Day1 session 1.1- Mycobacterium tuberculosis NGS made easy: data analysis step-by-step -

We would like you to think for a couple of minutes about what you have heard. Also, we would like to assess the quality of our teaching in order to improve the quality of this training.Please name 1 to 3 things that you have learned so far and 1 to 3 that you have not fully understood. Thank you!

Day 1 Session - Overview of NGS technologies & TB specific NGS solutions - Webinar

(We might use these answers in our Q&A, if you want to leave us your name before your answer that is usually helpful)

Your name (optional) CHIOMA	Name 1 to 3 things that you have learned so far	Name 1 to 3 things that you have not fully understood
Shewki Moga	1. 11The overall principle of NGS 2. Similarities and differences between available sequencing platforms 3. The overall criteria for selecting lib prep kits and sequencing machine, as well as general application of sequencing technologies (Epi, phylogeny, drug resistance prediction and	1. The use of multiple instruments (to check for quality, quantity, size and integrity of DNA) might not be feasible or affordable. of these instruments, which one should we have in our lab. 2. Normalization of the library is very essential but does filtering out of very short or very long fragments affect our coverage.

	rarely for virulence detectiono	3. Is there a situation that sequencing quality could be compromised despite loading of good quality library for sequencing
Shoon Latt Cho Ni	1. Difference between WGS vs tNGS. 2. Common NGS platforms 3. Pros and cons of these platforms	More detailed about library preparation
Saidou MAHMOUDOU	1. The most common NGS platform	NA
Nazmi Mehmeti	I wanted to share what I've learned so far: 1. **NGS Workflow** 2. **Extraction of DNA** 3. **Methods to Extract DNA** 4. **Nanopore Sequencing vs. Illumina Sequencing** 5. **Mean Depth of Coverage** 6. **Sequencing vs. NGS** 7. **Target Sequencing vs. Whole Genome Sequencing** Looking forward to deepening my understanding and gaining more insights from this training program.	Can we use a combined method, for example, thermal and enzymatic, or is it sufficient to use just one method?

Caitlin Percy	WGS vs targeted NGS and different platforms available for sequencing. The throughputs and sequencing times were very interesting to me	When would you use a hybrid assembly to combine short and long read sequencing? Is this necessary or advantageous, in what setting?
Rumana Nasrin	The sequencing steps from wet lab part to the bioinformatics steps	Error rates between SRS and LRS.
	The NGS platform available for M. tuberculosis sequencing	How to minimize the carryover contamination from previous run in case of ONT
	The pros and cons of different NGS platforms	
Morrow Minteh	I have an overview understanding of what NGS is about	
	Also library preparation	
	Common NGS Platforms	I did not understand the principle on which work on
	Pros and Cons of each	
Halima Said	The different NGS platforms	How feasible is NGS as routine diagnostic method
	Pros and cons of each platform	Implementation of NGS in the TB algorithm
	The application of NGS for public and clinical management	
Hassan Ramadan Rajab	Different sequencing platforms, their advantages and disadvantages	NGS algorithm Understanding the quantity of library required for Illumina and output (reads)

	Differences between Whole Genome Sequencing and Targeted sequencing Application of Next Generation Sequencing (NGS) i	Library dilution for sequencing
Ilinca Memelis	The different platforms for NGS, their advantages and disadvantages and the chemistry behind them.	Is it more accurate if we perform both short and long reads sequencing?
	Differences between WGS and tNGS. The workflows of NGS.	How feasible would it be to implement NGS in LMICs?
I.D. Otchere	High concordance of NGS of MTBC with phenotypic DST. NGS helps to simultaneously determine susceptibility of an infecting MTBC to multiple drugs. Short turnaround time when using NGS for DST compared to phenotypic DST	NAP
Dejenie Shiferaw	The two major NGS approaches for sequencing of TB.: Targeted vs WGS	I have concern on the implementation of NGS for TB diagnostics in resource limited countries due to cost, data analysis challenge and other factors.
	The whole workflows in NGS steps: starting from DNA extraction to Data analysis	Due to the cost factor, do you think that only a targeted approach is enough for TB diagnostics in resource limited countries?
	The different platforms of	

	NGS; I appreciate the application of short read technology like illumina together with long read platform to get benefit from both platforms	
Jagadeeshwari Uppada	NGS platforms Targeted NGS in case of Mtb TB specific NGS solutions	Can we adapt a hybrid approach (using short read and long read) ? If so, what are the conditions when we have to choose it?
Zainab Kashim-Bello	1)The integrity of your extracted DNA is very important and can affect your sequencing output, if not done properly. 2)Different sequencing platforms have their different specifications peculiar to them	How can the cost of sequencing be reduced, so that more samples can be sequenced? because sometimes samples for sequencing are reduced due to cost and funds available for the Research
Daniel Mekonnen	The new point that I learn from this session is that, 1. Choice samples for targeted sequencing and WGS (direct sample Vs Culture) 2. The difference on the accuracy of sequencing quality between short and long read sequencing techniques) 3. The application of WGS for virulence study	1. I would like to learn more about the applications of NGS 2. I don't understand difference on number of samples run at a time 3. Highthroughpu nature
Binta Sarr-Kuyateh	I have learnt the differences between WGS	Elaborate more on short and long reads and error

	and tNGS, short and long reads and platforms available for NGS	rates
Theophilus Afum	1. The different platforms platforms for WGS and new to me is the BGI and MGI Tech 2. In-depth understanding of LRS and SRS (Advantages) 3. Also, the entire workflow for WGS and target sequencing was well explained.	1. A better understanding of the differences in error rate will be appreciated. 2. Practical examples of costs associated with each platform will have been good too.
Mebrat Ejo	Different types of NGS and workflow steps Application of NGS Short and long reads sequencing	Why are clinical samples not used for WGS? Comparison between traditional versus automated methods of DNA extraction to get quality DNA samples
Abdulla Bashein	1- Pros and cons of different NGS techs 2- Difference between short reads and long reads 3- NGS based TB workflows	Could you give us a list of kits that we can use on Illumina and ONT for M. tuberculosis drug resistance?
Justice Tresor NGOM NGOM	1- There are several platforms based on the length of the read, the number of batch samples, quality of reads and applicability in the field. 2- tNGS can be used at the point of care compared to WGS. 3-WGS	
Shamsuddeen Yusuf Ma'aruf	I learnt the following 1- differences between WGS and tNGS	n/a

	2- reads 3- and various platforms of NGS	
ADAMOU VELHIMA	1- NGS platforms 2- Different applications of NGS 3- Short and long reads sequencing	
Jeanne Crescence SONDI DISSAKE	1- Difference between LRS and SRS 2- The way to minimize the carryover contamination of previous study	1. For Microsatellites why not use the short read? 2. Is it possible to use minIon to target microsatellites markers?
Nneka Onyejepu	1. clinical specimen or culture can be used for targeted NGS while culture is used for . However enrichment approaches may better culture-free NGS. 2. The differences, advantages of Targeted NGS and WGS and application in drug resistance and surveillance. 3. Features of different NGS platforms and Quality control parameters to consider for NGS	1. Considerations for implementing NGS for clinical management of patients. 2. How to ensure good coverage of MTB genome when using Nanopore.
Saidi Namtanga	1.Overview of NGS 2. Difference between NGS and WGS	Can NGS able to detect coverage of Genexpert
Vanessa Falvo	NGS workflow and platforms LRS and SRD Targeted vs WGS Clinical relevance of TB NGS	na
Sofia Moraes	Pros and cons of different NGS platforms, workflow	na

	for gDNA extraction and library preparation, different NGS applications	
Nick Foster	Application of NGS and other platforms, and beginnings to WGS/ tNGS	Library preparation
Michellin Baje	1. Difference of WGS and tNGS and the advantages between them 2. Common NGS platforms 3. General process in performing WGS and tNGS	1. How to optimize library preparation if needed 2. Detailed techniques on how to check the quality and quantity of DNA 3. How to determine what to use for checking the quality and quantity of DNA
Michael Reigh Guevarra	1. The different sequencing technologies/platforms for NGS 2. ONT is more error-prone than Illumina 3. The difference between targeted vs WGS	The topic is well discussed. I was able to understand it well.
Ilaria Iannucci	1. Different available NGS platform and their features/applications 2. Advantages and disadvantages of long reads sequencing compared to short reads sequencing 3. Difference between tNGS and WGS and their relevance in TB monitoring/surveillance/treatment	

Souad Elmi	1. NGs technology 2. The difference between NGs and WGs BA based TB workflow. 3. Oxford Nanopore technology	NA
Alice Bontempi Bispo	1. NGS and its applications for research purposes and for clinical diagnosis 2. Differences between WGS and targeted and how to use both depending on your purpose 3. Long reads are not always as good as expected	For research purposes, doesn´t targeted sequencing gives us a bias? Isn´t always better to do WGS?
Juliana Maira Watanabe Pinhata	a. What is NGS b. Which are the NGS technologies available for TB c. Differences between t-NGS and WGS	I understood all the content.
Caitlin Williams	NGS platforms were discussed. Applications for targeted NGS and WGS.	N/A. I understood the content.
Taime Sylvester	Learned alot about the different platforms; throughput vs accuracy. BGI: nanoball - completely novel concept to me.	Nanoball sequencing is still a little difficult to understand how the sequencing is done. The other platforms/ chemistry is quite straightforward.
Kevim Bordignon Guterres	1-The different NGS platforms; 2-Pros and cons of each	What is the difference between the price when applying WGS or t-NGS on

	platform; 3- Differences between t-NGS and WGS.	20 samples? And 2000?
NAGALO Y André	1. The simple definition of NGS comparing to ancient method 2.The differences, between tNGS and WGS 3. clinical specimen or culture can be used for tNGS while culture is used for NGS.	1.The difference betweens the longs and short read generation 2.the mains for the principle of long and short reads generation 3. How are the libraries prepared?
Justice Ohene Amofa	1.Intense use Galaxy web application through the provided tutorials 2.Understanding on how to go about WGS and tNGS. 3.Common platforms of the two above.	Everything is fine.
Siti Ramli	1. SWOT of NGS platform for TB 2. Comparison tNGS and WGS 3. Application of NGS in drug resistant detection , genotyping and surveillance	1. Any studies done on WGS using clinical samples for TB DR detection 2. Any data /studies to be recommended on extraction methods for clinical samples for higher yield of DNA concentration to be used in NGSplatform 3. Any experience and opinion on Deeplex kit tested on culture as well as clinical samples.
Richard Ojedele	1. The overall principle of NGS 2. Similarities and differences between available sequencing platforms	non

	3. Difference between WGS vs tNGS	
Makonk Najah	1. Sequencing platforms: Illumina, Thermo Fisher scientific, BGI & MGI technology, Pacific Biosciences, ONT 2. Initial considerations in NGS solutions include volume of data, cost, read-length, turnaround time and sequencing technology. 3. SHort-read platforms provide higher quality of data compared to long-read platforms.	None
Buhari Yusuf	1. NGS and its various applications 2. Different NGS technologies and where LRS and SRS are more suitable 3. The promise of integrated patient-centered care through NGS	
Bernice T. Sekyere	1. Library preparation methodology 2. Different NGS applications 3. Comparison between short read and long read sequencing	Chemistry behind the sequencing technologies