QUARANTINE IN SIERRA LEONE

Lessons Learned

On the use of quarantine in Sierra Leone as a support measure during the Ebola Epidemic 2014-2015

Laura Sustersic
for Welthungerhilfe Sierra Leone

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For a world without hunger

TABLE of CONTENTS

DERC	District Ebola Response Centre
EVD	Ebola Virus Disease
HH	Households
MoHS	Min. of Health and Sanitation
MSF	Medicines Sans Frontières
NERC	National Ebola Response Centre
NFI	Non Food Items
Q	Quarantine
SOP	Standard Operating Procedures
UNMEER	UN Mission for Ebola Emergency Response
VIP	Ventilated Improved Pit-latrines
WA	Western Area District
WASH	Water, Sanitation and Hygiene
WHH	Welthungerhilfe
WHO	World Health Organization

1. INTRODICTION

The Ebola epidemic of 2014-15 was the first of such magnitude and probably the first time Ebola affected Liberia, Guinea and Sierra Leone. Never before had the Ebola virus entered densely populated urban areas; previous outbreaks were concentrated in rural areas. There was no historical precedent from which to learn and build a response strategy. To isolate the virus geographically, initially a "cordon sanitaire" was established in the area where Guinea, Liberia, and Sierra Leone meet and where 70 % of the known cases had been found. Later, each country developed its Ebola control plan.
After reaching a peak in November 2014, with up to 70 cases per day, in April 2015 the virus is close to be defeated: Sierra Leone counts now only a few cases per day, with days with zero cases. As the emergency phase fades out, the time for evaluations and lessons learned begins. There has been much criticism to the international response to the crisis, as well as, to the Government's. This includes questions to the widespread use of quarantine in Sierra Leone.
Quarantine is an emergency measure to manage a health crisis. It is imposed on people under emergency law and limits citizens' human rights and freedoms. It has significant psychological, social and economic impacts. There is currently a discussion in Sierra Leone on whether the use of quarantine has been successful or not, on whether the impacts outweigh the advantages. At the moment of writing, there is not sufficient available data to provide a definitive answer. It is also open to discussion what kind of data would be indicative of success of quarantines, as this measure depends on many other factors:

- Number of cases against number of quarantined households (Q HH) is no proof of a causal relation;
- Number of people who escaped before or during quarantine does not prove that quarantine measures were per se negative, as people could have been escaping for fear of the illness (in fact people escaped also from holding centres and treatment centres or refused to enter ambulances);
- Number of cases from Q HH, number of deaths within Q HH, number of cross-infections within Q HH are all an indication of efficiency of contact tracing and contact monitoring and not of quarantine.

For these reasons, this report is based on qualitative data from surveys, reports, interviews, observations and field experience.
As quarantine is a support measure to surveillance, its effectiveness depends first of all on the effectiveness of contact tracing and monitoring. Moreover, quarantine is most efficient when only primary contacts are under observation: the more households under quarantine, the more logistically challenging the operation will be and the more contacts will have to be monitored. Justified line-listing (and not approximate and including too many households) is essential to the success of quarantine.
With these premises, we argue in the following that the use of quarantine in Sierra Leone was justified and has given a positive contribution to the fight against Ebola, particularly in rural areas. However, implementation was hampered by many problems, especially in the initial phases, as there was no previous experience to draw upon. It has been a slow process of improvement through trial and error; good lessons can be now taken from this experience.
A comparative analysis of the Ebola strategies in Liberia, Guinea and Sierra Leone, which is beyond the scope of this report, will in the future allow a more in depth understanding of the key success factors.

1.1 The context: Ebola epidemics in history

YEAR	*COUNTRY*	*Nr. cases*	*Nr. deaths*	*Mortality rate*
1976	SUDAN	284	151	53%
1976	ZAIRE	318	280	88%
1979	SUDAN	34	22	65%
1994	GABON	52	31	60%
1995	ZAIRE	315	254	81%
1996	GABON	37	21	57%
1996-1997	GABON	60	45	75%
2000-2001	UGANDA	425	224	53%
2001-2002	DRC-GABON	122	96	79%
2002-2003	DRC	143	128	90%
2003	DRC	35	29	83%
2004	SUDAN	17	7	41%
2007	DRC	264	187	71%
2007-2008	UGANDA	149	37	25%
2008-2009	DRC	32	14	45%
2012	UGANDA	24	17	71%
2012	DRC	77	36	47%
Current	SIERRA LEONE	12.138	3.885	70%
Current	LIBERIA	9.862	4.573	70%*
Current	GUINEA	3.515	2.362	70%
2014	DRC	66	49	74%

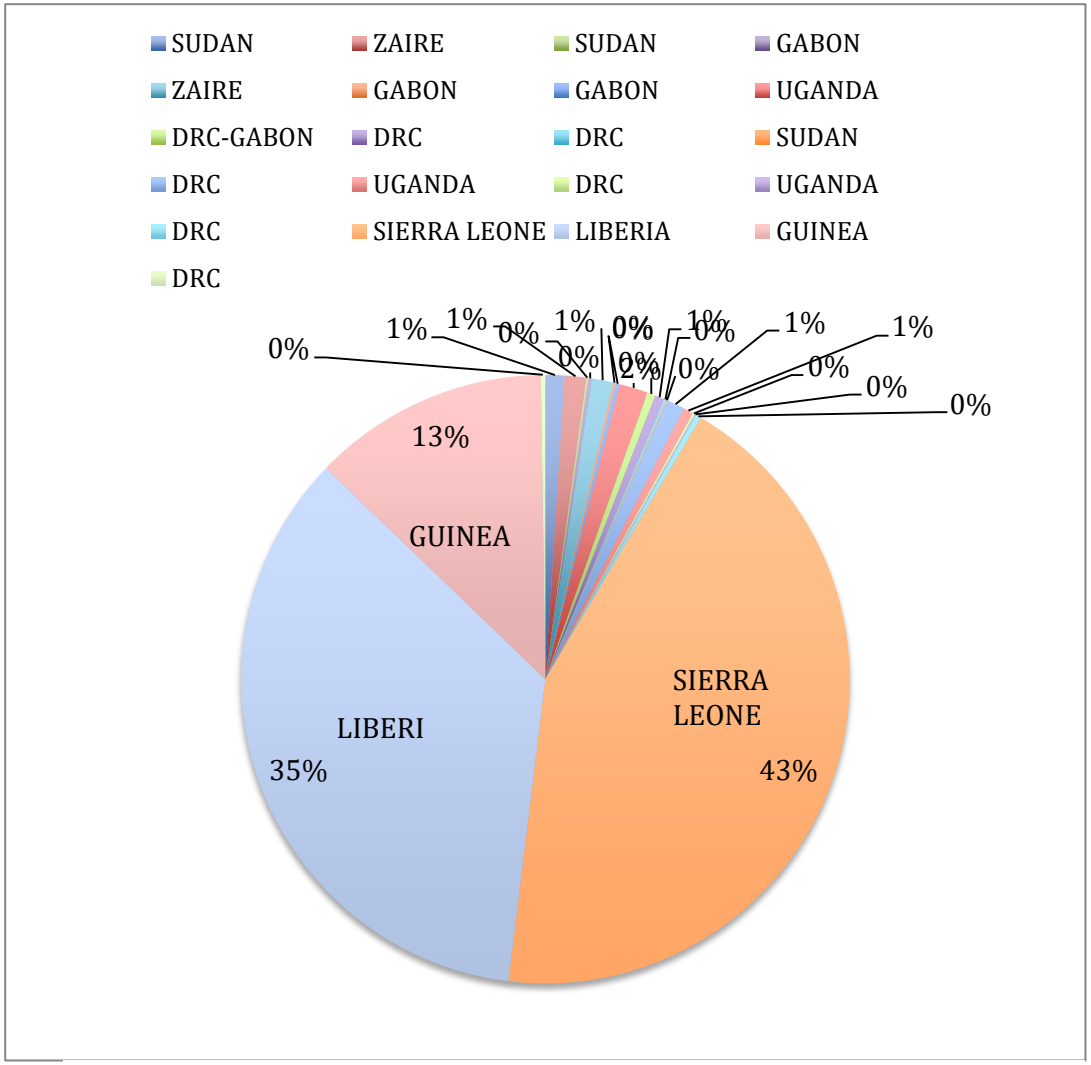


Figure 1 Percentage of Ebola cases in different epidemics

* Current outbreak Sierra Leone, Liberia, Guinea: 57-59% for hospitalized patients

2. BRIEF OVERVIEW OF OUTBREAK AND WHH ENGAGEMENT

The outbreak in Sierra Leone started in May 2014 with the first cases recorded in Kailahun district, near the border to Liberia and Guinea. In June the first cases appeared in Kenema District and by August only Kono and Koinadugu had not been affected. The Ebola national response included the following actions:

- Closing of borders
- ***State of emergency*** in Kailahun (June 2014), Kenema (July 2014), then Nationally (6 August 2014).
- Gathering bans, travel and business restrictions
- By-laws at chiefdom level (unsafe practices, movement of people)
- Curfew and surge (September, November 2014 and March 2015)
- Isolation of contacts (Kenema, Moyamba and Western Area)
- District quarantines (Kailajun, Kenema, Port Loko, Moyamba, Bombali)-lifted by October
- Community and households quarantines

Households' quarantines were first implemented in Kenema district, on the experience of the 2000-2001 Ebola outbreak in Uganda. As one of WHH core fields of intervention is food security, WHH decided to respond to Government's request of supplying food to quarantined households, in order to avoid adding a humanitarian crisis to the unfolding health crisis. Since August, WHH has delivered packages of food and non-food items to quarantined households in eight districts[1] to approximately 12,000 households.

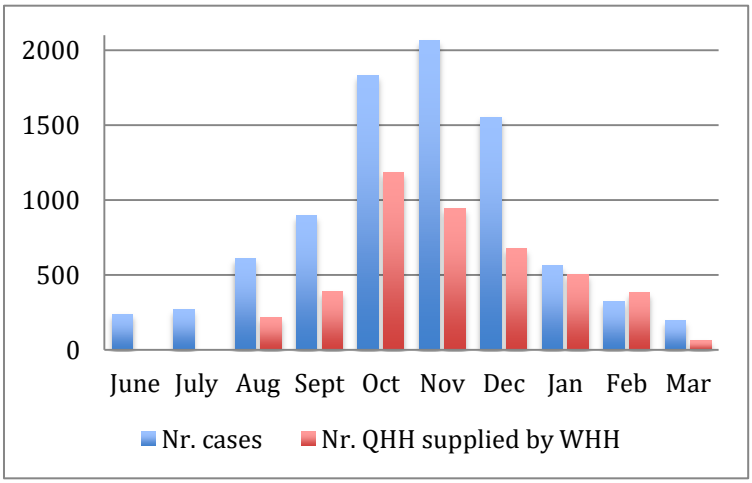


Figure 2 Nr. QHH in Kenema, Bo, Pujahun, Kenema, Kailahun

As it was the first quarantine experience for Sierra Leone and WHH, it was a process of continuous improvement through trial and error.

Please refer to **Annex 1** for a complete overview of the outbreak in Sierra Leone, Government response and WHH contribution to the fight.

Additionally to the supply of NFI, WHH was involved in the:

- Design of first food packages with MoHS District Nutritionist in Bo;
- Design of first non-food items packages;
- Development of delivery procedures;
- Development of first Quarantine SOP;
- In Western Area Urban, WHH has pioneered the instalment of temporary and portable toilets and waste collection.

[1] Kailahun, Kenema, Pujahun, Bo, Moyamba, Kono, WA Rural and Urban

3. PRINCIPLES AND USE OF QUARANTINE FOR EBOLA CONTAINMENT

3.1 Public health principles and infectious diseases

Public health is concerned with preventing disease, prolonging life and promoting health of the citizens. In case of an infectious disease, a public health intervention aims at:

1. Protecting as many uninfected individuals as possible from exposure, as individuals have a right to be protected from infection.
2. Providing health services for infected individuals, as they have a right to be treated quickly and as effectively as possible.

All persons have a right to health and the protection of public health is an important State function. In case of an epidemic, the State may have to enforce restrictions, which limit some of the individuals' human rights for the benefit of the larger public. These interventions involve a moral dilemma for the State, as the rights of some of the citizens will be temporarily limited: either the right to health of the public or the right to freedom of movement of the possible infected individuals.

State of Emergency and derogation of basic Human Rights

The Constitution makes provision for a government to declare the country in a **state of emergency**. This means that the government can suspend and/or change some functions of the executive, the legislative and or the judiciary during this period of time. The government may assume extraordinary powers, including virtual powers to legislate through "Emergency Regulations" in order to meet the impending danger or threats. A government can declare a state of emergency during a time of natural or human-made disaster (…). Under international law, rights and freedoms may be suspended during a state of emergency[*]. Human rights that can be derogated from are listed in the International Covenant for Civil and Political Rights (to which Sierra Leone is a party since 1996).

Interference with freedom of movement when instituting quarantine or isolation for a communicable disease may be necessary for the public good, and could be considered legitimate under international human rights law[**]. However, when rights are restricted, it is necessary to ensure protections of the individual. The Siracusa Principles provide a guidance framework: each one of the five criteria must be met, but should be of a limited duration and subject to review and appeal. The Siracusa principles are:

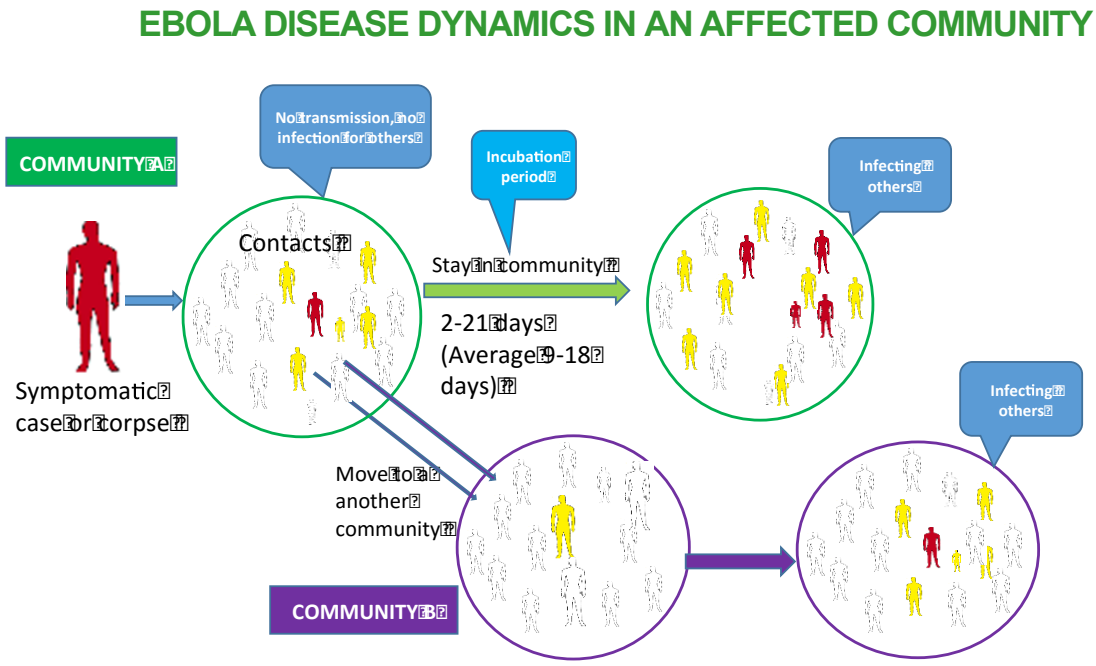
- The restriction is provided for and carried out in accordance with the law;
- The restriction is in the interest of a legitimate objective of general interest;
- The restriction is strictly necessary in a democratic society to achieve the objective;
- There are no less intrusive and restrictive means available to reach the same objective;
- The restriction is based on scientific evidence and not drafted or imposed arbitrarily i.e. in an unreasonable or otherwise discriminatory manner.

[*] Wikipedia "State of Emergency"
[**] http://www.who.int/tb/features_archive/involuntary_treatment/en/

3.2 Principles of Ebola containment

The Ebola virus has a limited life span in the host and an incubation period of 2 to 21 days. Most infected individuals show symptoms 8 to 18 days after exposure and *there is no way to determine that the virus is NOT there until the host shows symptoms.* Infection is transmitted by physical contact; the virus is spread only when persons are symptomatic. Therefore, the main control method for Ebola is finding the sources of virus early and removing them from the community immediately. Infected individuals can only be

identified once they develop symptoms (fever, vomiting, diarrhea). Therefore, containment strategy involves identifying primary "contacts", individuals who may have been infected through direct contact with bodily fluids of a symptomatic patient, monitor them and remove them from the community to isolation and treatment, as soon as they develop symptoms. ***Effective contact tracing (identification of contacts) and monitoring are essential for containment of the infection and to increase chances of recovery for the patient.***



3.3 Monitoring of contacts

Primary contacts must be regularly monitored to avoid further infections. This can be done in:

- The community. Contacts are required to remain at home and be available daily for monitoring. They should alert the authorities in case of symptoms and refrain from assuming self-medications or visiting traditional healers. It is the less restrictive measure but it relies heavily on trust between health authorities and citizens.
- Isolation. Contacts are removed from community to a dedicated facility. It must be done in consultation with the community and requires appropriate health facilities and personnel. The number of contacts and capacity and status of available structures are the key factors when considering this solution.
- Quarantine. Movement restrictions are imposed to the contact (at home, community, district). It is an option in the following when the outbreak is in well-defined limited areas or when limited cooperation can be expected from the community.

Enforcing quarantine and isolation has many advantages (physically isolates the virus, allows better management of deaths), but it restricts people's rights to liberty and freedom of movement, as well as, their livelihood and access to health. International human rights law requires that restrictions on human rights in the name of public health or public emergency meet requirements of legality, evidence-based necessity, and proportionality. When quarantines are imposed, governments have absolute obligations

to ensure access to food, water, and health care[2], and this requires a significant logistical and organizational effort and resources. For isolation, dedicated facilities are necessary as contacts are removed from their homes. These measures are not a substitute for good surveillance (monitoring) but rather a supporting measure for it, to be applied when it is believed that it s the only way to stop contacts' movements.

3.4 Choosing quarantine in Sierra Leone

In Sierra Leone, quarantines were initially applied on the example of a previous outbreak in Uganda and as an emergency response to an overwhelming health crisis. However, also looking at the choice in retrospective, there are many factors that justify it:

* ***Cultural factors:***
  Traditional practices are deeply engrained in Sierra Leone[3] and people revert to their cultural roots incase of an emergency, even when these practices contribute to the spread of the virus. Some examples are burial rites, reliance on traditional/spiritual healers and caring for the sick at home (as opposed to a health facility). For example, in the coastal villages of Freetown Peninsula, between November 2014 and March 2015, 97 unsafe burials and 248 incidents of resistance against safe burial practices were reported[4], despite widespread social mobilization, awareness campaigns and high number of EVD cases.
* ***Social factors:***
  High mobility of the population facilitates the spread of the virus. In the affected countries in West Africa the mobility of the population within the country and cross border has been identified as one of the causes leading to the disaster[5]. In Sierra Leone, for instance, Waterloo became an Ebola hot-spot because it is a transport hub, a trading center- business people come to buy fish along the Peninsula coast, from upcountry but also all the way from Mali- and its traditional healers are known for being among the most powerful in the country.
* ***Economic situation:***
  Sierra Leone is one of the ten poorest countries in the world: 60% of the population lives with less than 1.25$ a day and 62% of household expenditures are for food[6]. The Ebola virus spread mostly in the poor rural and urban communities, where people do not have savings but must daily earn money for food. In Freetown slums, for instance, often people will only eat at mid-day after finding some money from morning activities[7]. Therefore, providing enough food for the quarantine period was a significant incentive for many contacts to remain home (Ground Truth surveys).
* ***Education:***
  In a country with adult literacy rate estimated at 27% for women and 45% for men and with a health status of the population among the worst in the world, primary health education and knowledge of basic hygiene principles (e.g. washing hands) is expected to be very limited. Previous knowledge of the disease plays also an

[2] http://www.hrw.org/news/2014/09/15/west-africa-respect-rights-ebola-response
[3] http://www.ebola-anthropology.net/evidence/social-pathways-for-ebola-virus-disease-in-rural-sierra-leone-and-some-implications-for-containment/
[4] WHH internal project reports (SLE 1031)
[5] World Health Organization, 'WHO statement on the meeting of the International Health Regulations Emergency Committee regarding the 2014 Ebola outbreak in West Africa', 8 August 2014, <http://www.who.int/mediacentre/news/statements/2014/ebola-20140808/en/> (13 October 2014)
[6] http://www.sl.undp.org/content/sierraleone/en/home/countryinfo/
[7] Interviews with WeYone Child Foundation Sierra Leone

important role: Ebola had never been experienced before in West Africa. People knew neither the symptom, nor the infection mechanisms or approach to care.

* ***Trust between Government and citizens:***
  Without a certain level of trust, limited compliance by citizens can be expected. In a recent survey in Sierra Leone, approximately 70% of respondents outside the capital report that government officials can be trusted, while in the capital only 53% say that they can be believed[8].

If the choice of applying quarantine was justified by no means it implies that it was without problems. With few examples to learn from, limited guidance from the international community and under pressure, the learning curve has been steep and punctuated by several issues; some of them were resolved, some are yet to be addressed. In the following we give an overview of the elements necessary to implement a good quarantine and the main issues encountered.

[8] „Socio-Economic Impacts of Ebola in Sierra Leone“ World Bank survey, 12 January 2015

4. IMPLEMENTING GOOD QUARANTINES IN SIERRA LEONE

During the 2014-2015 Ebola epidemic, Sierra Leone has enforced all types of quarantine: district, community, household and isolation of contacts. In the first months of the response, from June to October 2014, five districts were quarantined: Kailahun, Kenema, Port Loko, Bombali and Moyamba. Additionally, hot-spot communities were isolated, as well as, contacts' households. Later in the response, when the dynamic of transmission and response strategies became better understood, government lifted district quarantines. It was feared that socio-economic impacts outweigh benefits and that travel and trade restrictions created labour shortages and food insecurity. From October on, the response was based mainly on household quarantines with isolated cases of community and contacts isolation. For this reason, in this report we focus on ***household quarantines.***

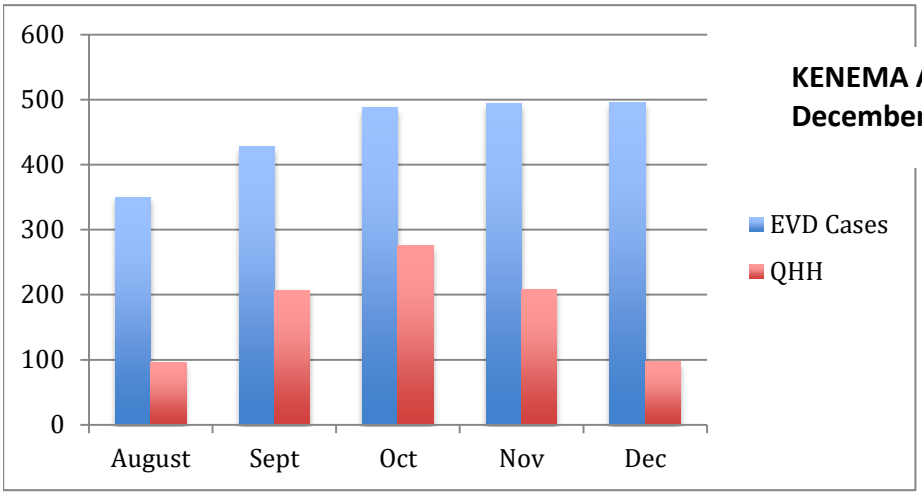
QUARANTINE: GOOD PRACTICE EXAMPLE FROM KENEMA

From July 2014, Kenema District implemented an Ebola Response Strategy was based on quarantining of contacts.

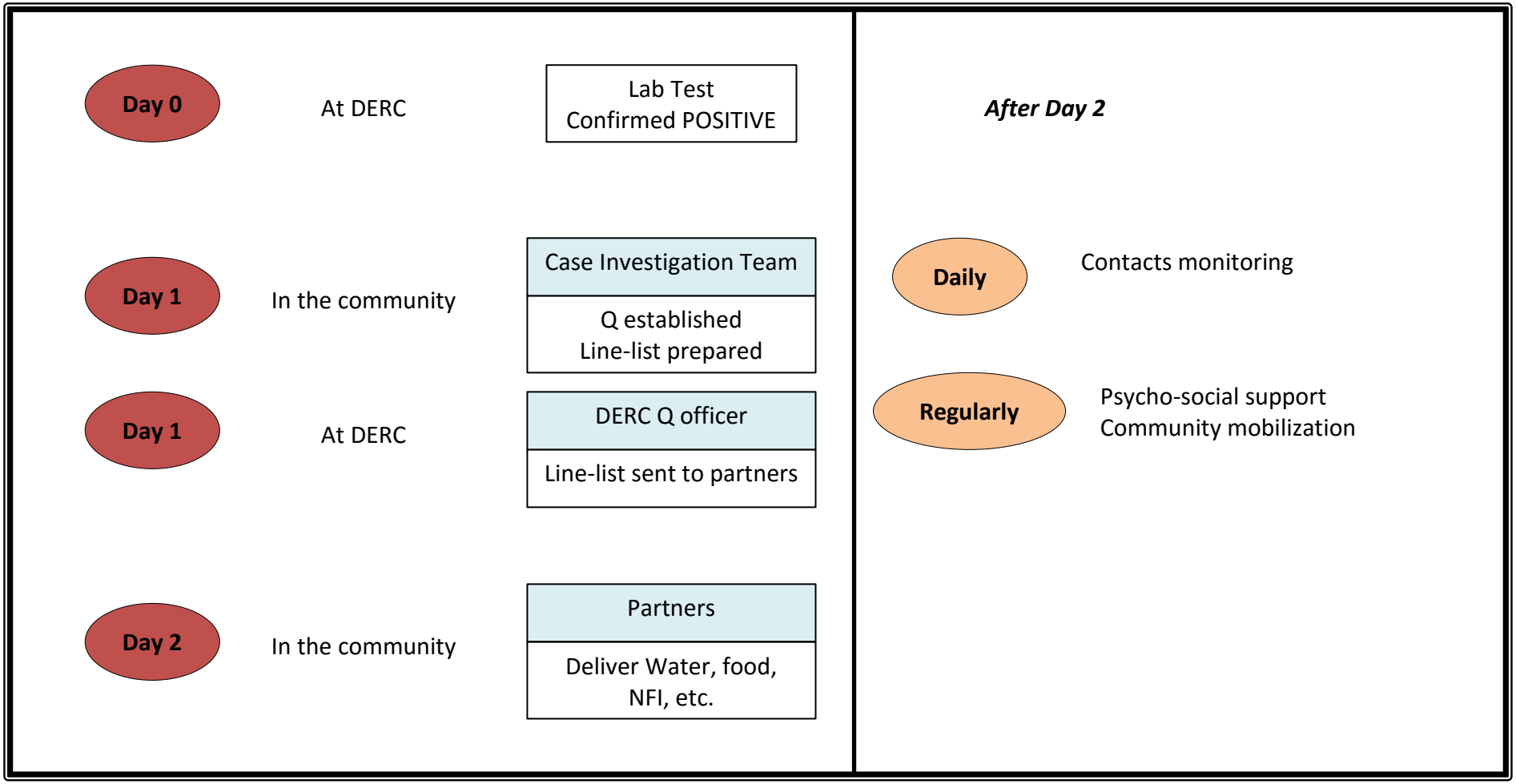
Community and Household Quarantining Process

1. Assess the risk of exposure of different households in a given community;
2. Identify the households at highest risk and quarantine them as a sub-community;
3. Applied at Aruna Street, Kabba Lane, Sinah Street with good results;
4. At Aruna street the case fatality rate dropped drastically after quarantining, because cases could be identified early;
5. Tents were provided in some cases to reduce over crowding in houses;
6. Isolation of high risk contacts-
    - Applied at Komende Luyama and Peri
    - Identified high and medium risk individuals and removed them from their households.
    - Isolated at a community isolation facility, mostly schools;
    - Continued with contact monitoring for low risk contacts;

Drastically cut the number of cases and duration of the epidemic in the specified communities



4.1 Quarantine process- flow chart



4.2 Elements to implement successful households quarantine

Based on WHH and other partners' experience, in the following we present parameters for implementing successful households quarantines.

4.2.1 Contact tracing

Quarantines are only effective if based on effective contact tracing. Every contact of every patient should be identified. Contact tracers must be, or accompanied by, expert nurses able to recognize early symptoms of illness, belong to the patients' community or be accompanied by a community member and, whenever possible, talk to the patient before looking for contacts. The contacts list line-lists for quarantining must be prepared as soon as possible. Delays lead to contacts moving from the area or delays in food delivery.

4.2.2 Respecting basic human rights

As mentioned in chapter 3.3, when imposing restrictions on citizens, government has the absolute obligation to respect basic human rights: the right to food, water and health care.

- FOOD: must be delivered regularly and in sufficient quality and quantity. The package should be designed with a local nutritionist and include local staple and condiments, dry and fresh items. Food should be delivered in two or three rations to facilitate management (delivered all at once, it is often sold or shared with neighbours). Special needs of children (under 6 months and under 5 years) must be considered, as well as, lactating mothers or special dietary requirements (diabetics, handicapped, etc.).
- WATER: requirements for drinking and washing/household use must be met (NOTE Pep XX L for drinking, XX L for washing???). In urban areas, tanks have been installed to serve communities. In remote rural areas, dedicated quarantine task forces were supported with incentives to assist quarantined households with fetching water (drinking water was provided).
- Additional items can be provided to:
  - Satisfy needs during quarantine (to limit reasons to leave quarantine) e.g. phone cards, charcoal, cooking pots, mosquito repellent, mosquito nets;
  - Avoid cross infection e.g. as color-coded plates and cups (one for each family member), spoons, toothbrushes.
- HEALTH: Daily monitoring of contacts (MSF best practise) must be ensured, as well as, access to health care. It must be taken into consideration that:
  - Access to health facilities must be provided with Ebola safety procedures;
  - Administration of medicines must not cover Ebola related symptoms.

  Right to health includes access to proper sanitation and hygienic conditions, often lacking especially in slum areas or congested urban settings; when necessary, temporary solutions are to be installed (portable toilets, temporary VIPs). Waste collection from quarantined areas must also be organized with a team especially trained on safe procedures. Hygiene materials and basic information in hygiene and safe practices must be delivered by WASH trained personnel.

  Psychological health: people in quarantine endure significant psychological stress and anxiety: worry for the EVD sick family member, fear of contagion, isolation, stigma, anxiety about the future, etc. To alleviate this stress, it is important to provide regular, accurate and professional:

- information about the patient and opportunity to communicate with her/him (top up cards and telephone, if necessary);
- feedback on lab tests (swab and blood);
- regular health checks to all individuals in quarantine; and
- information about EVD, safe practices, symptoms, behaviour in a suspect case;

Support by community, spiritual and traditional leaders should also be encouraged; a recent Ground Truth survey (8th April 2015) shows that 67% of quarantined households received emotional support by family and friends and 29% by spiritual leaders.

4.2.3 Recognizing roles and responsibilities of individuals in quarantine

Individuals in quarantine are key actors in the fight against the epidemic and should be recognized as such: when they respect quarantine, contacts provide a service to the community by avoiding spread of the virus. Only if contacts understand and commit to it, can the quarantine process be effective. Therefore, quarantine rationale and process should be clearly explained: individuals under quarantine must know what they are going through, what kind of support services they are entitled to and will be receiving. The current SOP for Quarantine (October 2014) includes such requirements. However, a recent WHH survey indicates that only 41% of quarantined HH received information on quarantine process and medical advice on preventive measure. Additionally, one individual within the household should be identified to be the reference point for communication, management of supplies, health monitoring, reporting of problems, contact with authorities and support team, etc.

4.2.4 Community support

Success of the measure depends in large part on acceptance of quarantine by the communities. In Koinadugu, for example, communities implemented a form of self isolation/quarantine: the Paramount Chief self-quarantined the chiefdom and any visitors entering the area were put in isolation for 21 days before being allowed free entry in the community. As of March 2015, Koinadugu counted only 108 cases, despite being on border with Guinea. Additionally, recent surveys show that peer pressure from neighbours fosters respect of quarantine movement restrictions[9]. Therefore, it is important to help the surrounding community to understand and accept the measure, recognize the necessary sacrifice by quarantined individuals and support them with services such as fetching water, buying items, providing emotional support. This is also important to reduce stigma. A successful example was the establishment of ***Quarantine Task Forces*** in WA Rural: community members dedicated to support the households during the whole period.

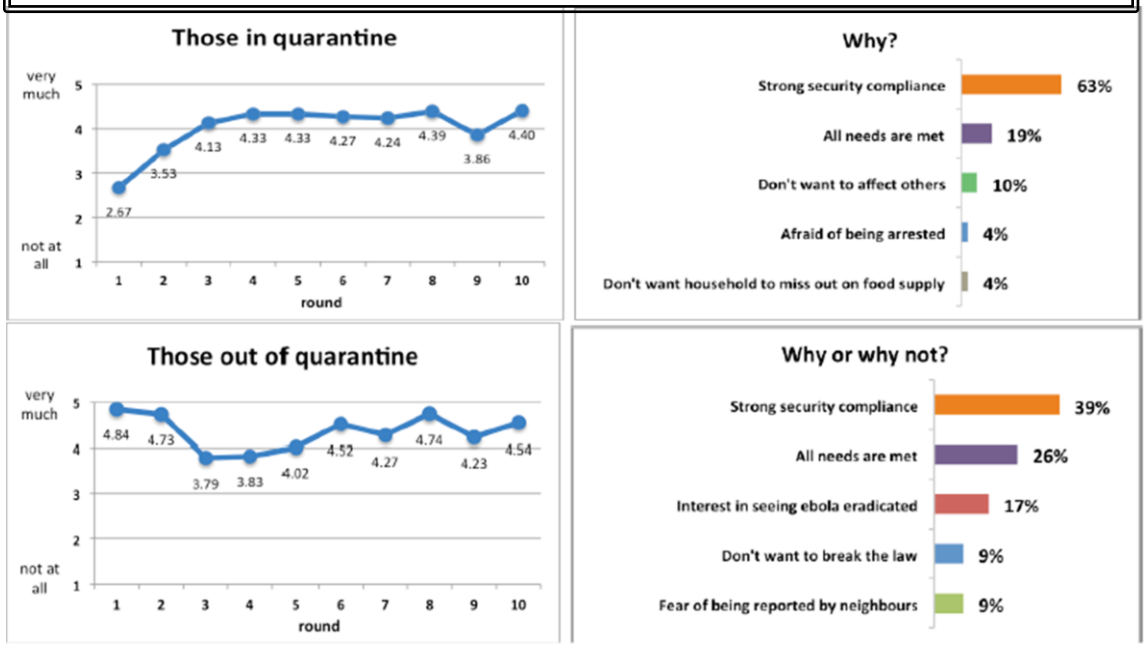
4.2.5 Security

Security should be visibly in place, 24 hours, and should be adequately supported with food, water and shelter (tent, chairs, etc.).

[9] Please refer to the insert "Reasons for compliance with quarantine restrictions"

Reasons for compliance with quarantine restrictions

Do/did other quarantined households in your area comply with quarantine restrictions by staying within the house and compound boundary?



Ground Truth survey of 8th April 2015

4.3 Problems associated with quarantine

A quarantine measure has never been mounted on such a scale (countrywide) and for such a long period (more than ten months) before. It was was hampered by many problems and has received much critic from different sides. The main issues, collected from different sources including reports from MSF, UNMEER, NERC, IMC[10] and interviews with stakeholders involved in the response, are listed and analysed in the following:

	ISSUE	ROOT CAUSE
1	Too many people in Q or the wrong ones (not real contacts)	Ineffective contact tracing/ line listing
2	Sick people in Q are not identified	Ineffective contact tracing/ monitoring
3	Dead bodies are not removed from Q homes	Ineffective contact tracing/monitoring; delays with burial teams
4	No medicines or access to health care	Ineffective health facility response

[10] International Medical Corps

5	Cross infections in Q homes	Ineffective contact tracing/ monitoring; delays in health facility response
6	Lacking security	Inefficient Q support services
7	No, insufficient, bad quality, irregular provision of food and/or water	Inefficient Q support services
8	Loss of employment or income for Q individuals	Q measure
9	People in Q are stressed (fear, isolation, etc.)	Q measure
10	Generates stigma	Q measure
11	People escaping before or during Q (searching for food, money, fear of contagion)	Q measure
12	Pull factor: services too good compared to outside, outside people enter Q area to share	Q measure
13	Too expensive	To be verified/further discussed
14	Breach of human rights	To be verified/further discussed
15	From an epidemiological point of view, it is not necessary	To be verified/further discussed

4.3.1 Issues with other response pillars

Issues 1 to 5 directly affect quarantine but are rooted in other services: contact tracing and monitoring, health facilities and burial teams. An indication that contact-tracing and monitoring need to be improved are the number of cases coming contacts' lists (April '15, approx. 70%) and the number of corpses found in quarantined homes. Some reasons for the shortcoming include that the tracers are not from the community, that it is not always possible to identify all contacts outside the patient's home and that often it is not possible to talk with the patient. Additionally, if line-listing is not accurate, too many households are put under quarantine. Finally, problems with the health system in Sierra Leone were evident already before the crisis: health indicators including maternal mortality, child mortality, and life expectancy are among the world's worst. "Endemic corruption, weak road networks, the "brain drain" of medical personnel, and the widespread destruction of health facilities during armed conflict have undermined the right to health for decades[11]". It should be no surprise then that the health services during the crisis were close to collapse.

4.3.2 Shortcomings in quarantine support services

The effectiveness of the measure clearly depends on the quality of its implementation. Irregular (or delayed), insufficient or low quality provision of food, water and security were the main problems identified. This was due to a wide array of reasons such as the large number of partners involved, limited coordination, inefficient information flow, lack of accountability in national and partners structures, etc. However, these are issues that can be resolved with better process management. The situation improved significantly due to the coordination efforts initiated in March 2015 by NERC and the DERCs. In a recent survey[12] almost 100% of the quarantined interviewees had received timely and enough, while there were still issues with the provision of water.

[11] http://www.hrw.org/news/2014/09/15/west-africa-respect-rights-ebola-response
[12] "Quarantine and the Ebola response" Ground Truth 08.04.2015

4.3.4 Issues directly related to quarantine

Fear of loss of income or employment during and after quarantine, was apparently one of the causes for contacts to try and escape. This situation seems to be more pronounced in case of waged- and self-employment (as opposed to farming). Loss of income due to the halt of economic activities is one of the effects of the epidemic on the whole country and particularly on those who are forced to stay at home for three weeks. Regarding restarting of employment after quarantine, a recent survey[13] has show that 73.5% of the interviewees could start again their economic activity after quarantine.
As these are direct impacts of applying quarantine, mitigating measures should be considered to help the most affected, such as compensation, work-at-home or support to income generating activities after the quarantine period (e.g. several donor-funded projects are presently addressing this specific issue).

Issues nr. 9, 10 and 11 are linked to the particularly stressful situation from a psycho-social point of view: quarantined individuals experience isolation, fear and stigma and sometimes escape before or during quarantine. As mentioned in chapters 4.2.3-4, effective and active psycho-social support, community mobilization, involvement and commitment of both quarantined individuals and surrounding communities are necessary and must be ensured.

There are indications that quarantine is more easily accepted in rural areas, where the sense of community (and community support) is more pronounced, provision of food packages is an incentive to accept quarantine[14], provision of security is easier. WHH has collected several good examples from implementation of quarantines in Kenema, Moyamba, Bombali and Pujahun. However, implementation and acceptance of quarantine seems to be more challenging in some urban settings.

4.3.5 Issues to be verified or further discussed

The issue of breach of human rights has been addressed at length in chapter 3. In an emergency situation like an epidemic, government may chose to safeguard the right to health of the public by temporarily restricting the rights of some citizens. However, governments have absolute obligations to ensure access to food, water, and health care.
The statement that quarantine is not necessary from an epidemiological point of view is not a unanimous position among epidemiologist: one example is Dr. Monica Musenero, Ugandan epidemiologist, who successfully organized the first Ebola response structures and strategy in Kenema in June 2014, including the first quarantines.
Concerning discussions on the costs involved in the quarantine exercise, we believe that at present there is insufficient data to support or dismiss this claim. It is suggested that the issue be further investigated after end of the crisis with a comprehensive cost-benefits analysis.

4.4 Special case of quarantine in SLUMS

When the epidemic reached the capital Freetown, the issue of quarantines in slum areas arose. In slums communities[15]:

[13] „Support to quarantined households. SURVEY“ Welthungerhilfe, March 2015
14 NO. 5 „Inter-District experience sharing workshop on quarantine ‚management and social mobilization“ WHH internal
[15] UNHABITAT „Improvement of slums and informal settlements in Freetown“ May 2006

1. The physical environment is extremely unhealthy: lack of basic services and poor access (lacking sanitation, running water, waste disposal), sub-standard housing (shacks made of plastic, straw and earth floors), hazardous locations (flooding, landslides), overcrowded;
2. The social environment is characterized by a weak community feeling (high mobility, people coming from abroad or other districts/areas to work), limited respect of law and official structures, mostly informal economic activities (smuggling, trading rum and other small commodities, fishing, stealing, selling drugs, prostitution) and very to extremely low income levels.

Because of the extremely unhealthy living conditions, life expectancy in slums is in average 35 years, ten years less than the national average[16].

Effecting quarantines in slums has revealed very complex:

- Logistically- it is almost impossible to isolate a single household as the houses/shacks are all physically connected in a maze;
- Provision of sanitary facilities- very limited space to install portable toilets; risk of neighbours infiltrating the quarantine area to use sanitary facility;
- Engagement with communities- weak community feeling, difficult to build trust and confidence;
- Ensuring security- as houses are all connected, it is difficult to oversee all paths leading to and from the house.

Additionally, there have been several cases of "escapees" from quarantined houses in slums, which led to spread of the infection to other districts (e.g. the "escapees of Aberdeen, Freetown", who infected people in Makeni).

Slums offer such extremely miserable conditions of living that improving the lives of slum dwellers is one of the Millennium Development Goals (Target 7.D). Forcing people not to move from such an unhealthy environment for 21 or more days can be considered a breach of human rights, especially of the right to health. In these cases, removing high-risk contacts from the community for observation (in isolation) might be a better, if not the only, option. Different pilot projects have been implemented in Sierra Leone such as the Police Training School Observation Centre in Hastings, by WA DERC (March 2015) and in Komende Luyama and Peri in Kenema (July 2014), with apparently good results. Such arrangements however require adequate facilities, trained personnel, collaboration of the community and a transparent flow of information.

5. LESSONS LEARNED

We identified the following key lessons learned:

- Quarantine is a support measure to surveillance. It can only be effective if based on good contacts' identification and monitoring.
- Contacts must be involved and explained about quarantine. Their key role in stopping spread of infection should be explained and they should be helped take responsibility in managing the process. Involvement and accountability helps diminish anxiety and improves compliance.
- Communities "make or break" quarantines. Without commitment and ownership by the communities, all measures are doomed to fail. Community understanding and

[16] http://www.irinnews.org/report/79358/sierra-leone-rampant-disease-washes-in-with-flood-water

support to quarantine is key to provide psycho-social support to individuals, to limit stigma, to avoid escapes. It should be facilitated with all means possible.

- Provision of support services (food, water, health care) to quarantined individuals is an obligation of government and implementing partners. It must be carried out timely, regularly, efficiently and with good quality products. People under quarantine must know they can rely on the service.
- Quarantines seem to be more easily accepted in rural areas. More issues have been observed in more urban settings.
- Special case of slums: because of the extreme physical, sanitary and social conditions, quarantines in slums should be avoided whenever possible. Contacts should be removed (of course, only with their consent) from communities, and observed in adequate facilities, provided that facilities and personnel are available.

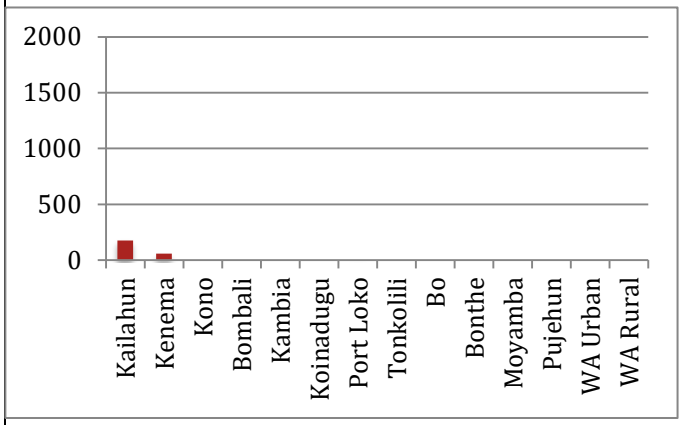
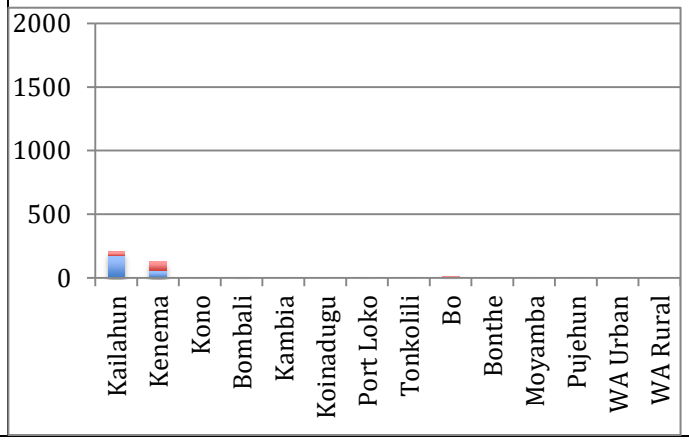
6. CONCLUSIONS

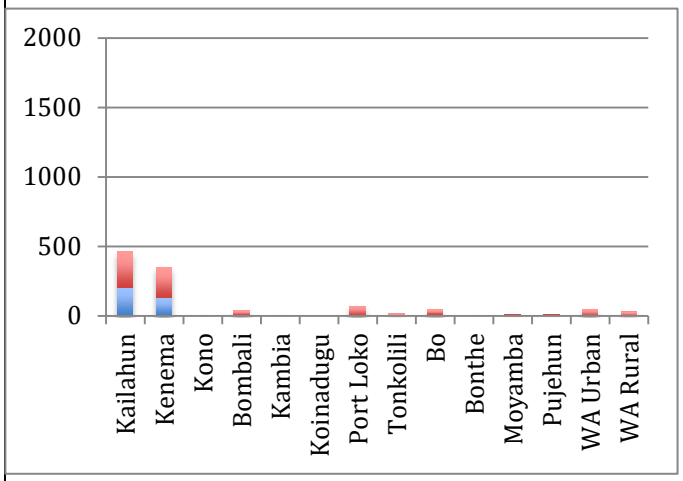
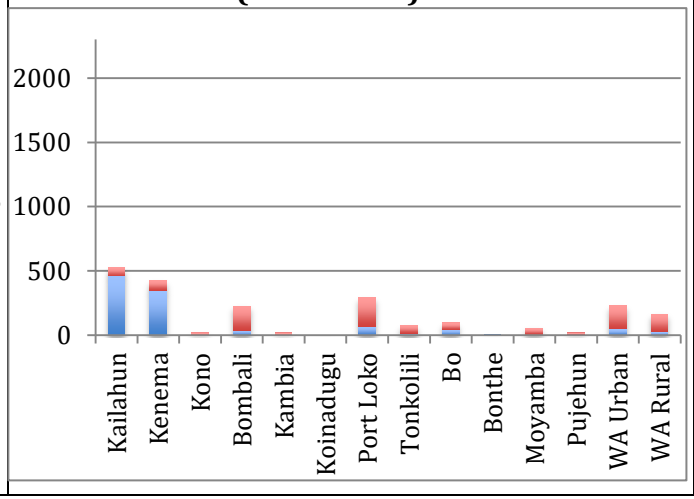
The West Africa Ebola epidemic of 2014-15 was by far the worst Ebola epidemic in history. All strategies put in place were first attempts and were gradually improved through a process of trial and error. The choice of implementing household quarantines in Sierra Leone has no comparison for the magnitude of the effort. Assessing its success as a single component of the Ebola response strategy at the moment is not possible. We can only assess the results of the action as it is unfolding now: Ebola entered Sierra Leone in June 2014, in its peak it caused more than 500 cases per week, and at moment of writing this report (April 2015) is on the way to be defeated (single-digit cases per week). The strategy adopted by the Government and its international and local partners has been, so far, successful.

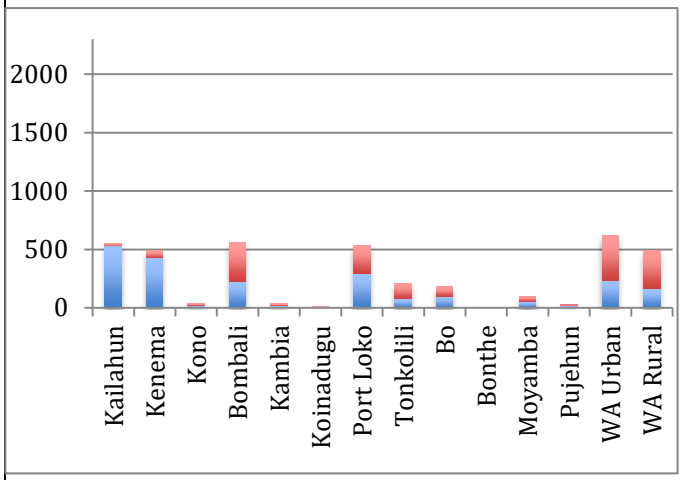
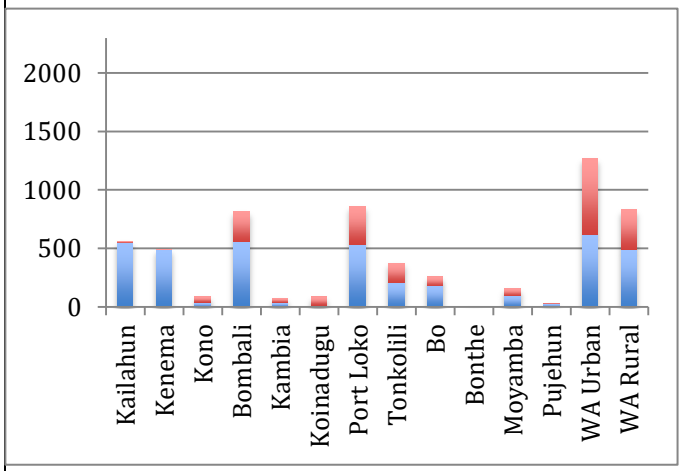
The use of households quarantine has been one of the key elements of the response in Sierra Leone, since July 2014. Has quarantine been an effective measure in the fight against Ebola? It was applied to face a serious health emergency and its use, we believe, was justified. Its implementation had no precedent in the country and was a process of trial and error. Many problems have been encountered, several have been solved and important lessons learned have been collected in the process. Quarantine's contribution is linked to many other aspects of the response strategy and should be seen in its context. Finally, we can affirm that quarantine is a valuable support measure to contacts surveillance and that its implementation in Sierra Leone positively contributed to the fight against Ebola.

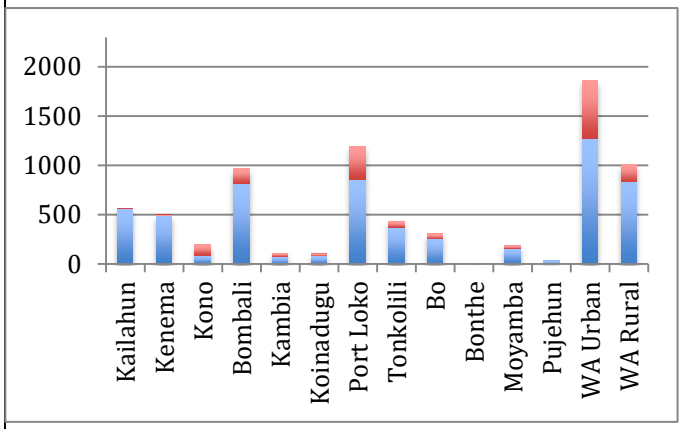
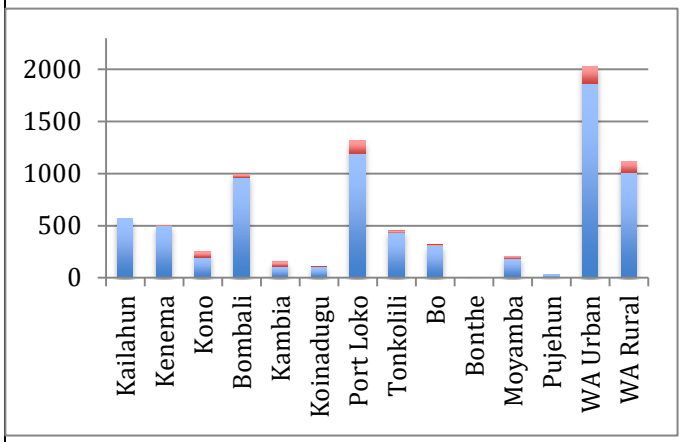
ANNEX 1-Ebola Outbreak in Sierra Leone

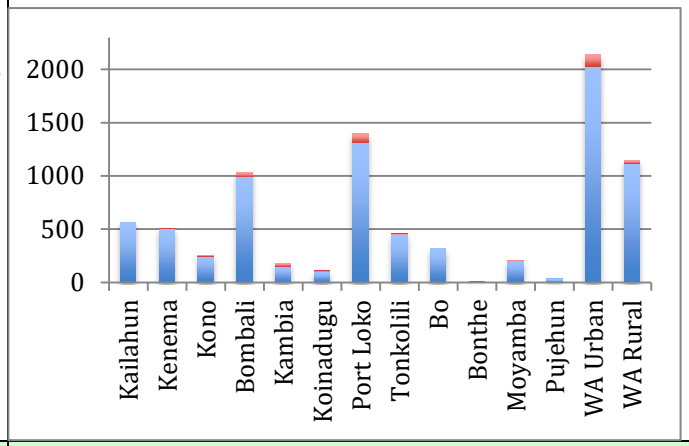
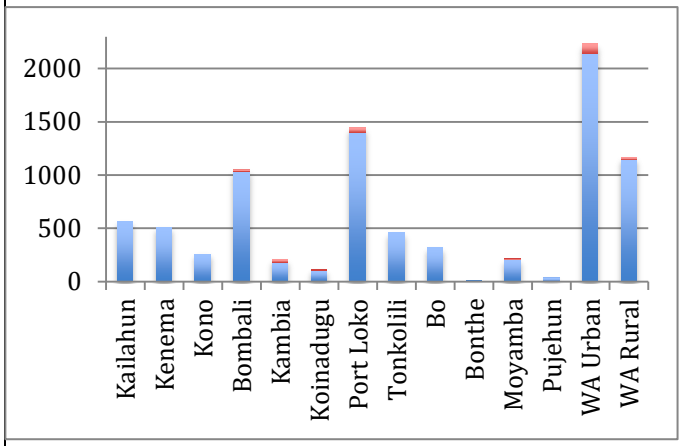
EVD cases, Government fight and WHH support: An Overview

SL GOVERNMENT	JUNE 2014	WHH
KAILAHUN-First Ebola cases came from funeral of traditional healer in Sokoma, on border with Guinea. Infection spreads to rural areas. ***State of emergency*** declared in Kailahun (close schools and gathering places, close borders to Liberia and Guinea) and quarantined the district. End of the month: 175 cases in Kailahun.	**239 cases** 	WHH implementing its long-term projects: Cocoa and Coffee, Promoting Renewable Energy Services for Social Development (PRESSD), Food Security and Economic Development (FoSED), Waste Management, Employment Promotion Programme (EPP) in: - Kailahun - Kenema - Bo -Kono -Pujehun
SL GOVERNMENT	**JULY 2014**	**WHH**
KENEMA- Infection spreads to Kenema town. Contagion progresses much quicker in urban setting. On 30th July, Government declares ***state of emergency*** in Kenema (close schools, businesses, gathering places). Quarantined the district (stop traffic in and out of district). WHO (Dr. Musenero, Ugandan epidemiologist) helps develop Ebola Mitigation Strategy and Response Structure: EOC and Task Force. FREETOWN: first recorded cases.	**268 new cases (507 total)** 	Temporary halt of activities in the two districts, closing of Kenema reg. office, international staff are re-position in Freetown to observe the current trend of situation whilst the national staff are advised to stay at home with maximum care and protection from EVD WHH supports Kenema Ebola Task Force; contributes to development of Ebola Mitigation Strategy.

SL GOVERNMENT	AUGUST 2014	WHH
6 August, President declares ***National State of Emergency***. Quarantines imposed on contacts households are enforced by the military. KAILAHUN- 461 cases KENEMA- 350 cases. MSF personnel in Kenema infected. MSF closes ETC in Kenema 8 August WHO declares the outbreak "International Public Health Emergency". Virus enters Bombali, Port Loko, Tonkolili, Bo, Moyamba, Pujehun, WA Urban and Rural.	**610 new cases (1.117 total)** 	Develops concept "provision of food to quarantined households" in collaboration with Bo District Nutritionist. WHH project staff on hold (Cacao & Coffee, Solid Waste projects) involved in food delivery to QHH. WHH sensitizes communities on risks of contagion. KENEMA- WHH delivers food packages to QHH. No system and safe procedures yet developed for delivery: attempt made to Quarantine WHH staff because of lack of proper procedures for Food Distribution. WHH provides food and NFI to QHH in Kenema, Bo, and Pujehun. First project funded by the German Foreign Ministry (SLE 1027).
SL GOVERNMENT	**SEPTEMBER 2014**	**WHH**
KENEMA- Ebola Response Strategy successful. Majority of cases come from quarantined households. IFRC opens treatment centre. Number of new cases reduces significantly. FREETOWN- 230 cases by end September. Min Social Welfare applies WHH concept of quarantine food support. ***3 days lock-down countrywide.*** 18 September UN declares Ebola a "Threat to peace and security" UK govt. announces it will send specialist military and civilian staff to support Ebola fight.	**895 new cases (2.012 total)** 	WHH provides food and NFI to Kailahun and Kono. Food distribution in Kailahun experiences some constraints because inaccessibility to district, bad roads and public restrictions. WHH develops a methodology around food delivery, later incorporated in first SOP for Quarantine (24.09.2014).

SL GOVERNMENT	OCTOBER 2014	WHH
NATIONWIDE- ALL districts have at least one case. Port Loko, Bombali, Moyamba are quarantined. Transmission slowing in Kailahun and Kenema. Many EVD cases turned away from overcrowded holding and/or treatment centers. Insufficient treatment facilities, limited equipment, health personnel, protective equipment, medicines. 377 Health Care Workers infected with EVD, of who 216 died. Two Community Care Centres in Port Loko. Burials one of main causes of transmission.	**1.831 new cases (3.843 total)** 	WHH international staff returns to Kenema. WHH contracts Dr. Musenero to support establishment Ebola Response Structure in Bombali, Port Loko, Western Area Rural and replicate success of Kenema: 1. Training in quarantine process, contact tracing and monitoring management 2. Technical support to District TF leadership team, technical staff and pillars, 3. Support to Kenema TF for experience sharing. WHH extends provision of food and non-food items to Kailahun, Kenema, Kono, WA Rural (Waterloo and Environs), Bombali, Port Loko Moyamba (SLE 1028, SLE 1029)
SL GOVERNMENT	**NOVEMBER 2014**	**WHH**
UNMEER: cases surging in Sierra Leone due to lack of management centres. "Two-thirds of the new cases recorded in the past three weeks have been in Sierra Leone." EOC are substituted by National Ebola Response Centre (NERC) and at Districts DERCs with UK civilian support. CEO Paolo Konteh nominated. More than 100 cases per day. Bombali, Port Loko, Western Area are hot spots. Cases arriving in FT through Waterloo. New WA Rural D. Coordinator nominated- Mme. Zulaitu Cooper.	**2.063 new cases (5.906 total)** 	Provide food and non-food support to hot-spot districts. Sharp increase in quarantined households in WA Rural supplied by WHH. Support social mobilization activities in Western Area Rural to stop virus from entering rural areas though Waterloo. (SLE 1029) Dr. Daniels is contracted by WHH to support the EOC at Waterloo and to organize awareness raising among key stakeholders in Freetown in form of Talk Shop with traditional and spiritual leaders.

SL GOVERNMENT	DECEMBER 2014	WHH
(WAS) Western Area Surge- from 16 December, massive action to stop transmissions in Freetown. Social mobilization, distribution of anti-malaria drugs, active house-to-house case search. New treatment centres open in Western Area (MSF and other). 3 days lock down in north of SL- shops, markets and travel services shut down. Christmas and New Year celebrations banned.	**1.552 new cases (7.458 total)** 	WHH new project supporting quarantined households in Bo, Kailahun, Kenema, Kono, Tonkolili, Pujehun, Moyamba, Port Loko, Bombali, Western Area Urban Freetown und Western Area Rural (SLE 1032) cames into existence . WHH participates in WA surge; supports radio talks with religious and traditional leaders. Active participation in social mobilization with community youths.
SL GOVERNMENT	**JANUARY 2015**	**WHH**
Cases decline, emergency restrictions are eased. Movements between districts are permitted. No quarantines or restrictions on movement above household level. 18 January, 392 U.K. military personnel are deployed in country. Cross border coordination meeting with Guinea and Liberia in Ebola fight. Launched WAS second phase. WHO- enhance contact tracing. All cases should come from known epi-link. Pujahun 42 days Ebola free- first district in Sierra Leone. Reports of quarantined HH without food.	**561 new cases (8.019 total)** 	Social mobilization in WA Rural continues. Quarantine Task Forces established to support QHH. Facilitate experience exchange between DERCs in hot-spot districts Rapid response Ebola Fund for CBOs and national NGOs launched in Kenema, Kono and Kailahun. Support to community-based project for social mobilization, awareness, support to Ebola affected families.

SL GOVERNMENT	FEBRUARY 2015	WHH
Confirmed cases continue to be focused in the West and North of the country. Outbreak in Aberdeen (Freetown): 74 confirmed cases, accounting for 70% of new cases nationwide. Quarantine homes nationwide: approx. 1.520. "Five Days Rapid Response" plan with social mobilization set up in WA. Scaling down bed capacity ETC and CCC across country. School reopening planned for March.	**320 new cases (8.339 total)** 	WHH provides food and NFI to QHH in WA Rural and Urban, Moyamba, Tonkolili, Bombali and Kono. Social mobilization on WA Rural continue through Village Task Forces. WHH supports visit of Clowns Without Borders to provide psycho-social support to quarantined areas.
SL GOVERNMENT	**MARCH 2015**	**WHH**
"Getting to a Resilient ZERO" National Campaign- 3-day "stay at home" (27-29 March) in hot-spot districts. UNMEER Quick Impact Projects (QIPs) being implemented countrywide. 9 March 2015 Sierra Leone records ***first day*** with ***zero confirmed cases*** since the Ebola crisis peaked	**194 new cases (8.553 in total)** 	WHH carries out blanket food distribution for WFP to WA Rural communities directly affected by Ebola. Supply of food and NFI to QHH continues. WHH implements WFP program of blanket food distribution to seven WA urban and rural communities to support 3 days "stay at home" campaign. Establishment of Ebola Survivors Care Centre in Bo. Planning provision of emergency food to Ebola orphans countrywide. Support to Ebola survivors through income generating activities in Bo.

In the graphs, the new cases for every month are in red