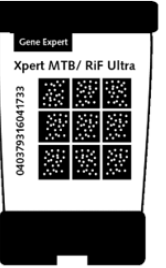




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# Webinar: The Nigerian Experience Operating GeneXpert in Challenging Settings

2 July 2024

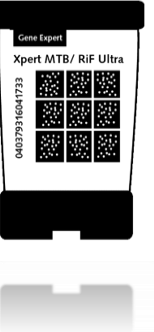




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# Webinar: The Nigerian Experience Operating GeneXpert in Challenging Settings



2 July 2024

Moderator: Dr. Jerod Scholten  
Senior Technical Consultant & Technical Advisor  
for the Nigeria Cepheid Authorized Service  
Provision project

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# Introduction



# Nigeria in a few numbers



- 219 million inhabitants in 2022
- Largest populated country in Africa
- High burden TB, TB/HIV & DR-TB country as defined by WHO
- Tuberculosis incidence rate: 219 per 100000 inhabitants (nearly 500,000 people in 2022)
- Treatment coverage has gone up from 20% to 70%, partially attributed to access to near POC mWRD methods being utilised
- HIV positive TB incidence rate: 13 per 100000 inhabitants (27,000 people with TB/HIV in 2022); DR-TB incidence rate: 5.6 per 100000 inhabitants (12,000 people with DR-TB in 2022)
- 36 states including the Federal Capital Territory; 774 local government areas (LGA), equivalent to districts.

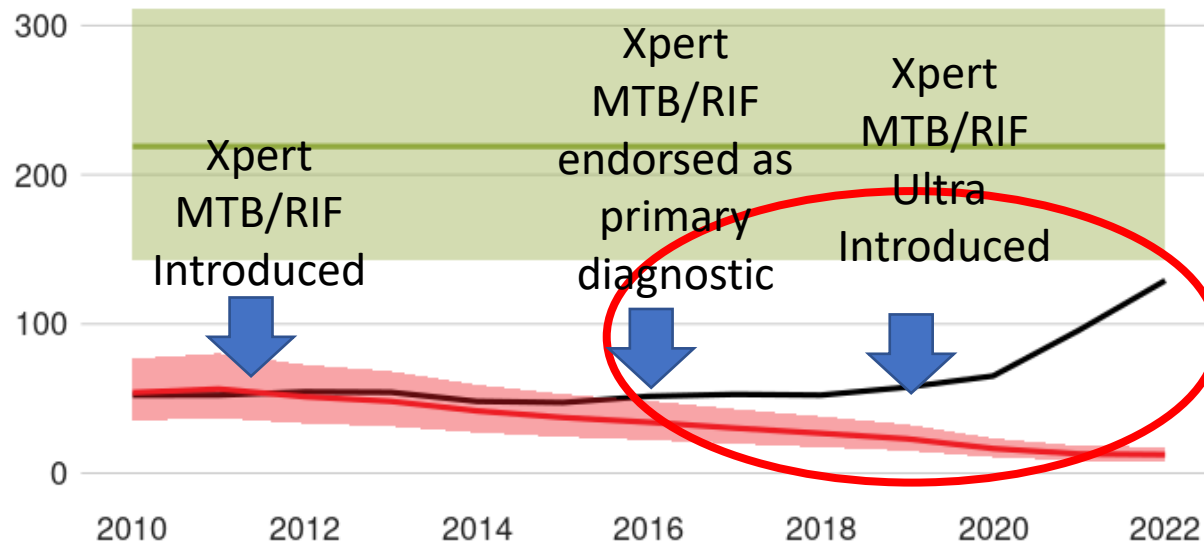
Source: WHO Global Report, Nigeria Country Report, 2023



# Increased treatment coverage (“case-detection”)

Incidence, New and relapse TB cases notified, HIV-positive TB incidence

(Rate per 100 000 population per year)



Source: WHO Global Report, Nigeria Country Report, 2023



# KNCV's Role in the fight against TB

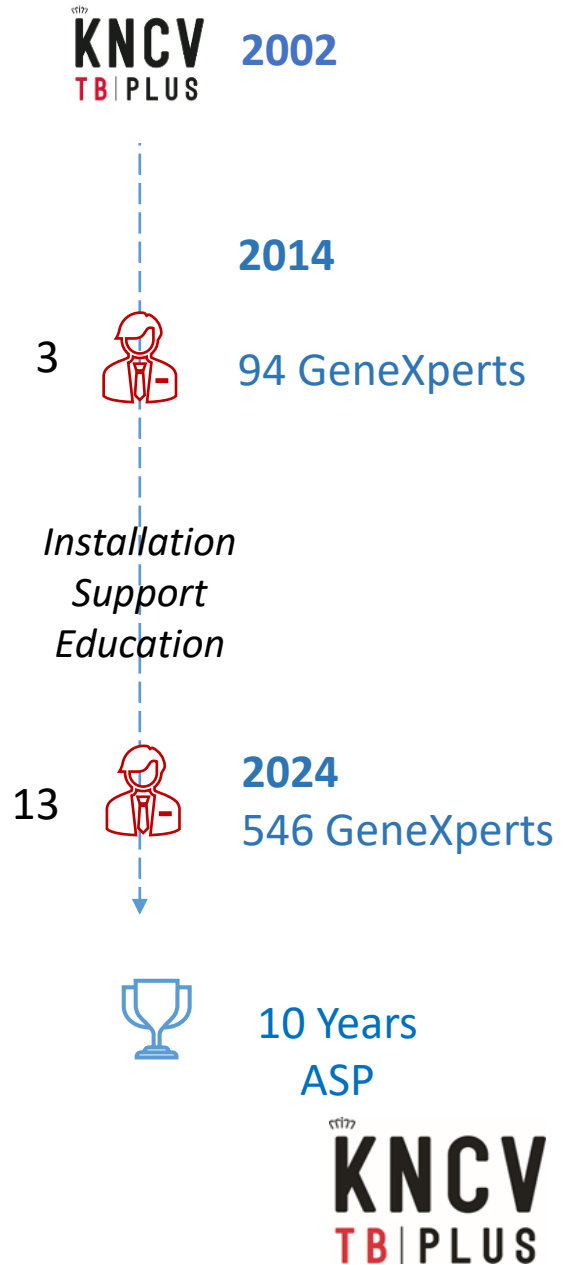
22 years of partnership with the TB program & more

KNCV began supporting Nigeria in the early 2000s to support USAID TBCTA TB flagship projects and subsequently in 2014 early implementation of GeneXpert for the Nigeria National Agency for the Control of AIDS (NACA) funded by the GFATM

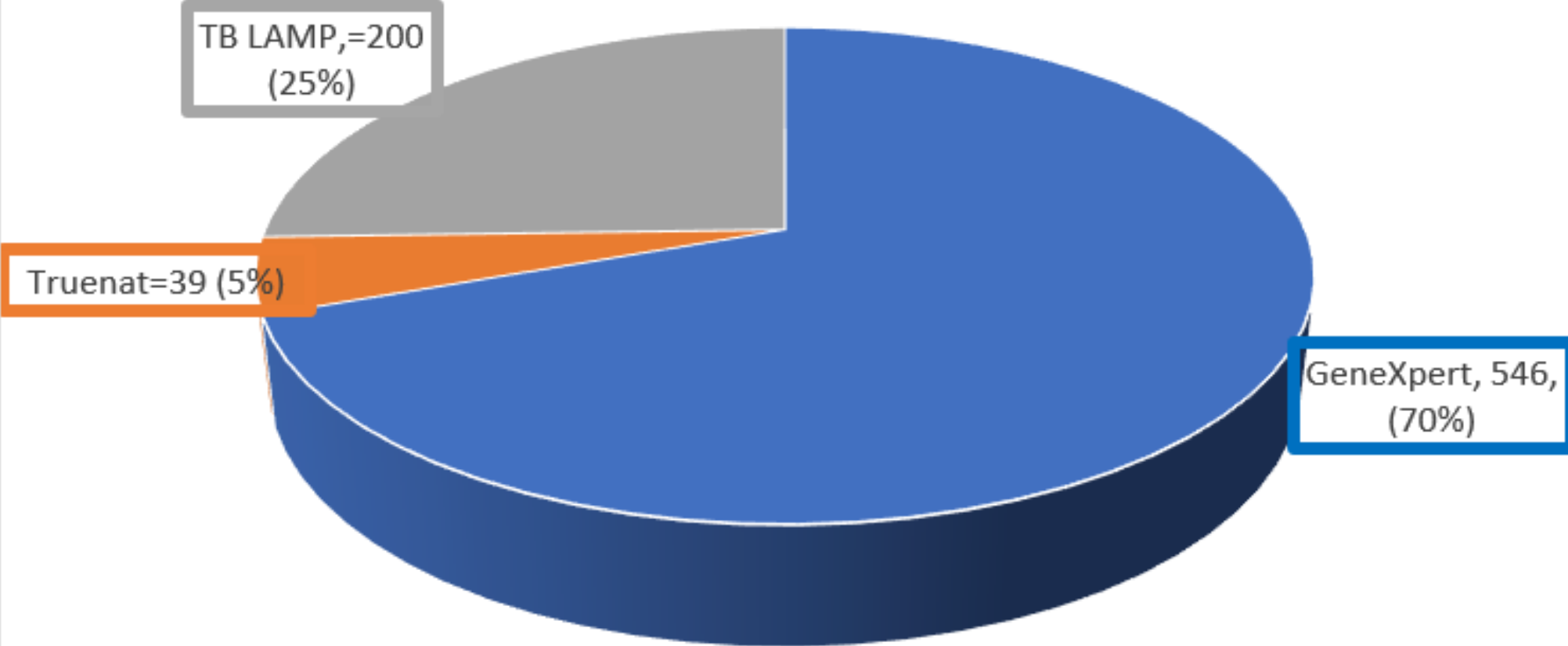
A decade ago, in July 2014, KNCV was announced as the Cepheid HBDC Authorized Service Provider to:

- Improve the use of the GeneXpert technology via education
- Reduce instrument downtimes

Deliveries
<b>Interface</b> regularly with over <b>1,150</b> users
<b>Expanded</b> super user network: 210 in 2024 vs. 120 in 2016
Specific educational programs provided over time for various assays including Ultra
Over <b>10 years</b> , thousands of preventative maintenances & modules replacement
A <b>shared responsibility</b> adopted by stakeholders within the country



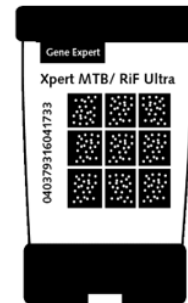
# Nigeria WHO Recommended Rapid Molecular Diagnostics - June 2024





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# The Nigerian Experience Operating GeneXpert in Challenging Settings



**Key Speaker:** Fehinti Prisca Ajiboye

*Director-Cepheid Project*

KNCV Tuberculosis Foundation, Nigeria branch office



# Diagnostic Network in Nigeria



- Access to testing using other diagnostics tools or sample transportation is available across LGAs
- Diagnostic Network Optimization (DNO) was conducted in 2022 has shown that integration with multiple stakeholders is more sustainable with shared costs
- 546 GeneXpert instruments are currently installed across 317 LGAs : 2531 modules (GXIV-535 and GXXVI- 11)





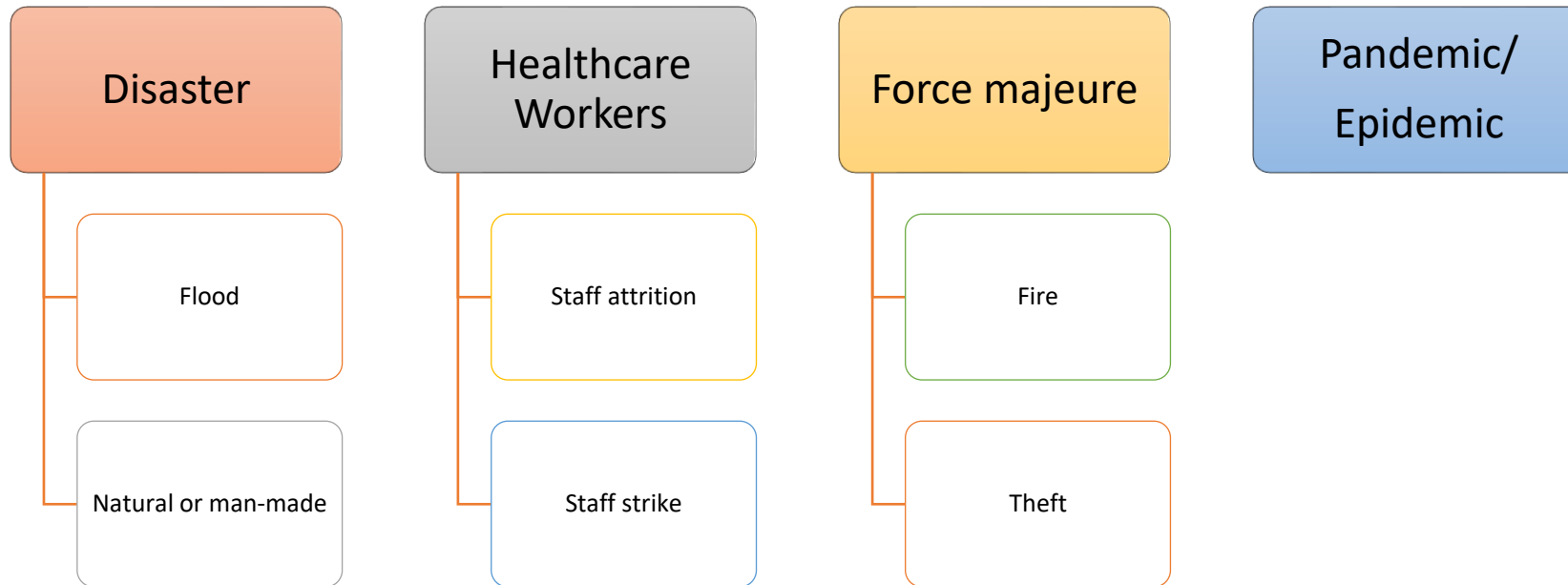
## Why Xpert integration?

- Cost-sharing to maximize utilization and reduce all-in cost per test
- Increasing access to devices at sites that would otherwise be unreachable due to the optimization of device placement across multiple programs
- Improved service delivery quality resulting from increasing and coordinating training and monitoring
- Increased negotiating power for lower Access care surcharge due to consolidated volumes across diseases
- Multiple programs leveraging on integrated data management, sample transport and supply chain systems creates cost savings as well as programmatic benefits

**Source:** Dr. Elom Emeka, Nigeria Federal Ministry of Health Department of Public Health,  
National TB, Leprosy & Buruli Ulcer Control Programme, Director, Medical Laboratory Services

# Non-controllable

*Impacting GeneXpert network operations*





## Flood effects

- Flooding of some GeneXpert facilities had caused a total breakdown in service at the site
- Flooding of the roads to the facilities had also affected the logistics of spares causing delay in swaps



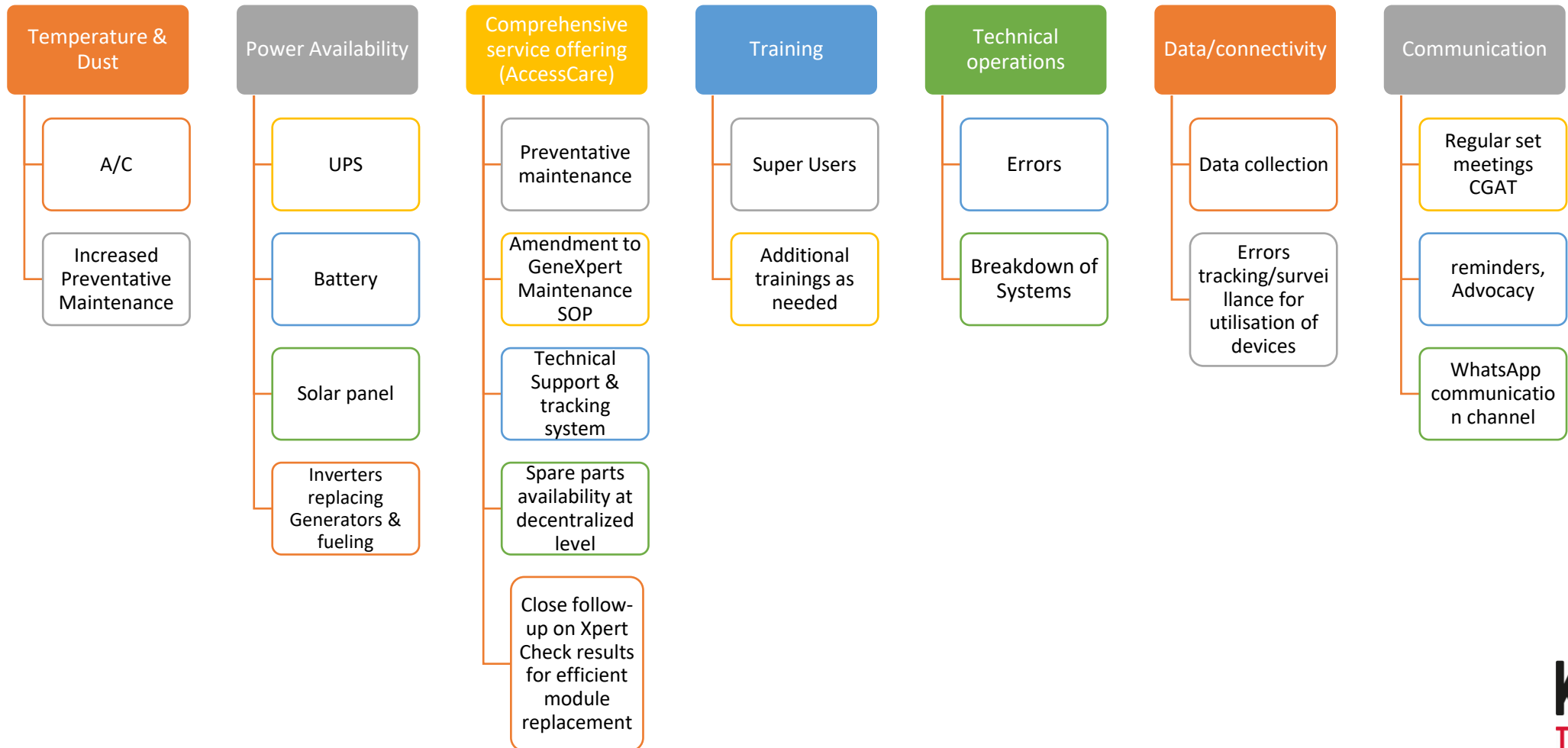


**Fire**



# Controllable

*Impacting GeneXpert network operations*





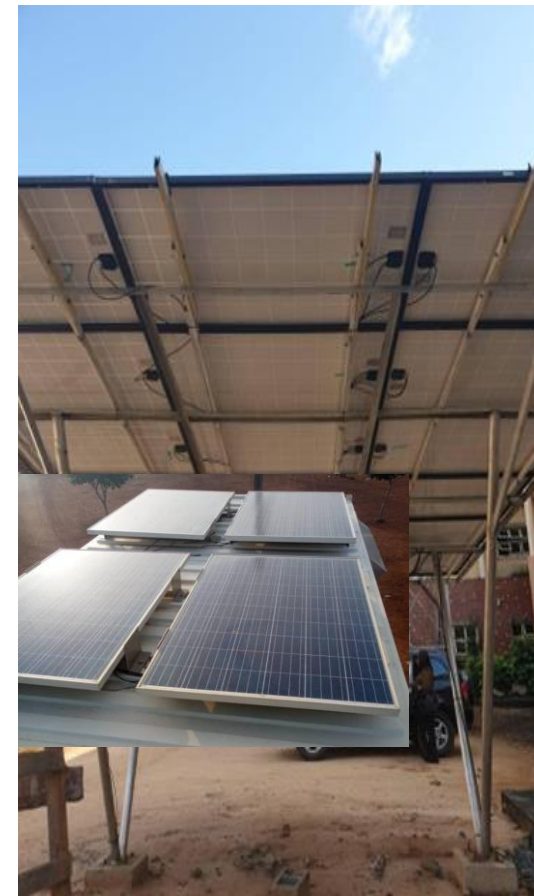
## Top 10 Challenges faced & solved in 2016

1. Stuck cartridges
2. Inability to import ADF
3. GeneXpert software corrupted (from use of USB)
4. Power instability
5. Communication loss error
6. Faulty cartridges
7. Sample processing errors
8. Errors/invalids generated above acceptable limit
9. Anti-virus software blocking modules
10. Modules/parts dead on arrival





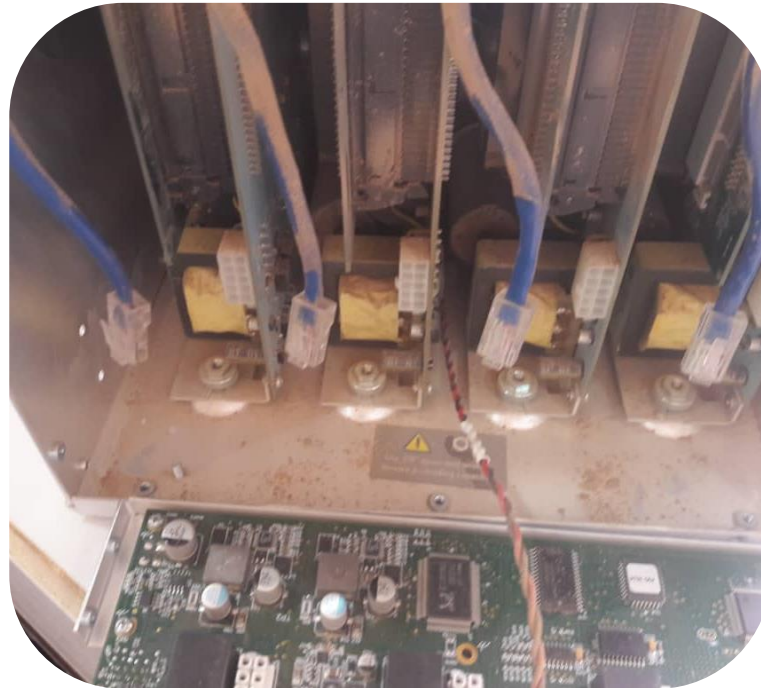
# Backup power plan







## Dusty instruments & computer





# Challenges per Geopolitical Zones

Geopolitical Zones	South Eastern Nigeria	South South Nigeria	North Central Nigeria	North West Nigeria	South West Nigeria	North East Nigeria
Challenges	-Sit at home -Under utilization	-Humidity -HR	-Communal clashes  - Staff attrition	-Dust -Heat	- Humidity -Accessories	-Humidity -Dust
Time of the year with peak breakdowns	January-May	May-September	Minimal breakdowns- All year	November-March	May – September	November-April
Possible solutions?	-Not under our control – security challenge -Advocacy for more utilization	-Clean more frequently - Work with govt. to provide HR	- -Not under our control – security challenge - Work with govt. to provide HR	-Clean more frequently -Control ambient temperatures	-Clean more frequently - Work with IPs to provide accessories	-Clean more frequently

Time of the year helps KNCV to allocate appropriately our maintenance activities



# Solutions that have worked

Inverters to replace Generators and fueling

Modification of SOPs for maintenance

Access care introduction

Technical support

Salesforce-Partners Community

Training and retraining

Super users constant training

Advocacies

Decentralized available spares

Insurance

Public Private Mix

## GENEXPERT PREVENTIVE MAINTENANCE FORM

NOTE: USER MUST FILL OUT FORM BEFORE AND AFTER EACH USE

LOCATION: \_\_\_\_\_ SERIAL No: \_\_\_\_\_ PART No: \_\_\_\_\_ MONTH: \_\_\_\_\_

Daily	Week 1	Week 2	Week 3	Week 4
Date				
1. Initialization of the computer system				
2. Barcode scanner beeps				
3. Check for availability of module 1,2,3 and 4				
4. Check for availability of module 2				
5. Check for availability of module 3				
6. Check for availability of module 4				
7. Encounter any problems with the Xpert system				
8. Remove cartridge				
Initial of user				
Weekly	Disinfect the cartridge bay( Initial/Sign/Date)			
	Re start Machine & computer			
		Disinfect the surface	Date /Initial of user	
		Disinfect the plunger	Date /Initial of user	
		Clean Instrument Filter		
Monthly	Archive & Back up Results			

Reviewed By (Name/Sign): \_\_\_\_\_ Date: \_\_\_\_\_

Form

Version 1





# Training/Retraining and Advocacy





## Stakeholders' collaboration

- KNCV formed the Country GeneXpert Advisory Team (CGAT)
- CGAT has a mandate to ensure the proper implementation, use of the GeneXpert technology; this body also addresses all the challenges for use and ensures solutions are practical and achievable
- Consisting of Programs, Implementing Partners, Public and Private customers that own the GeneXpert instrument
- Programs include: NTBLCP, NASCP, NACA
- Funders: CDC, USAID, Unitaid, UNICEF, The Global Fund
- Meetings are held quarterly when possible
- All issues around the use of GeneXpert are deliberated on and solutions provided and monitored



# Functionality of the GeneXpert Network: a shared responsibility



# Conclusion

- GeneXpert is a powerful diagnostic tool within the public health space in Nigeria especially now for integration
- Enhanced service and support (with comprehensive service deployed in Nigeria) as well as renewed education has made it possible to mitigate or even overcome a number of challenges
- To successfully operate the GeneXpert, innovative mitigation plans are necessary
- Collaboration with Programs and Ministries of Health is very important to achieve success





## Acknowledgements

- National Tuberculosis and Leprosy Control Program
- Cepheid HBDC team
- KNCV Tuberculosis Foundation
- KNCV/Cepheid Nigeria team
- Dedicated laboratorians and clinicians in the field

  
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