

Frontline Health Workers' Nobel Role in Disease Prevention for Achieving Global Health Security: Why are we not Learning the Lessons?

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Abstract

Frontline health workers are trusted, knowledgeable health personnel, who belong to the communities they serve. They are well accepted and relied on by the communities and form the central pillar of effective health systems key to reducing preventable deaths and achieving universal health coverage. They are the foundation of disease intelligence essential to efforts to eliminate diseases and prevent disease outbreak. However, against such important roles and proven cost effectiveness in achieving health outcomes, they are among the most neglected cadre of health workforce in Africa and other parts of the world. They are poorly equipped and remain exposed to disease risks, and except in few countries, receive inadequate training, lack supervision and career development. In addition, they work as unpaid volunteers. Where they have been well recognized and supported to perform their roles, they have proven to be effective, affordable and reliable in achieving health outcomes. We share examples of success stories and important lessons that poor access to health services is not strictly linked with low economic level, but rather reflects a lack of political will and determination by leaders to protect their most vulnerable populations. We urge governments to enshrine health as a fundamental human right in their national constitutions and invest in Primary Health Care by build an army of Frontline Health workers capable of preventing diseases and outbreaks at source, hence saving money for developmental activities and education. We need louder voices to advocate training and maintaining of frontline health workers, especially in resource limited countries.

Keywords: Cost effectiveness; Disease prevention; Effective health communication; Achieving health outcomes; Universal health coverage

Abbreviations: CHW: Community Health Workers; GDP: Gross Domestic Product; LMIC: Low and Medium Income Countries; NGO: Non-Governmental Organization; PHC: Primary Health Care; PMI US: President's Malaria Initiative TB Tuberculosis

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Introduction

Definition and roles

Frontline health workers are defined in different ways in different parts of the world and by different organizations. However, there is a good convergence towards the term "Community Health Workers (CHW)" [1-3]. Their importance roles in accelerating the

achievement of health outcomes was recognized in the benchmark declaration of the International Conference on Primary Health Care, commonly known as the Alma Ata declaration of 1978 [4]. It defined health as "state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" recognized as a "fundamental human right". It further states, "Attainment of the highest possible level of health is a most important worldwide social goal whose realization requires

the action of many other social and economic sectors in addition to the health sector". The role of the community health workers in achieving this highest level of health is recognized in the Alma Atta's strategic approach of Primary Health Care (PHC). It states, "Universal access to essential health care is based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at cost that the community and country can afford to maintain at every stage of the development in the spirit of self-reliance and self-determination".

We borrow from these different definitions [1-3] and use "frontline health workers" in this paper to represent all forms of community based health workers, defined here as the frontline soldiers in the fight against diseases and ill health, with proven record of reducing preventable deaths and hence the central pillars of effective health systems, key to achieving universal health coverage. In addition, we recognize that they form the core foundation or base of the intelligence for disease and disease outbreak prevention, and cost effective providers of interventions for disease prevention to communities in need. This is because they belong to the communities they serve, are knowledgeable individuals by their community standards, and are well trusted. They are an effective link between health care facilities and communities because they have high knowledge of the social and cultural behavior of the communities they serve and speak their language. They can therefore communicate to the external world on behalf of the communities, relay messages and moderate discussions between the communities and the outer world. Of great importance is their role as the base or core foundation of disease intelligence at the community level, key to the prevention of diseases and related outbreaks at source.

Community health workers key roles:

1. Provision of quality health care—proven, cost effective, affordable life-saving care.
2. Achieving health outcomes— mother and newborn, vaccination coverage, hygiene (latrine use and hand washing).
3. Equitable access to proven interventions—reaching rural and hard to reach populations.
4. Agents of effective health communication.
5. Foundation of disease intelligence at community level.

These important roles have been proven time and again as central pillars of health and there is abundant evidence that well supported frontline health workers bring about essential improvements in health conditions of millions of poor populations in countries with limited resources [5,6]. We summarize selected success stories below.

Success Stories

Examples of most successful interventions that trained and deployed community health workers include the Chinese CHW

programme in Ding Xian, which started in the 1920s, became vibrant in the 1950s and 60s and by 1972 had trained more than one million barefoot soldiers serving rural communities by providing essential health services with minimal training [7,8]. Their focus was in getting communities to understand and participate in environmental sanitation, health education, immunization and essential primary medical care including first aid. China, vast as it is, has been able to achieve and maintain good level of health gains. Currently china's maternal mortality rate (per 100000 live births) and child mortality rates stand at 40 and 15 respectively. Under-five mortality rate is just under 17.7 per 1000 live births. Achieving this has required increase in expenditure for health, which has reached 5.1% of the Chinese national GDP [9].

Tanzania tried to emulate the Chinese experience through its political self-determination declaration famously known as the Arusha declaration of 1967 [10,11]. This declaration considered Primary health care as a way of achieving self-reliance in health and Tanzania introduced a policy establishing a countrywide village health workers programme. Strong political determination revamped training and deployment such that by 1988, Tanzania had 1,897 Assistant Health Officers and 2,400 village health workers, and 11644 other community health workers in different disciplines including village birth attendants, drug dispensers; mental health and outreach workers etc. In 1990 when launching the new National Health Policy [11], Tanzania boasted of having reduced infant mortality per a thousand live births by more than a half, from 215 in 1961 to 105 in 1987. The specific objectives of that policy emphasized the availability and accessibility of health services to the entire Tanzanian population (rural and urban), and promoting multi-sectoral collaboration and cooperation in addressing health problems and in particular involving education, agriculture, water and sanitation, community development, women organizations and Non-Governmental Organizations and politics (the party). Community involvement was given high importance and for this to happen, the policy stated that there should be at least two Village Health workers in each village, one dealing with Maternal and Child Health and the other one focusing on environmental health and sanitation. In 2012, tremendous improvement in health outcomes had been registered compared to 1990 (**Table 1**).

Cuba addressed the need for effective community involvement to achieve universal health coverage by establishing community-based policlinics [11]. These are primary health care clinics, each of which serves a population of between 30,000 and 60,000 people. The policlinics have community hubs covering between 20 and 40 neighborhood-based family doctors and nurses. These family based doctors and nurses receive quality training on primary health care by the policlinics, which are accredited research and teaching centers for medical, nursing and allied health science. In this way, Cuba links research and practice in such a way that research informs practices directly and continuously. The established strategy also ensures that the community based doctors and nurses are well recognized, rewarded for their work, have a clear career path and are

Table 1 Health outcome improvement in Tanzania following PHC policy supporting CHWs.

| Health outcome | 1990 | 2012 |
|---|------|------|
| Under five Mortality rate/100 live births | 166 | 54 |
| Infant mortality rate/1000 live births | 101 | 38 |
| Crude death rate/1000 people | 15 | 8.8 |
| Immunization coverage (%) 2012, BCG | - | 99 |
| Immunization coverage (%) 2012, DPT1 | - | 98 |
| Immunization coverage (%) 2012, DPT3 | - | 92 |
| Immunization coverage (%) 2012, polio3 | - | 90 |
| Immunization coverage (%) 2012, MCV | - | 97 |
| Immunization coverage (%) 2012, HepB3 | - | 92 |
| Immunization coverage (%) 2012, Hib3 | - | 92 |
| Source UNICEF 2013 | | |

adequately supervised and supported in their work. As a result, Cuba has been able to achieve Universal health care at all levels and care that is of quality, affordable and accessible to all. It has also rid itself of disease outbreaks including Dengue, malaria and cholera. Its under-five mortality rate and infant mortality rate stands as low as 6 and 4.63 per 1000 live births respectively. Its maternal mortality rate is 35 per 100,000 live births.

Another example of a success story in Africa comes from Ethiopia. Here the country established a well-planned and executed health extension programme since 2003 [12-14]. The programme aims at extending essential health services to reach rural communities. It has trained and deployed over 38,000 female community health workers. The focus of training is on disease prevention through the provision of access to essential effective interventions including immunization, sanitation, family health services, disease prevention and control (malaria) and health education. With this programme, Ethiopia has achieved a significant increase of the ratio of extension worker to population from 1:23,775 (2004/05) to 1:2,437 (2008/09). As of 2010, overall national coverage had reached 63% having catalyzed an increase of health expenditure from per capita \$7.13 (2005) to \$16.10 (2008). The number of people identified with Tuberculosis (TB) between October 2010 to December 2011 has doubled from 2500 to 5090 and TB Case notification has increased from 64 to 127/100000 population/year [15].

Malawi is also an example of a success story, although its work is yet to scale nation-wide. The country took the opportunity of the US President Malaria Initiative (PMI) to introduce a programme of training CHW to provide malaria services. Through this programme, between 2004 and 2010, Malawi trained 60,000 CHW to administer malaria treatment and 25000 to diagnose malaria [16-18].

Lessons from Success Stories

From these success stories, we learn that the critical elements required in order to strengthen primary health care in health systems and achieve universal coverage include among others the following [5-8,19].

1. Strong political will and commitment at the highest government level, which should ensure that above signing

up of numerous global declarations, countries entrench health as basic human right in national constitution.

2. Strong investment in health ensuring priority financial allocation for health.
3. Recognition of the frontline health workers as an extension of the national health system and strengthening their training, deployment and support including payment.
4. Establishment of career path for frontline health workers supported by the national medical training institution to update knowledge of essential preventative interventions.
5. Community engagement and participation.
6. Establishing a long term national strategy that enables making adjustments to maintain fit for purpose of the trained cadres.
7. Recognizing multi-sectoral contribution to health and strengthening cross-sector collaboration.

We also learn that the key enabling factors include

1. Recognition by governments and communities as an essential part of the health system and hence incorporation as a system extension.
2. Training based on a standard curriculum to address community based primary health needs targeting disease prevention, delivery of basic lifesaving interventions and self as well as community protective measures in case of outbreaks.
3. Equipped with essential supplies and given necessary logistic support to facilitate their work.
4. Regular updated training and supervision.
5. Receive payment for the work they do.

Discussion

The lack of health workforce globally is alarming [20]. It is even more alarming in countries of Africa, where the burden of disease is highest and where unfortunately because of rapid change of lifestyle and eating habits there is worse to come in the form of epidemic concerning obesity, cardiovascular diseases and diabetes [21,22]. Left as they are today, most of African health systems, which are grossly underfunded, ill equipped and suffer major human resource for health shortages, will not be able to handle the weight of communicable and non-communicable diseases. There is therefore urgent need to strengthen African health systems through better and improved health financing and revamping preventive services for both communicable and non-communicable diseases. The requirement of a broad base of trained frontline health workers at community level is therefore urgent. As demonstrated by the Ebola outbreak, African countries cannot afford the cost of stopping a full-fledged communicable diseases epidemic and will suffer large losses of human life and a long period of poor services during recovery, whereby many additional lives will be lost. Repeated disease outbreaks also

cause heavy economic losses to government and individual businesses. Strong and sustainable capacities to detect diseases early and prevent them at source are urgently needed. African populations need sustained effective education that will make them lead less risky, healthier lives. The provision of such education must take into account traditional beliefs and values. This requires educators who know well the language, customs and norms of the target communities. In addition, the upcoming wave of non-communicable diseases checked immediately and with all possible efforts and determination. African countries' health systems will otherwise be overburdened and will succumb to the devastating effect of the weight of the double burden of communicable and non-communicable disease epidemics. There are clear lessons from the history of human endeavor to conquer ill health, through the Alma Ata period of greater determination and numerous post Alma Ata declarations. This main message is that the minimum cost effective strategies for Africa and similar countries with limited resources are:

1. Political will and determination to enshrine health as a human right.
2. Economical decision to make health a priority and invest strongly in disease prevention.
3. Social intervention of community participation through building a broad base of sufficient numbers of the primary health workforce.

Entrenching health as human right in national constitutions has shown to provide the backbone of country commitments to health financing. Among its key findings, a study to determine the success factors for reducing maternal and child mortality, which involved 194 countries classified as Low and Medium Income Countries (LMIC) by the World Bank in 1990, found that success countries entrenched health as human right in their national constitutions [6]. This is an enabler for resource allocation. In this study, 50% reduction in child mortality was accounted by investments in the health, enabling strengthening of the health system and implementation of high impact interventions. This study and several others have shown that economic growth as indicated by GDP is not sufficient to bring about fast health gains alone. In this study, it accounted for only 12% reduction in child mortality. These studies and the examples of success stories outlined here clearly show that poor access to health services does not arise primarily from lack of resources. It rather reflects a lack of political will on the part of leaders to protect their most vulnerable populations. Countries with low or moderate Gross Domestic Product (GDP) levels like Cuba have been able to achieve great health outcomes comparable to those with very high GDP by investing in the effective strategy of training and sustaining a vibrant workforce of frontline health workers.

Africa and countries with similar limited resources can afford to provide the necessary incentives for maintaining motivated and active frontline health workers. These include recognizing this workforce as an essential base for effective primary health care.

Countries must establish clear policies recognizing this cadre of health workers and hence establish respect, reward and clear job description identifying their roles and responsibilities to the communities they work for. Neither the frontline health workers in Ethiopia nor those in Malawi receive exuberant salaries. Instead, they have a recognized position in the society as health workers and receive acceptable payment for their work like other health workers. Their payment does contribute to addressing their personal and family needs. In addition the training, logistical support and basic equipment, that they receive gives them confidence, prestige and identity. These are the key incentives for motivating frontline health workers. They are affordable and the buy in that governments receive is a healthy and productive society living under a reduced disease burden and protected from the physical and economic suffering from frequent diseases and ill health.

Conclusion

We urge governments to enshrine health as a fundamental human right in their national constitutions and invest in PHC by building an army of Frontline Health workers capable of preventing diseases and outbreaks at source, hence saving money for developmental activities and education in countries with limited resources. Right to life may not always equate to right to health. Therefore, it is important that countries' constitutions specifically mention right to health.

Frontline health workers are the best communication and health education media available today and are looked by the communities as role models. They are the best strategy for implementing essential interventions with wider coverage reaching the hard to reach populations and key to bringing about healthy behavior change. They are at best the central pillar of effective health systems key to reducing preventable deaths and achieving universal health coverage. When provided continuous support and training, they form the foundation of disease intelligence essential to efforts to eliminate diseases and prevent disease outbreak. Basic essential data like the registration of births and deaths can improve tremendously with their support. There are sufficient lessons demonstrating the important roles that frontline health workers play as cost effective agents for bringing access to health services in both low LMIC and rich countries. However, it is in the former that their services are vital to saving preventable deaths by accelerating achieving universal health coverage. There are adequate disease prevention interventions to bring down rapidly the heavy disease burden bearing upon African and other LMIC if only the bright strategies can be used supported by strong political commitments. Frontline health workers training in sufficient numbers and deployment, recognition and rewarding can make a difference in the fight against disease and ill health. We need louder voices to advocate health as a human right and the training, deployment and maintaining of frontline health workers as a strategy to bringing about universal health coverage, especially in resource limited countries.

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