

Innovations in Global Health Security

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Investing In The Future – Impacting Real Lives



Global Health Security Agenda

- **Strategies**
 - Preventing avoidable epidemics
 - Detecting threats early
 - Responding rapidly and effectively
- **Purpose:** To support countries meet key International Health Regulations (IHR) 2005 requirements)
- **Implementation:** In cooperation with the Ministry of Health and other government entities, working at national level, district level and facility level





Innovation:

- **Extending scope of existing institutions to support Global Health Security**

Infectious Diseases Institute



Largest implementing partner for CDC/PEPFAR

Over 1000 staff in 5 programs:

***Research, Training, Clinical Care, Outreach,
Laboratory, Global Health Security***

>650 peer-reviewed publications

>100 projects, >30 funders



IDI, Kampala, Uganda



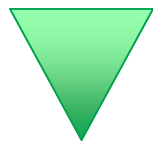
Training for outbreaks of dangerous pathogens



IDI-USAMRIID Capacity building project

To decrease the delay in clinical diagnosis, management and reporting of EDP, while employing infection control

378 Trainees in Uganda, Kenya



Trained personnel responded to outbreaks at home and abroad

Training materials adopted for national use

Civilian organization capacity strengthened for capacity building and research in an outbreak setting

Uganda Outbreak	Year
Yellow fever	2016
Rift Valley fever	2016
Maburg outbreak	2017
Rift Valley fever	2017
Rift Valley fever	2017
Rift Valley fever	2017
Rift Valley fever	2017
CCHF	2017
CCHF	2017
CCHF	2017
Anthrax	2017
H5N1	2017
Meningitis W135	2017
Rift Valley fever	2018
Rift Valley fever	2018
Anthrax	2018
CCHF	2018

Global Health Security

	PREVENT					DETECT			RESPOND		
	FINANCING	BIO SAFETY	ZOOZONOSIS	IMMUNIZATION	AMR	LAB	WORK FORCE	SURVEILLANCE	PREPAREDNESS	MCM	POINTS OF ENTRY
CDC GHSP		X			X	X		X	X		X
BIOFIRE								X			
ZOOZONOTIC DX			X					X			
CAPA-CT 2								X	X	X	
FLEMING CTY					X	X	X				
RESOLVE	X					X	X				
DRUM					X						
JMEDICC										X	

Filoviruses and health care associated infections

Reality Check



Makeni, Sierra Leone, 2015

Evidence....

...Hand hygiene is the single most effective measure to reduce HCAs.

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Innovation:

- **Improving access to alcohol-based hand rub**

Local manufacture of ABHR-WHO protocol

Materials required

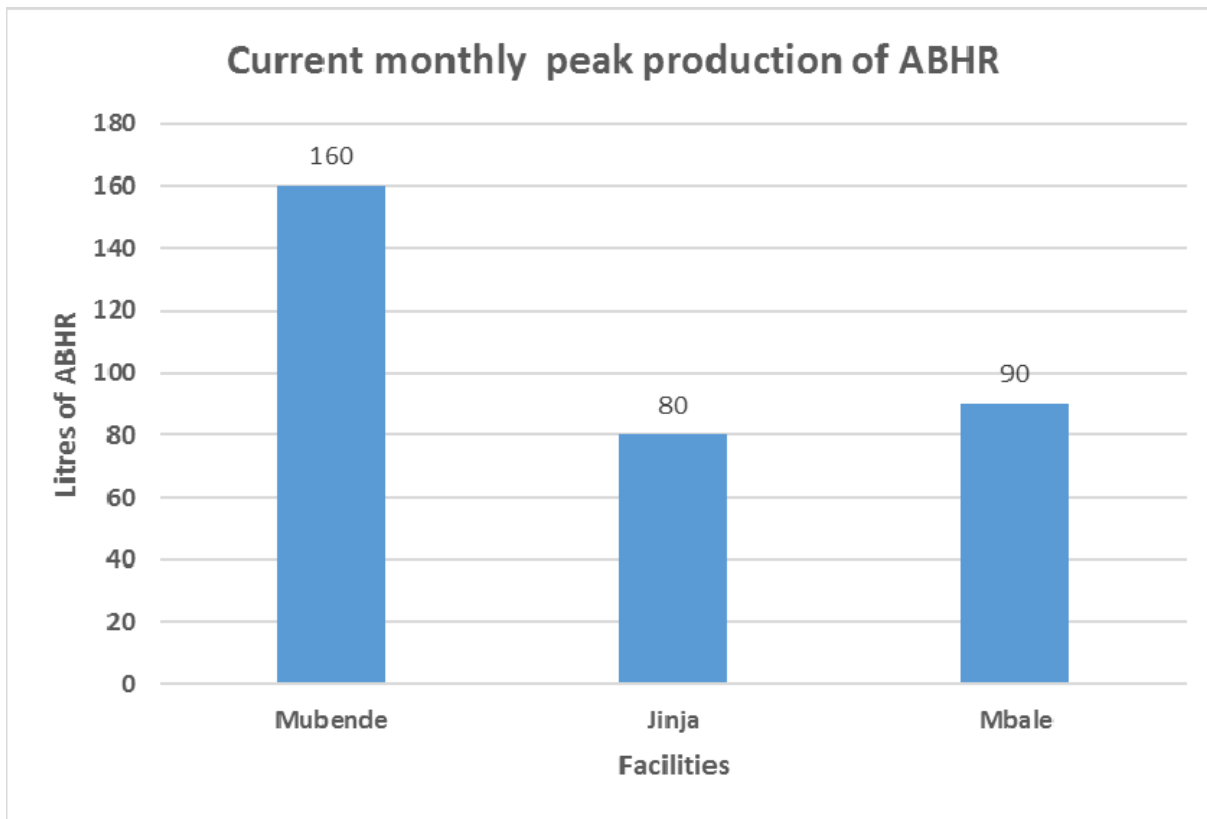
- Ethanol 96%
- Hydrogen peroxide 3%
- Glycerol 98%
- Sterile distilled or boiled cold water

Others:

- Mixing paddles,
Measuring cylinders
jugs,
- funnel
- *alcoholmeter*



Production capacity in Regional Referral Hospitals



Cost of production

Estimated at **\$3.7*** per liter VS **\$6.8** per liter of commercially prepared ABHR by Commercial supplier



Innovation:

- **Rapid detection of dangerous pathogens**

Multiplex PCR



- **Film Array**
- Rapid turnaround of results < 2hours
 - Blood culture ID, Meningitis panel, Diarrhea
 - Under validation: Global Fever Panel (Mubende and Arua)



- **MinION**
- Next generation sequencing



Innovation:

- **Competent, equipped stand-by team to conduct research for Ebola and Marburg**

Joint Mobile Emerging Intervention Clinical Capability

- Enhance clinical research for filoviruses in countries at risk of outbreaks to enable clinical trials to augment new drug applications for regulatory approvals.



NMRC

JPEO-CBD

WRAIR

USAMRIID



Infection prevention and biosafety



Vanishing ink...



Glove boxes to process blood tests...

Future: safer blood draws...self-collection?



Thank you