

CONTAINMENT BED FOR EPIDEMIC OUTBREAKS



How might we response quicker for the next big epidemic outbreak?





11 323
DEATHS OUT OF
28 646
KNOWN CASES

2014 West Africa Ebola Outbreak



Lack of Capacity

30%
AVAILABLE
1188/4167 - Nov 14'



10,600
ESTIMATED
INDIRECT DEATHS
MALARIA, TB, HIV

One of the major problems during the outbreak was the lack of capacity. With only 30% of the required capacity available, many of the contagious incoming patients had to go back to their communities, thereby infecting others. This problem made the outbreak harder to control and patients harder to contain.

In addition, due to the lack of capacity, patients with other diseases couldn't get the treatment they needed since all of the beds in all hospitals were already crowded with ebola patients. This situation caused many other deaths, not directly from Ebola Virus, but from the health care system that was overwhelmed by the outbreak.



Lack of Trust

60%
EMPTY BEDS
IN LIBERIA
464/696 - Nov 14'

Even though the majority of the treatment centers didn't have enough capacity for more people, two-thirds of the 696 beds in Liberia's Ebola treatment centers were empty in November 2014 due to the lack of trust by the community not only in their health system but also in western medicine.

Most of these West African countries which have been affected by the outbreak, also suffered a civil war not so long ago. Political corruption, poor economy and bad health system pushed the community not to believe in the healthcare provision that health workers were offering.



Impact on Health Workers

881 / 513
INFECTED DIED



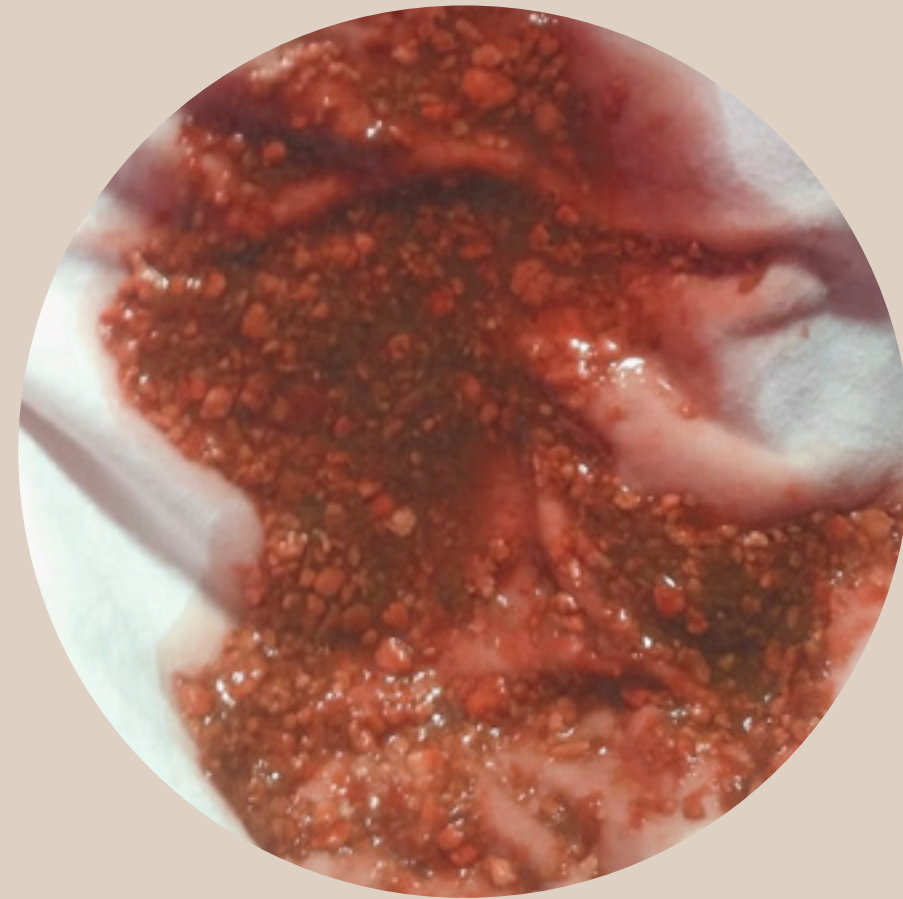
Interview

Sallieu Karim Sesay
Ebola Survivor Corps - Project Manager

+a pool of Health Workers
Sierra Leone

Insights

*from the health workers of
Sierra Leone*



Nosocomial Infections



Lack of Trust



45 mins
TO CLEAN UP
EACH PATIENT

HARD & RISKY
PATIENT
TRANSPORTATION

PEOPLE THOUGHT
EBOLA was
WITCH-CRAFT

PEOPLE REFUSED
the HEALTH-CARE
PROVISION



LIBERIA



GUINEA



SIERRA LEONE

Lack of Resources

The biggest reason for the lack of capacity during the 2014 West Africa Ebola Outbreak was that Liberia, Guinea and Sierra Leone are some of the poorest countries in the world. They didn't have enough resources and financial capabilities to implement rapid treatment centers for Ebola patients.



Slow Logistics

Besides the insufficient resources in the affected countries, there was another factor that slowed down the containment operations which was that the logistics weren't fast enough. Due to the size and mass of the plain beds, they couldn't receive all the help they needed in hospitals and treatment centers.



Plain Hospital Beds

Bio Containment Units

The options in the market are currently limited to plain hospital beds which are not covering the specific needs of an epidemic scenario, another option to consider might be the bio containment units, however they are not suitable for open isolation approach and are extremely expensive and custom made.

What if the people in remote areas could produce their hospital beds with their **local resources**?

Would design help **building trust** in poor healthcare systems?



Feasibility Goals

+Trust

Functionality Goals



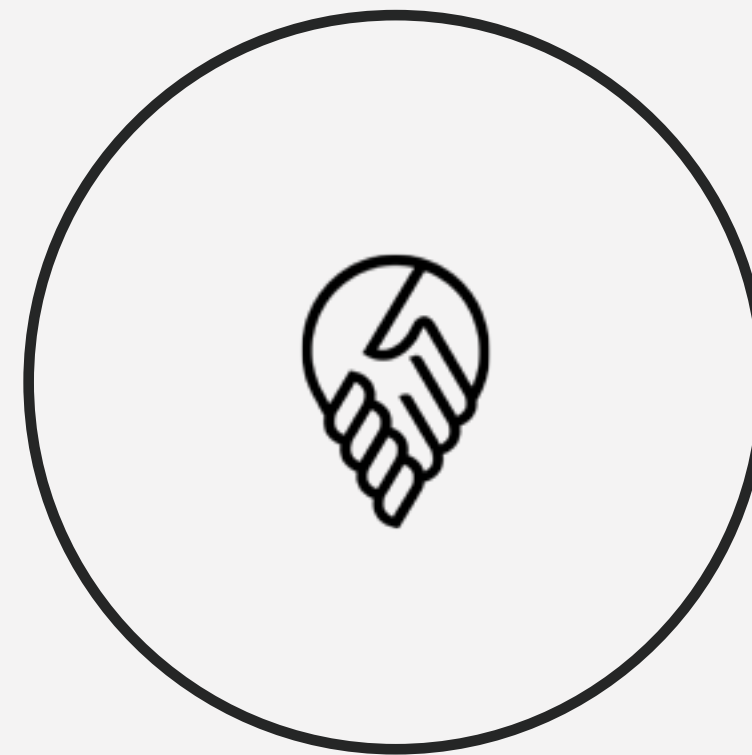
COST-EFFICENCY



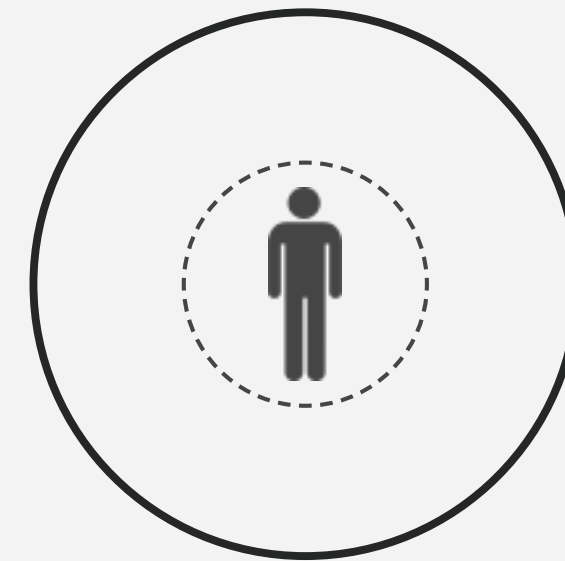
EASY SHIPMENT



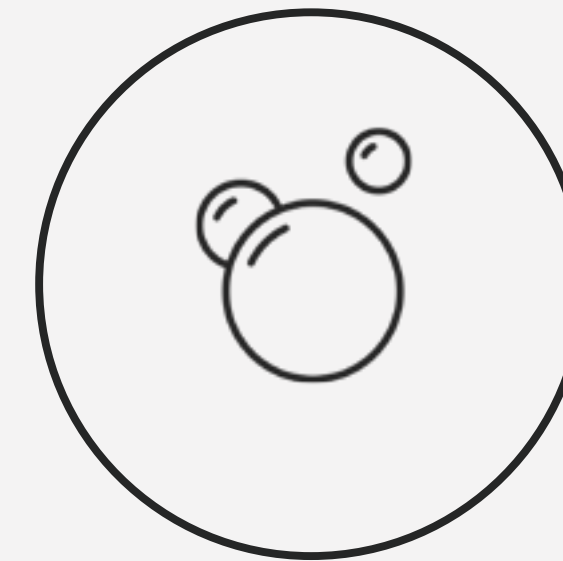
RAPID & EASY INSTALLATION



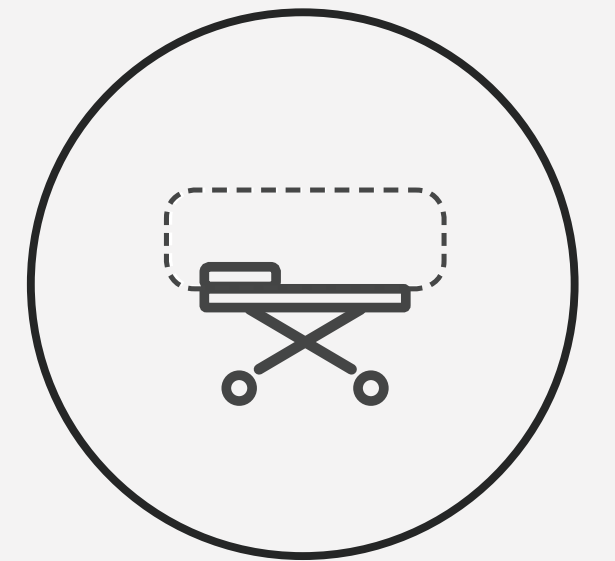
LOCAL PRODUCTION



PRIVACY BARRIER



EASY DECONTAMINATION OF THE BED



TRANSPORTATION OF THE PATIENTS



Bamboo



**REGIONAL
AVAILABILITY**



**LIGHT
WEIGHT**



**HIGH
TENSILE
STRENGTH**

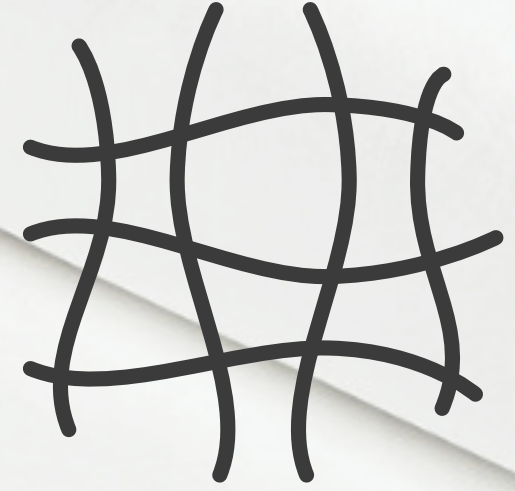
Tyvek



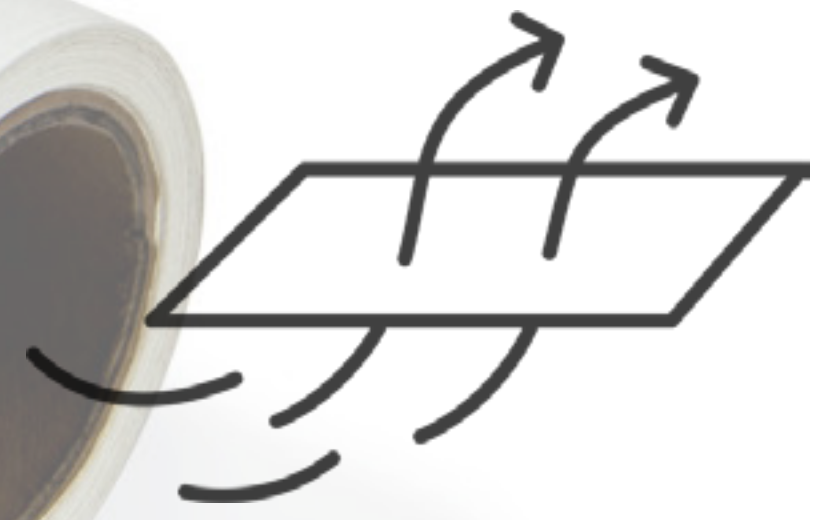
**WASTE
MATERIAL**



**MICROBIAL
BARRIER**



**HIGH
TEAR
RESISTANCE**



BREATHABLE



Zip-Ties





*Instead of sending actual beds, what if the solution could be about
sharing the most valuable resource ever;
knowledge?*



JUNTO

CONTAINMENT BED FOR EPIDEMIC OUTBREAKS

*Sharing the knowledge of building a containment bed with resources which could be **accessible** for a **rapid response** anytime.*



13
BAMBOO
STICKS

5
METERS
TYVEK®
SHEET

24
ZIP
TIES



3
LASHING
TECHNIQUES



Patient Transportation

The bed can be used to transport the patients between wards with less workers and less effort due to the light-weight of the solution.



Easy Decontamination

When the bed gets contaminated, mattress or barrier can be easily replaced with another Tyvek® sheet which means much less time and effort needed from the health workers for the task, so they can focus on healthcare giving.



Functions / Cost

Ubuntu is offering specific functions for the needs of both patients and health workers, without any extra cost, such as a tray area for medical tools.



Privacy Barrier

Offering patient privacy due to the visually and emotionally harsh environment while also keeping the access from both sides for healthcare, due to the curtain like cover.





Local Artwork

The artwork printed on both mattress and barrier, aims to comfort the community and build trust through design by applying the region's traditional and cultural graphic styles. The proposal is that the artwork can be done by the local artists from the affected area.







THANK U

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