Framing The Field

Ebola Epidemic 2014-2015: Taking Control or Being Trapped in the Logic of Failure – What Lessons Can Be Learned?

Michael Marx*

Abstract[1]

The Ebola outbreak 2014-2015 in West Africa – declared a pandemic by the World Health Organization – was the first in the sub-region and the largest ever recorded with more than 28,639 people affected by the Ebola Virus Disease (EVD) and resulting in 11,316 casualties. EVD stretched local health care systems as well as International Organizations in an unprecedented manner. The outbreak revealed fundamental structural deficiencies of the respective health systems and failures in establishing consistent health policies. In the aftermath of the outbreak, health system strengthening is seen as determinant for countries to meet the Sustainable Development Goals and to better prepare for the threats of pandemics in the future. The EVD is a wake-up call for higher efficiency, rationality and evidence in the health policy of partner countries and the development policy of donors.

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* The author (MD, PhD) is professor for International Public Health at the Institute of Public Health of the University of Heidelberg. He is a medical doctor, specialized in internal medicine, tropical medicine and public health. As general background literature, especially for lawyers unfamiliar with the public health discipline, he recommends the following three textbooks: Detels, R, Beaglehole, R & Lansang M A et al., *Oxford Textbook of Public Health*, 2009; Schwartz, F W, *Public Health: Gesundheit und Gesundheitswesen*, 2003, and Razum, O, Zeeb, H & Laaser, U, *Globalisierung-Gerechtigkeit-Gesundheit. Einführung in International Public Health*, 2006. All websites last accessed January 14, 2017.

1 Important parts of the manuscript are drawn from an editorial of The European Journal of Health Economics by Flessa, S & Marx, M, "Ebola fever epidemic 2014: a call for sustainable health and development policies" (2016), 17 *The European Journal of Health Economics*, 1.

I Introduction

The Ebola outbreak 2014-2015 in West Africa was the first in the sub-region and the largest ever recorded. It first struck Guinea, Liberia and Sierra Leone – fragile, post-conflict nations in the midst of reconstruction. From December 2013 onwards the Ebola epidemic emerged and exceeded any previous Ebola epidemic with regard to incidence and prevalence.[2] According to estimates of the World Health Organization (WHO) more than 28,639 people worldwide suffered from Ebola Virus Disease (EVD) until February 2016. About 40.6 % (11,316) of them died. The extent of this epidemic took many experts by surprise and it was declared a pandemic by WHO as it crossed country borders and the boundaries of a continent. EVD stretched local health care systems as well as International Organizations excessively when a coordinated response was required. This outbreak can serve as a multifaceted case study revealing fundamental structural deficiencies of the respective health systems (HS) and failures in establishing consistent health policies within those countries, structural weaknesses of regional governance institutions, as well as challenges in development policies of the so-called donor countries.[3]

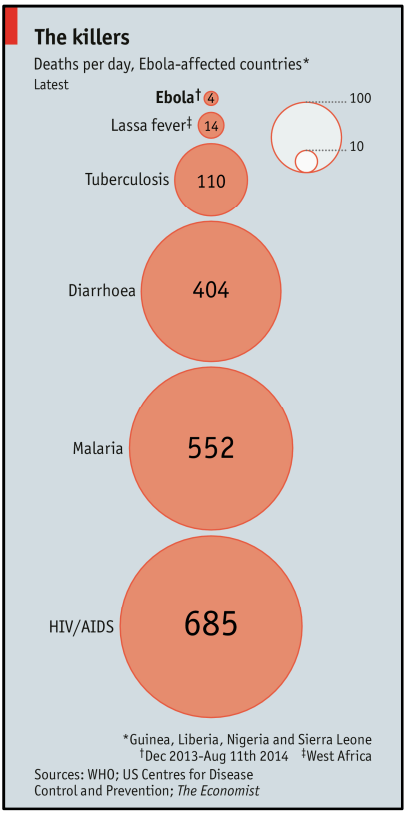

Figure 1: Number of deaths per day (diarrhea, malaria, HIV/AIDS), The Economist, "Ebola. Fever rising" (August 15, 2014), available at http://econ.st/1pix7ME.

2 Benton, A & Dionne, K Y, "International Political Economy and the 2014 West African Ebola Outbreak" (2015), 58 *African Studies Review*, 223.

3 De Cock, K M, Mbori-Ngacha, D & Marum, E, "Shadow on the Continent: Public Health and HIV/AIDS in Africa in the 21st century" (2002), 360 *The Lancet*, 67.

II Key Features of Ebola Virus Disease (EVD)

The Ebola virus causes a hemorrhagic fever with multi-organ failure and a case fatality rate between 25-90 %. The transmission of this highly infectious virus is possible via any kind of body fluids, and the smallest amount of virus is sufficient to trigger the disease. The disease was first identified in 1976 and takes its name from the location of the first outbreak (Ebola River, Democratic Republic of Congo). The fruit bat, whose habitat is tropical rain forests, is a natural reservoir of the Ebola virus. Since then, about 35 outbreaks have been registered with the highest number of cases of one single outbreak totaling 425 in Uganda in 2001. Therefore, the epidemic in 2014-2015 was of a completely unknown dimension.[4] Before 2014, the outbreaks were locally restricted, primarily situated in rural areas, and seemed to self-regulate in that they spontaneously came to a halt after a comparatively short period of time. The eradication of Ebola is thus extremely unlikely in the foreseeable future.

The Ebola epidemic of 2014-2015 stands out significantly from previous epidemics with regard to intensity and dynamics. This is primarily due to the fact that this epidemic expanded to the urban population as well as across borders, for instance, in cross-border trade between Guinea, Sierra Leone and Liberia, which traditionally has been very intensive.[5] In addition to cross-border migration facilitating the rapid spread of disease, the deficiency or absence of social structures in urban settings lowered the social and medical control in case of illness. Ritual washing of the dead, which is common in large parts of Africa, further contributed to the risk of virus transmission.[6] These two factors exacerbated the spread of EVD and resulted in the overburdening of already weak health care systems.

From a public health point of view, it is striking that there were a lot of "collateral damages" caused by Ebola, for example declining vaccination coverage in the population, declining consultations, untreated malaria, diarrhea, pneumonia as well as a decline of HIV prevention and treatment

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4 Flessa, S, "Basic Health-Care Package without Antiretroviral Therapy?" (2008), 16 *Journal of Public Health*, 145.

5 Omonzejele, P F, "Ethical Challenges Posed by the Ebola Virus Epidemic in West Africa" (2014), 11 *Journal of Bioethical Inquiry*, 417.

6 Levin-Sparenberg, E, Gicquelais, R, & Blanco, N et al., "Ebola: The Natural and Human History of a Deadly Virus By David Quammen" (2015), 181 *American Journal of Epidemiology*, 151.

activities.[7] In 2014, utilization of consultations and hospitalizations decreased by 50 % compared to 2013. In the same time, there was an almost 50 % reduction in the number of children vaccinated and the number of reported malaria cases dropped by 40 %, likely due to fear of health facilities.

In the three countries most affected by Ebola, the fear of getting infected was spreading very fast among the population, which prompted many health workers to leave health facilities. This led to an acute shortage of staff in hospitals and health centers. After a short period, local health care systems literally collapsed. Other vital sectors, such as agriculture, were severely affected. There, the fear of infection from working alongside others in the fields in parallel with the installment of travel restrictions led to a severe labor shortage. This also resulted in massive declines in the gross national product of the respective countries (estimates differ between US $6.2 and $25), in food shortages and the (almost) complete exodus of foreign professionals (also from neighboring countries) who held key positions in the economy.

The course of the disease demonstrates that although treatment of patients is a medical challenge of highest complexity, the epidemic as such was not primarily a medical problem. The intensity and dynamics of dispersal occurred in the context of health care systems that are following a strongly curative strategy. Factors include access to education and information, participation in and the strengthening of self-responsibility of individuals, as well as social practices within the local community which – as a study object – have received very little attention to date.

III What Was the Response to this Pandemic Threat?

After a much criticized delay at the outset, there was an unprecedented response to the pandemic. The mass media disseminated the news effectively across the globe. The fear of EVD becoming a global pandemic played an important driving force, and resulted in a massive donor commitment and deployment of huge funds in a short time. By Mid-2014, external aid for the three overburdened countries started. About the same time, in August 2014, the WHO provided an estimated budget of US $500 million, and in September *Ban Ki-Moon* already called for US $1 billion. At the end of

7 Ndawinz, J D A, Cissé, M & Diallo, M et al., "Prevention of HIV Spread During the Ebola Outbreak in Guinea" (2015), 385 *The Lancet*, 1393 et seqq.

October 2015, donors had pledged a total of US $8.9 billion to address the Ebola outbreak. As of October 2015, US $5.9 billion has been disbursed until then.[8] Indeed, in contrast to other catastrophes, the majority of funds were paid right away. This was mainly as a reaction to news in the mass media and the fear of industrialized countries being threatened by Ebola.[9] These amounts are a multiple of national health budgets (Guinea: US $98 million per annum; Sierra Leone: US $81 million per annum; Liberia: US $112 million per annum) as well as health-related development aid that the affected countries have received in recent years.[10] Although the mobilization of the donor community and International Organizations helped affected countries, the lack of leadership of WHO, as well as poor inter-state cooperation and flaws at the local level revealed the need for the reform of HS at large.[11]

1 Global and International Responses

When it comes to global health governance and leadership, WHO officially holds a prime position. In the course of the of the Ebola pandemic, WHO was much criticized for its late response. Its role has been weakening over the last two decades due to lacking capacities and funding resulting from the rise of other influential organizations partially taking over the same tasks as WHO, such as the World Bank (WB) and the European Union and Global Health Initiatives (GHI).

However, there have been efforts by the WHO to come up with a response system in case of health emergencies. To address the complexity of a pandemic, in 2005 the WHO issued the International Health Regulations (IHR).[12] They provide a framework for epidemic alert and rapid response activities to be implemented in collaboration with countries to control inter-

8 Office of the United Nations Special Envoy on Ebola, *Resources for Results V*, October 31, 2015, available at http://bit.ly/2kViHmP.

9 Flessa & Marx, „Ebola Fever Epidemic 2014", above Fn. 1.

10 World Bank, *Health Expenditure, total (1996–2014)*, available at http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS/countries.

11 World Bank Group, *The Economic Impact of the 2014 Ebola Outbreak. Short- and Medium-Term Estimates for West Africa*, 2014, available at http://bit.ly/2mi4p0H.

12 Moon, S, Sridhar, D & Pate, M A et al., "Will Ebola change the game? Ten essential reforms before the next pandemic. The report of the Harvard-LSHTM Independent Panel on the Global Response to Ebola" (2015), 386 *The Lancet*, 2204.

national outbreaks and to strengthen international public health security. Member States are obliged to issue a national IHR focal point in order to inform WHO about public health risks that can cause the spread of diseases across borders.[13] Unfortunately, the IHR were not implemented on time, an effective communication network was not yet established and risk assessment and risk communication failed, which contributed to a late response and a lack of coordination. As to the legitimacy of IHR, it is certainly a major challenge to effectively implement this multifaceted global agreement.

2 Regional Responses

At the regional level, the community of states was not well enough prepared to rapidly detect and identify infectious diseases nor to combat them. There are regional political and economic structures such as the Economic Community of West African States (ECOWAS) and the African Union (AU), as well as specialist public health institutions such as the West African Health Organisation (WAHO) as part of ECOWAS. The Ebola epidemic has at least increased the visibility of WAHO and underlined the organization's important functions and mandate, thus acting as a catalyst for a change process. However, communication structures, processes and tools are still insufficient to address the new challenges to respond efficiently and adequately to epidemic threats at regional level in a concerted manner. The Heads of States of the ECOWAS region decided to create a Regional Centre for Disease Control (RCDC) under the auspices of WAHO.[14] This may change the landscape of the region with regard to pandemic and epidemic preparedness and response. The massive increase of engagement and commitment of donors calls for better communication, strategic planning and coordination of implementation measures. The reform process in ECOWAS is ongoing and presents opportunities and risks for the future regarding the institutional environment. A further challenge concerns the coordination of stakeholders and their willingness to cooperate with one another.

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13 WHO, *International Health Regulations (2005)*, available at http://www.who.int/ihr/about/en/.

14 See Gyang, J B, "Nigeria inaugurates Board Of ECOWAS Centre for Disease Control" (June 30, 2016), *Today*, available at https://www.today.ng/news/nigeria/145435/nigeria-inaugurates-board-ecowas-centre-disease-control.

The enormous influx of funds into WAHO and RCDC, and the capacity of the region and other organizations to absorb these funds should be addressed by donors and recipients. ECOWAS and WAHO, holding political power over the Member States, should take into account the IHR 2005 and their required core capacities and create the necessary technical environment that allows for implementing the regulations. Risk assessment and risk communication will be paramount in close collaboration with the countries and across the region.[15] Thus, ECOWAS-WAHO jointly with WHO's Regional Office for Africa could consolidate the overall public health architecture in the region.

3 National Responses by Affected Countries

On a national level, the first major challenge arose from the fact that in the beginning, symptoms were not recognized and associated with Ebola. The HS of these countries lacked the necessary infrastructure for pandemic preparedness and response. In this respect a major determinant was a chronic shortage of skilled personnel, especially in rural areas. In addition, poor hygienic working conditions, the absence of essential drugs and personal protection to prevent staff from infections further contributed to the spread and the magnitude of the epidemic. Laboratory confirmation was late, with the first test declared positive by the *Pasteur Institute* in France more than three months after the first case. Only then were diagnostic and treatment centers established by Non-Governmental Organizations, like Médecins sans Frontières, which was among the first International Organizations to take action as of March 2014.

The second challenge concerned the lack of an effective risk communication system in place between governments and affected communities. Consequently, the already low level of trust in national governments was further weakened by the initial response measures, which were inadequately attuned to the cultural and traditional practices of the population. Health promotion and prevention measures were successful only after religious

15 ECOWAS-WAHO, *Report on ECOWAS Meeting with Technical and Financial Partners to Discuss Implementation of the ECOWAS Regional Centre for Disease Control and Prevention (ECOWAS-RCDC)*, June 16-17, 2015 in Dakar, Senegal.

leaders took the floor in allowing an adaptation of funeral rites.[16] The traditional washing of the dead body by the family needed to be replaced by a rite that would meet cultural and religious obligations but prevented family members from acquiring the virus. Moreover, obsolete practices such as the re-use of inadequately sterilized materials in health services, as well as virus transmission through unprotected contacts and funeral rites are evidence not only of underfunding, but also of neglecting the education of professionals and the general public for a long time. In the context of the EVD outbreak in West Africa, the weakness of HS mirrors the shortcomings of international and national health policy. WHO defines a HS as

> "the people, institutions and resources, arranged together in accordance with established policies, to improve the health of the population they serve, while responding to people's legitimate expectations and protecting them against the cost of ill-health through a variety of activities whose primary intent is to improve health".[17]

This definition calls for a holistic approach which takes into account the various components of a HS as well as the interdependency of those parts.

However, according to the WHO definition of a HS, it is worth noting that a HS is not built by the health sector alone. Among the above mentioned six building blocks, other sectors also form important components of a HS, such as education, agriculture and social policy.

For almost half a century, there has been a constant struggle over concepts and approaches used to fight life-threatening diseases and to cope more effectively with the numerous challenges in health care. One of the milestones of international health policy was the International WHO conference in Alma Ata in 1978 where the concept of Primary Health Care (PHC) was declared as the most adequate response to ensure access to essential health care for all populations on the planet by the year 2000. The Alma Ata Declaration does not entail hard law obligations, but it is one of the most outstanding milestones in international public health. PHC is a holistic concept that includes access to health services, a clean environment and health-related behavior. It consists of eight elements: basic health care, health promotion and prevention, nutrition, water supply and sanitation, family planning, immunization, control of local endemic diseases, and es-

16 Frieden, T R, Damon, I & Bell, B P et al., "Ebola 2014 – new challenges, new global response and responsibility" (2014), 371 *New England Journal of Medicine*, 177.

17 See WHO, *Health Systems Strengthening Glossary – Health System*, available at http://www.who.int/healthsystems/hss_glossary/en/index5.html.

sential drugs; and seven principles including: integration of promotive, preventive and curative care in HS and rural development, community participation, needs orientation and cooperation with local human resources and a multi-sectoral approach.

It is worth mentioning that in the early 1990s, Guinea, together with Mali and Benin, was one of the spearheads among countries implementing PHC and the Bamako Initiative, the latter being an initiative for implementing and financing PHC in Sub-Saharan Africa following a 1987 Conference convened by WHO. At that time, the HS and health indicators of Guinea were far better than today. Unfortunately Guinea's success story lies 25

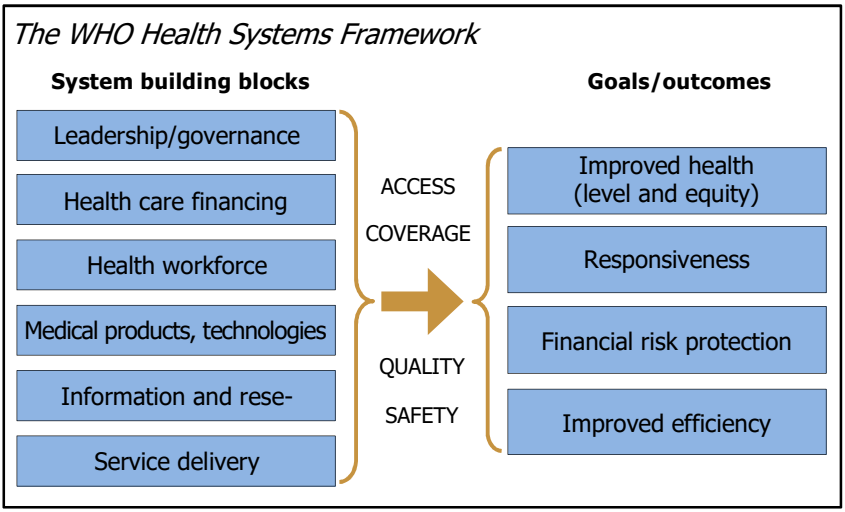

Figure 2: Adapted from WHO publication: The WHO Health Systems Framework, available at http://bit.ly/2mDOURK.

years in the past, and little remains from community participation and PHC today. The reasons for this decline and weakening of the HS can be attributed to the instability and erosion of the political system on one hand, and to inconsistency and discontinuity of international health policy on the other.

It turns out that there is little criticism and coherence among the international stakeholders, but rather a frenzied search for quick wins with magic recipes, with donors and health politics stumbling from one concept to another. The rapid abandonment of the PHC approach has triggered a number of new strategies, initiatives and attempts to quickly resolve priority problems in the last 20 years. The almost frantic search for new concepts was also initiated and nurtured by an increasing pressure by donor countries and

their development organizations to justify the allocation of funds and to prove the effectiveness of development cooperation. A critical reflection and analysis of failed approaches actually never happened. Especially contextual factors, hypotheses, and the assumptions under which strategies and concepts were implemented were not sufficiently analyzed.[18]

To date, there is general consensus that sustainable improvement of the health situation is only achievable through consistent policies of HS and health system strengthening (HSS). As important as these measures are, they unfortunately cover only partial components of a HS. Community work, as well as education, were neglected. As soon as an epidemic is under control, integration of disease control activities into health services of all levels is paramount.

18 Marx, M & Benn, C, "Viewpoint: Primary Health care and the Global Health Initiatives – Contradictions or Opportunities for Health Systems?" (2010), 5 *Präventive Gesundheitsfragen*, 37.

IV Identification of Major Challenges of Health Systems (HS)

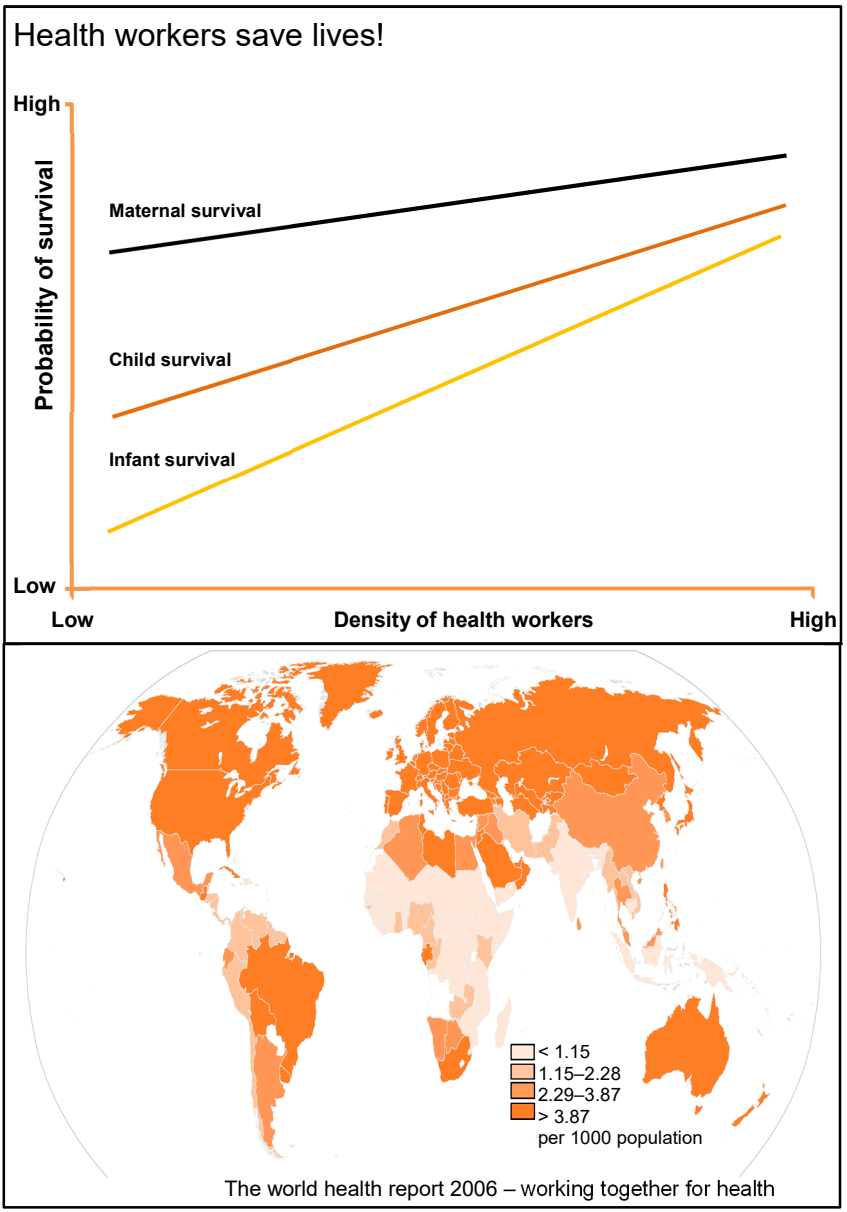

Figure 3: Adapted from WHO publication: The World Health Report 2006, available at http://bit.ly/2lxW0qb.

The EVD epidemic revealed a tremendous weakness of the HS caused by a lack of health workers. A shortage of health workers has evolved in many Sub-Saharan African countries over the last two decades and existed in Guinea already before EVD hit the country. The WHO defines skills shortage with the indicator of professionals density (physicians, nurses, midwives) per 1,000 people of the population. All countries under the threshold of 2,3/1000 – as defined by the WHO – are likely to not have the necessary human resources for health to offer acceptable health services to their population. A certain neglect of the "human resources arena" had contributed to the lack of strategic workforce planning and under-investment in developing capacities of health staff.[19] Contributory factors also include early retirements, poor job conditions and losses due to brain drain, which means the emigration of highly skilled workers, within and outside developing countries.[20] Brain drain commonly refers to the loss of qualified health workers to high income countries, whereas it can also be defined more broadly as migration motivated by the search for greener pastures such as a higher quality of life, increased salaries or more stable environment.[21] In the general context of health worker migration, there are two important questions that remain unanswered today: Can the right to emigrate be restricted and on what legal grounds? What are legitimate means to restrict migration?[22]

In the WHO's World Health Report 2006 – Working Together for Health, the following factors are cited:

> "[...] production capacity as a result of years of poor planning and underinvestment in health education and training institutions, especially in many developing countries. Often, training outputs are poorly aligned with the health needs of the population. There are also 'push' and 'pull' factors that affect workforce retention and may encourage health service providers to leave their workplaces, including those

19 Kolehmainen-Aitken, R L, "Decentralization Impact on the Health Workforce: Perspectives of Managers, Workers and National Leaders" (2004), 2 *Human Resources for Health*, 5.

20 Chen, L, Evans, T & Anand, S et al., "Human Resources for Health: Overcoming the Crisis" (2004), 364 *The Lancet*, 984.

21 Dodani, S & Laporte, R E, "Brain Drain from Developing Countries: How Can Brain Drain Be Converted Into Wisdom Gain?" (2005), 98 *Journal of Social Medicine*, 487.

22 Kollar, E, "Symposium on Brain Drain: The Merits and Limits of Furthering Normative Solutions in Source Countries 2016" (2016), 3 *Moral Philosophy and Politics*, 1.

related to unsatisfactory working conditions, poor remuneration and career opportunities, and other labor market pressures."[23]

Among the push and pull factors, international development cooperation continues to play an important role. Yet, it shows that on the downside, well-trained health workers who migrate abroad, cause a major hemorrhage to the HS at home. Moreover, there is evidence from several countries that health professionals increasingly work in internationally funded programs, so-called GHI.[24] A study by the Center for Global Development on programs of the World Bank (WB), the Global Fund and the US "President's Emergency Plan for AIDS Relief" (PEPFAR) illustrated how in these programs health workers were recruited from the public sector, leaving gaps in the public system that could not be filled afterwards.

This issue was finally picked up by Member States of the 69th World Health Assembly in May 2016 when they addressed Universal Health Coverage (UHC) and the shortage of human resources for health in unanimously adopting a landmark resolution.[25] WHO estimates that around 40 million new health sector jobs need to be created by 2030 globally, mostly in low and middle income countries (LMIC). But due to the above mentioned push and pull factors, there will probably be a projected shortage of 18 million health workers needed to achieve the Sustainable Development Goals (SDGs) in LMIC.

V Alternatives: Global Health Initiatives – Objectives and Assessment

GHI aim at the establishment of new institutional forms of cooperation. They mobilize and invest substantial funds and resources for the development of new products and services to support broader health programs. Today, GHI represent an important part of the global architecture in international development cooperation. It is increasingly difficult to overlook

23 WHO, *The World Health Report 2006. Working Together for Health*, 2006, available at http://www.who.int/whr/2006/en/.

24 Oomman, N, Berstein, M & Rosenzweig, S, *Seizing the Opportunity on AIDS and Health Systems*, 2008, available at http://www.cgdev.org/publication/seizing-opportunity-aids-and-health-systems.

25 WHO, *Global strategy on human resources for health: workforce 2030 (WHA69.19)*, available at http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_R19-en.pdf.

the numerous international donors, implementing organizations and initiatives and to understand how they operate. There are now more than 40 bilateral organizations of development cooperation, 26 United Nations (UN) organizations, 20 global and regional financial organizations and agencies, and over 100 GHI.[26] However, these initiatives vary greatly in their financial capacity, global alignment and legitimacy by international institutions.

Speaking of national and global health governance structures and processes**,** this epidemic revealed enormous national shortcomings, especially in the three most affected countries, whereas countries like Senegal and Nigeria managed to contain the epidemic. At the same time, ECOWAS-WAHO jointly with WHO's Regional Office for Africa was able to consolidate the overall public health architecture in the region.[27] These budgets are a multiple of national health budgets and health-related development aid that the affected countries have received in recent years.[28]

> "Thereby, Ebola caught up with a group of 'exceptional diseases' which are of international interest, while other equally relevant diseases and HS needs are often ignored by politics."[29]

Over the past decade, most funds were allocated to vertical programs to combat three diseases only (malaria, the acquired immune deficiency syndrome (AIDS) and tuberculosis) while the most significant "killers" (for example diarrhea) have been almost completely ignored.[30] For this purpose, objectives and programs of development cooperation need to be defined and operationalized clearly and in the long-term. Funding security beyond the usual two to three year cycle of projects is important. This also implies that the choice of funding resources has to be reconsidered. The tendency towards highly focused GHI has been called into question. This conclusion can be drawn from international responses to non-epidemic situations, where the focus on such vertical programs combating individual diseases resulted in parallel structures, increased costs, inefficiency and inequity.

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26 Paris Declaration on Aid Effectiveness (2005), available at http://www.oecd.org/dac/effectiveness/34428351.pdf.

27 Ndawinz, Cissé & Diallo et al., "Prevention of HIV spread during the Ebola outbreak in Guinea", above Fn. 7.

28 World Bank, *Health Expenditure*, above Fn. 10.

29 Flessa & Marx, "Ebola Fever Epidemic 2014", above Fn. 1, 2; see also WHO, *The World Health Report 2008: Primary Health Care – Now more than ever*, 2008, available at http://www.who.int/whr/2008/en/.

30 Dieleman, J L, Graves, C & Johnson, E et al., "Sources and Focus of Health Development Assistance, 1990-2014" (2015), 313 *Journal of the American Medical Association*, 2361.

Disease-specific programs in particular have led to a collapse of community-based education programs, since these only engaged in, for example, bed nets and condoms instead of general health promotion. This can also be seen as a result of mushrooming GHI, such as The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), PEPFAR, the Bill & Melinda Gates Foundation, and the vaccine alliance Gavi. The more than 150 GHI in existence today are still a powerful driver of the international health agenda.

The response to the Ebola epidemic points to the need for deliberate allocation of resources beyond political agendas or media preferences. This also applies to new epidemic threats such as the Zika virus. To date, Ebola apparently has a high priority in national and international health and development policies. As important and appropriate as this is, we must not repeat the mistakes of the past. Ebola cannot simply be added to a few target diseases, but the structures and approaches of control programs have to be reconsidered fundamentally.[31] We need sustainable health and development policies obliged to long-term objectives. Hence, in 2015 the UN launched the new Sustainable Development Goals (SDG) as successor of the Millennium Development Goals (MDGs).[32] Among the 17 SGDs, the third one ("Ensure healthy lives and promote wellbeing for all at all ages") addresses key challenges in health with nine targets. Target 3.3 reads "by 2030, end

31 Mid-2015, WHO's Secretary-General announced the creation of an advisory group to reform the present emergency system in case of disease outbreaks, reports of the group, available at http://bit.ly/2mi1LYM.

32 WHO, *UN Development Summit 2015*, September 25-27, 2015, summary available at http://bit.ly/2mi7Cxs.

the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable disease".[33]

Figure 4: Sustainable Development Goals, available at http://bit.ly/1IqICxS.

Based on the SDGs, international development policy promotes the establishment of health care systems being able to function on a long-term basis. We need a holistic approach to HS strengthening. Reflecting the key elements and principles of PHC, horizontal basic health care systems need to be promoted in order to enable the building of stable societies, health awareness in the population, as well as participation of community and other important decision-makers outside politics. In particular, the development of community-based HS, primary and secondary prevention, as well as the participation of the respective population and the national ownership of development processes have proven to be a conveyor of sustainability. Strengthening primary health services, education, and basic health groups, as well as the training of community health workers have to be primary goals of development partnership and policies. In this context, the shortage of skilled workers is a crucial issue. Health has to remain a focus of inter-

33 Sustainable Development Goals, available at https://sustainabledevelopment.un.org/sdgs.

national development cooperation. But the selection of programs and projects should rather be based on efficiency and effectiveness in the long run, rather than on short-term opinions.[34]

Efficient allocation of resources is needed beyond political and media preferences. The allocation of resources for development cooperation in partnering countries, sectors, regions, diseases and levels of health care has to be a rational process. For this purpose, objectives and programs of development cooperation need to be defined and operationalized clearly and in the long-term.

The intensity and dynamics of the Ebola epidemic took many experts by surprise. This is partly due to a lack of reliable early warning systems and forecasting models for epidemics. In the coming years, such systems need to be designed and installed not only for Ebola but for other infectious diseases as well. In particular, mathematical models of disease dynamics need to be developed and validated by international groups of experts. Their results should be included in development policies of donor countries. The continuous collection and analysis of solid epidemiological data as well as high-quality system indicators are also essential to early warning systems. The Centre for Disease Control (CDC) in Atlanta has set up branches in Guinea, Liberia, and Sierra Leone to support the ministries of health to better prepare for epidemics in the future. A close collaboration with the RCDC in Abudja/Nigeria needs to be established.[35]

VI Conclusion

In the aftermath of the Ebola outbreak, the strong regional and international momentum and leadership to strengthen resilient HS offer a unique window of opportunity to improve and mainstream disease control programs at national, regional and international levels.

HSS is seen as determinant for countries to meet the SDGs, while being able to better prepare for the threats of pandemics in the context of global health. More implementation research is needed to better understand the influential factors of HSS and quality improvement, for example, and how to implement HSS effectively from the communities upwards in the context

34 Marx & Benn, "Viewpoint: Primary Health Care and Global Health Initiatives", above Fn. 18, 37.

35 See Gyang, "Nigeria inaugurates Board Of ECOWAS Centre for Disease Control", above Fn. 14.

of emergencies. The Ebola fever epidemic is a wake-up call for demanding higher efficiency, rationality and evidence in the health policy of partner countries and the development policy of donors. If we fail to learn the necessary lessons from this epidemic, it can be expected that similar or graver outbreaks of Ebola or other infectious diseases will occur in upcoming years accompanied by highly negative economic and humane consequences.