workers and educated the general public on symptoms of Ebola. Since then, each subsequent outbreak in the country has been smaller than the one before.[77]

Twenty years ago an outbreak in **DRC** highlighted the weaknesses in health sector capacity, and international teams had to step in to cover the gap.[78] Through six subsequent outbreaks, DRC has established substantial expertise in managing Ebola.

When the 2014 outbreak in DRC was reported to health officials in Kinshasa, the response was rapid. An experienced team was brought in, which was led by the first medic to deal with the first Ebola outbreak and which had contained more than 10 previous outbreaks in DRC and Uganda. A robust response stopped the rural outbreak before it could spread to major urban areas or across international borders.

Nigeria benefited from its experience of using an incident management system against polio. It quickly converted the polio emergency operations centre into a response centre, allowing Ebola to be contained to two cities, and contact tracing was 100 percent effective.[79] The MoH sent tens of thousands of texts detailing symptoms, protective measures and hotline numbers to ring to seek care.[80]

Community participation and governance

Experience highlights the critical role of strong political leadership in setting priorities, implementing rapid action plans, providing timely and accurate information and engaging with communities. These actions are important to develop trust between governments and health systems and the communities they serve in order to control outbreaks.

'Now I know that people's ownership, community participation, works better in a case like this. I think that experience will stay with us.'

Ellen Johnson Sirleaf, President of Liberia[81]

In Liberia, Guinea and Sierra Leone, a lack of community trust, combined with frightening messages about Ebola, made it difficult to control the outbreak. People feared going to health facilities to seek diagnosis and treatment or of notifying the authorities about Ebola cases. Mistrust reached a terrible level in one case in southern Guinea, when villagers killed health workers and hid their corpses.[82] In another incident, a burial team in Sierra Leone was also attacked.[83] However, intensive work in communities resulted in some people changing their centuries-old burial practices in months.

In **Uganda**, the MoH built partnerships with local actors, such as NGOs, and quickly mobilized communities to disseminate information. Even in the conflict-riven north of the country, anti-government rebels stopped fighting and supported anti-Ebola efforts.[84] In **DRC**, the government engaged communities through traditional, religious and community leaders to spread public awareness messages.[85]

Rapid action was also critical to the response. The **Nigerian** authorities quick redeployed resources from the polio eradication campaign to Ebola control.[86] Financial resources were successfully drawn upon both locally and internationally due to government coordination.[87] However, it is important to note that the story may have been different in Nigeria had Ebola started in the north of the country, where lawlessness and unrest persist or in other regions where health service is inadequate.

Demographic issues

Demographic issues play an important role in the spread of Ebola. In the past, most Ebola outbreaks have occurred in remote, sparsely populated parts of Central Africa and officials were able to quarantine infected people to their villages.[88] Moreover, the number of human contacts was limited due to small populations living at low densities, with infrequent or slow transport connections.[89]

The current epidemic in West Africa was different, as outbreaks began in rural areas but the disease spread rapidly because of the mobility of the population.[90] Ethnic groups stretch across the three affected countries through family and trading relationships.

Isolated communities allowed the disease to be contained in DRC and Uganda. At the same time, however, communities living in isolation are less likely to have access to updated information or to reach health facilities for diagnosis and care. Moreover, being in a remote area enables fearful individuals to flee into the bush out of reach of contact tracers.[91]

The use of media

Nigeria provides a good example of conducting awareness campaigns through news conferences and hotlines. Individuals also used social media websites to inform the world and to learn about Ebola themselves.[92]

In **Uganda,** the MoH trained journalists to report safely about Ebola, resulting in rapid and regular information reaching the population.[93] The political culture of the open policy the country has adopted for HIV was translated to the Ebola outbreak.[94] However, countries have also had to work hard to curtail the flow of misinformation.[95]

Timely international response

Despite their different levels of preparedness and the actions taken, all the affected countries required quick, coordinated and efficient international support. Effective international response was critical to national work for the containment of the outbreaks in **Uganda** and **DRC**.[96]

Nigeria and **Senegal** were able to quickly draw on humanitarian aid with their development partners already aware of the risks and of the necessity of supplying aid. During the current outbreak, there have been criticisms of a slow response from international organizations, especially WHO, which was late in declaring Ebola as a global emergency.[97]

In sum, the history of Ebola outbreaks highlights the importance of national and international preparedness and rapid interventions, strong political leadership, building relationships of trust with communities and the effective use of media. Resilient health systems that continue to provide health services to populations while containing any outbreak are the critical base for effective response.

6 CONCLUSIONS AND RECOMMENDATIONS

Dysfunctional health systems in sub-Saharan Africa and other developing countries are nothing new, yet it needed the threat of a global pandemic to highlight their weaknesses. Post-Ebola reconstruction of health systems in affected countries provides an opportunity to learn lessons and act on them, such as integrating surveillance. The shortage of adequate health workers highlighted by the Ebola crisis should prompt urgent investment and implementation of plans to train and retain adequate health workforces. Similarly, the deaths of more than 10,000 people from Ebola must guide decision makers to make long-term investments in designing resilient health services country by country and as a global public good.

'My biggest fear is that the health sector is not improved.'

George Caulae, Fundaye community, New Kru Town, Liberia

Investing in health systems that are publicly funded, publicly delivered and free at the point of care must take priority in order to provide UHC and ensure that countries can respond to future disease outbreaks. Global security is threatened by the rapid spread of infectious diseases, especially those of animal origin where full prediction and preparedness may not be possible. While future prevention plans could benefit from global financing mechanisms and medical/health corps, such international emergency actions cannot be effective unless there is a global commitment to invest in the capacity of local health systems. Resilient health systems provide the necessary foundations for action, should an outbreak occur. Moreover, free public health services in effect put money in the pockets of people living in poverty, enabling them to be healthy enough to contribute to and benefit from economic growth. Investing in health systems is therefore an effective tool for reducing inequality and insecurity.

Effective, efficient and equitable health systems need to be comprehensive; the system cannot function properly if certain elements are missing, even if progress is being made in others.

RECOMMENDATIONS

Countries, especially those affected by the Ebola outbreak, need to:

- Invest in comprehensive public health systems as a central part of national plans to achieve UHC and to ensure future outbreaks can be dealt with. Governments must develop long-term costed plans to build resilient health systems that can serve health needs and health security. These should include health worker training and retention, including of CHWs; access to medicines and health technologies; HIS, including surveillance; and infrastructure, including water and sanitation;

- Progressively increase public resources in order to fill the annual health financing gap. Use progressive tax systems to finance resilient health systems in order to provide effective, efficient and equitable services free at the point of use;
- Foster trust amongst communities by ensuring participation in decision making and integration of the CHWs and volunteers that were trained during the Ebola outbreak into the health workforce.

Donors and international agencies should:

- Support governments' plans for post-Ebola recovery through building resilient health systems as a global public good that extends universal health coverage, free at the point of use, and responds to outbreaks. Donors should rethink traditional donor/recipient relationships that in the past have skewed the provision of health services towards specific projects and policies, at the expense of comprehensive free health care;
- Commit to longer-term funding for health systems, making annual allocations for financing the development of health services over a 10 year period, providing that plans are well implemented;
- Support countries to introduce effective measures to enable them to raise domestic resources via fair taxation;
- Contribute to creating a global tax system that is based on fairness and transparency.

Governments and international health agencies should:

- Endorse a R&D treaty which promotes public funding for R&D and is focused on the needs of public health so as to provide vaccines, diagnostics and medicines for diseases such as Ebola. Financing of R&D must be unlinked from the price of products that result from it;
- Enable civil society organizations to play their role in ensuring accountability and transparency by all stakeholders and in enabling communities to engage in decision making at the highest political levels, as well as in monitoring policies and financing for pro-poor health systems.

ANNEX 1: CALCULATING THE COST OF RECRUITING AND TRAINING HEALTH WORKERS

Methodology developed by Erling Høg and Hector Jimenez Portilla

The analytical process follows that previously presented in Verboom *et al.* 2006.[98] The most recent WHO data was used for density of physicians and nurses/midwives. From these figures – and by using the WHO standard of a minimum of 2.3 doctors, nurses and midwives per 1,000 people – the required number of health workers per country was calculated. Some assumptions were made, as no ideal ratio of medical doctors to nurses/midwives is available. Instead, figures from the best performing countries in Africa (those already attaining the 2.3 density figure) were used.

Estimating the cost of training was done based on the assumption that extra doctors would be trained locally. Training costs were estimated using the same approach as Verboom *et al.* (2006). Following a literature search into the costs of educating health workers, Verboom *et al.* identified the median cost in the range for doctors and for nurses, making the assumption that the cost of training a midwife was the same as the cost of training a nurse. On average, the education of a medical doctor and a nurse/midwife was found to be 36.9 and 17.6 times per capita GDP respectively. Applying these average estimates to the per capita GDP of each of the countries under consideration, the cost per country to educate a physician and a nurse/midwife was calculated. Subsequently, the estimated salaries were multiplied by the number of medical students needed to achieve the ideal number of physicians and nurses/midwives.

Estimation of salaries

Salaries are incorporated as an incremental cost based on Verboom *et al.* To increase the accuracy of the costing, it was assumed that medical doctors earn twice as much as nurses/midwives. The resources to be mobilized are expressed in dollars.

Two scenarios are provided to understand the annual investment required. Firstly, assuming existing training institutions are stretched to their maximum, the full scale-up of the human resources would be completed within 10 years. On a more realistic order of magnitude, results are also shown for a period of 20 years.

Findings

Liberia lacks 1,754 doctors and 5,889 nurses/midwives. Training this many people would cost $55m. The incremental annual cost derived from salaries is estimated to be $106m. Such figures would call for $112m or $109m for the next 10 or 20 years, respectively.

Sierra Leone requires an additional 2,551 doctors and 9,593 nurses/midwives. This would need $118m to be allocated to training, while salaries would require $28m annually. This works out at an investment of $39m annually for the next 10 years, or $33m annually if a 20 year period is given.

In Guinea, 4,063 doctors and 19,611 nurses/midwives are needed. The cost of educating them would be close to $216m, while salaries would amount to $119m per year. The two scenarios show an annual investment of $130m over 10 years or $120m over 20 years.

Guinea-Bissau's deficit consists of 652 doctors and 1,966 nurses/midwives. The full scale-up would require $31m for training and an annual salary expenditure of $13m. The annual estimation is $16m over 10 years and $14m over 20 years.[99]

Limitations of the methodology

This methodology has a number of limitations:

1. Data used are from 2010 as no updated reliable source could be found. The number of doctors and nurses/midwives could have changed significantly since 2010.

2. Accurate data on the number of graduates per country would have allowed accurate estimation of the pace of the scale-up. This information was not available.

3. This research provides only a partial estimation of the human resources needed. Other health workers – beyond physicians, nurses and midwives – were not included due to a lack of data.

4. The model could have been made more realistic by including pay rises planned by the ministries in the coming years.

5. Potential attrition rate of medical students was not included due to lack of data.

Calculations

Guinea 2010		
	GDP per capita 2010 (in current dollars)	435.44
	Population 2010	10,876,033
	Number of physicians (excl. surgeons) 2010	940
	Number of nurses/midwives 2010	401
	Number of physicians [excl. surgeons], nurses/midwives 2010	1341
	Density per 1000 population 2010	0.123298633
	Minimum density per 1000 population	2.3
	Physicians, nurses/midwives deficit factor	18.65389702
	Ideal number of physicians, nurses/midwives 2010	25,015
	Missing number of physicians, nurses/midwives 2010	23,674
	Medical doctors missing	**Nurses/Midwives missing**
RATIO 2:8	4,063	19,611
Training unit cost	16,067.736	7,663.744
Training total cost	65,283,211.37	150,293,683.6
Training cost		**215,576,895**
Unit salary PER YEAR	7,885.148076	3,942.574038
Salary total cost PER YEAR	32,037,356.63	77,317,819.46
Salary cost PER YEAR		**109,355,176.1**
TOTAL ANNUAL COST (10 years scenario)		**130,912,865.6**
TOTAL ANNUAL COST (20 years scenario)		**120,134,020.8**

Liberia 2010		
	GDP per capita 2010 (in current dollars)	326.6
	Population 2010	3,957,990
	Number of physicians (excl. surgeons) 2010	67
	Number of nurses/midwives 2010	1,393
	Number of physicians [excl. surgeons], nurses/midwives 2010	1,460
	Density per 1000 population 2010	0.3688741
	Minimum density per 1000 population	2.3
	Physicians, nurses/midwives deficit factor	6.235189726
	Ideal number of physicians, nurses/midwives 2010	9,103
	Missing number of physicians, nurses/midwives 2010	7,643
	Medical doctors missing	**Nurses/Midwives missing**
RATIO 2:8	1,754	5,889
Training unit cost	12,051.54	5,748.16
Training total cost	21,138,401.16	33,850,914.24
Training cost		**54,989,315.4**
Unit salary PER YEAR	22,636.64152	11,318.32076
Salary total cost PER YEAR	397,046,69.22	66,653,590.95
Salary cost PER YEAR		**106,358,260.2**
TOTAL ANNUAL COST (10 years scenario)		**111,857,191.7**
TOTAL ANNUAL COST (20 years scenario)		**109,107,725.9**

Sierra Leone 2010		
	GDP per capita 2010 (in current dollars)	448.22
	Population 2010	5,751,976
	Number of physicians (excl. surgeons) 2010	95
	Number of nurses/midwives 2010	991
	Number of physicians [excl. surgeons], nurses/midwives 2010	1086
	Density per 1000 population 2010	0.188804682
	Minimum density per 1000 population	2.3
	Physicians, nurses/midwives deficit factor	12.18190129
	Ideal number of physicians, nurses/midwives 2010	13,230
	Missing number of physicians, nurses/midwives 2010	12,144

	Medical doctors missing	**Nurses/Midwives missing**
RATIO 2:8	2,551	9,593
Training unit cost	16,539.318	7,888.672
Training total cost	42,191,800.22	75,676,030.5
Training cost		**117,867,830.7**
Unit salary PER YEAR	3,769.530805	1,884.765403
Salary total cost PER YEAR	9,616,073.084	18,080,554.51
Salary cost PER YEAR		**27,696,627.59**
TOTAL ANNUAL COST (10 years scenario)		**39,483,410.66**
TOTAL ANNUAL COST (20 years scenario)		**33,590,019.13**

Guinea-Bissau 2010		
	GDP per capita 2010 (in current dollars)	534.14
	Population 2010	1,586,624
	Number of physicians (excl. surgeons) 2010	78
	Number of nurses/midwives 2010	953
	Number of physicians [excl. surgeons], nurses/midwives 2010	1031
	Density per 1000 population 2010	0.64980739
	Minimum density per 1000 population	2.3
	Physicians, nurses/midwives deficit factor	3.539510378
	Ideal number of physicians, nurses/midwives 2010	3,649
	Missing number of physicians, nurses/midwives 2010	2,618

	Medical doctors missing	**Nurses/Midwives missing**
RATIO 2:8	652	1,966
Training unit cost	19,709.766	9,400.864
Training total cost	12,850,767.43	18,482,098.62
Training cost		**31,332,866.06**
Unit salary PER YEAR	8,035.458107	4,017.729054
Salary total cost PER YEAR	5,239,118.686	7,898,855.319
Salary cost PER YEAR		**13,137,974.01**
TOTAL ANNUAL COST (10 years scenario)		**16,271,260.61**
TOTAL ANNUAL COST (20 years scenario)		**14,704,617.31**

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99 The results obtained are within a similar order of magnitude to those in the study of reference (Verboom and Edejer 2006).

This paper was written by Mohga Kamal-Yanni. Oxfam acknowledges the assistance of Claire Godfrey, Philippa Saunders, Emma Wadley, Debbie Hillier, Ana Arendar, Renata Rendon, Laura Searle and Lara Seigneur in its production. The research for the paper benefited from input from Azusa Sato, Erling Høg and Hector Jimenez Portilla. Calculations for the cost of training and paying health workers were carried out by Hector Jimenez Portilla and Erling Høg. The gap map was produced by Simon Crab. It is part of a series of papers written to inform public debate on development and humanitarian policy issues. For further information on the issues raised in this paper please e-mail advocacy@oxfaminternational.org

Published by Oxfam GB for Oxfam International under
ISBN 978-1-78077-848-8 in April 2015.
Oxfam GB, Oxfam House, John Smith Drive, Cowley, Oxford, OX4 2JY, UK.

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