



Module G08

Generic Foundational Course

Introduction to Data Sharing and Dissemination

NGS Academy for the Africa CDC

Module G08

Introduction to Data Sharing and Dissemination

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Module last updated:
December 2024

Number of sessions	2–3
Total learning time	8–10 hours
Target audience	All personas - wet laboratory personnel (i.e., scientists, laboratory technicians, etc.), dry laboratory personnel (epidemiologists, bioinformatics scientists, and bioinformaticians), and managerial personnel (i.e., HODs, laboratory managers, policymakers, etc.).
Format	Lectures, videos
Level of the module	Introductory



Contributors

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Module description

This module provides an introduction to the dissemination of genomic research results to different stakeholders, an important aspect of genomic epidemiology and pathogen surveillance research. Effective data dissemination can inform policy, enhance public engagement, and aid in engaging with researchers. In this module, participants are introduced to the following topics and/or concepts:

- The definition and purpose of dissemination
- Strategies for effective dissemination
- Optimising open data to support one health
- Best practices to ensure interoperability of genomic data
- Modes of data sharing to facilitate secondary use of biological data
- A framework for responsible sharing of genomic and health-related data
- WHO guiding principles for pathogen genome data sharing
- A pan-African pathogen genomics data sharing platform to support disease outbreaks
- FAIR+E pathogen data for surveillance and research: lessons from COVID-19
- Examples of dissemination products

- How narratives aid data visualisation
- Building and modifying narratives
- Different genomic data visualisation tools namely, NextStrain, MicrobeTrace, and UShER
- Visualisation of phylogenetic trees
- Public repositories commonly used for collecting and sharing pathogen genomic sequence data
- Communicating results using various narratives
- Presenting findings from NGS analyses
- Guidelines for writing outbreak investigation reports



Module learning outcomes

On completion of this module, the participants will have a basic understanding of, or will be able to:

- Define dissemination of surveillance data and its purpose
- Identify and discuss different strategies for effective data dissemination
- Develop a dissemination plan
- Explain how optimising open data can support one health
- Describe best practices to ensure interoperability of genomic data
- List modes of data sharing to facilitate the secondary use of biological data
- Discuss frameworks for responsible sharing of genomic and health-related data
- Explain the WHO guiding principles for pathogen genome data sharing
- Discuss the pan-African pathogen genomics data sharing platform
- Explain the key concepts of FAIR+E pathogen data for surveillance and research
- Explain the role of narratives in genomic epidemiology
- Explain the different genomic data visualisation resources and tools available
- Create a new narrative repository
- Modify an existing narrative
- Add static content and figures to a narrative
- Source their own builds from GitHub
- Curate an effective Nextstrain view
- Demonstrate how to visualise phylogenetic trees using UShER and Nextstrain to analyse and interpret the genetic relationships among pathogens
- Explain the role of public repositories like GISAID and NCBI/NLM in the collection, sharing, and analysis of pathogen genomic sequence data
- Describe how GISAID and NCBI/NLM contribute to global health surveillance and research
- Explain how to communicate results using different narratives
- Discuss guidelines for writing outbreak investigation reports



Recommended module(s) to follow after this module

[Module B7. Phylogenetics](#)



Module assessments

Module practical: Not applicable

Module quiz: Assessment questions available on the [ASLM platform](#)



Module resources

- [US CDC Video - Strategies for effective dissemination](#)
- [US CDC Article - Optimizing open data to support one health: best practices to ensure interoperability of genomic data from bacterial pathogens](#)
- [NIH | NLM Article - Multiple modes of data sharing can facilitate secondary use of sensitive health data for research](#)
- [GA4GH | Framework for responsible sharing of genomic and health-related data](#)
- [WHO guiding principles for pathogen genome data sharing](#)
- [Nature Medicine Article - A pan-African pathogen genomics data sharing platform to support disease outbreaks](#)
- [NIH | NLM Article - FAIR+E pathogen data for surveillance and research: lessons from COVID-19](#)
- [Nextstrain Narratives tutorial videos - Presenting genomic epidemiology data to inform policy with Nextstrain Narratives](#)
 - [How to write narratives](#)
- [US CDC COVID-19 Genomic Epidemiology Toolkit | Overview](#)
 - [Video - Getting started with Nextstrain](#)
 - [Video - Getting started with MicrobeTrace](#)
 - [Video - Real-time phylogenetics with UShER](#)
 - [Video - Walking through Nextstrain trees](#)
 - [Video - Public genome repositories for SARS-CoV-2](#)
- [Oxford Academic Article - Nextstrain: real-time tracking of pathogen evolution](#)
- [Nextstrain | Communicating scientific insights](#)
- [Bioinformatics Workbook | Data Visualization](#)
- [EDCDC | Guidelines for writing outbreak investigation reports](#)



References

- OpenAI. (2024). Gemini response on learning objectives for an introduction to data sharing and dissemination module. Retrieved July 29, 2024, from Gemini
- OpenAI. (2024). ChatGPT 4o mini response on learning objectives for an introduction to data sharing and dissemination module. Retrieved July 29, 2024, from ChatGPT
- OpenAI. (2024). Claude 3.5 Sonnet response on learning objectives for an introduction to data sharing and dissemination module. Retrieved July 29, 2024, from Claude
- OpenAI. (2024). Copilot response on learning objectives for an introduction to data sharing and dissemination module. Retrieved July 29, 2024, from Copilot



Acknowledgements

We would like to thank the following individuals, in alphabetical order of last name, for their valuable time and effort spent in designing (i.e., drafting, reviewing, and refining) this module: **Elizabeth Temiloluwa Akande, Temesgen Endalew, Siddiqah George, Carolina Matos, and Mohammed Ahmed Rameto.**

Furthermore, we would like to thank the following institutions, societies, journals, and individuals from whom we sourced open-access resources, used in this module:

Bioinformatics Workbook, BioMed Central Ltd, ELIXIR-CONVERGE WP9 Community, European Centre for Disease Prevention and Control, Frontiers in Public Health, Nature Medicine, National Institutes of Health | National Library of Medicine, Nextstrain, Oxford Academic, Springer Nature, The Global Alliance for Genomics and Health, United States Centers for Disease Control and Prevention, World Health Organization; Bright Adu, Wolmar Nyberg Åkerström, Krisandra Allen, Daniel Gyamfi Amoako, John Anderson, Kim Andrews, Trevor Bedford, Sidney Bell, Niklas Blomberg, Charlton Callender, Ellsworth Campbell, Jennifer Chang, Alan Christoffels, Isabel Cuesta, Fred Athanasius Dratibi, Russ Corbett-Detig, Amadou Diallo, George Githinji, Sushma Nagaraja Grellscheid, Nicksy Gumede, James Hadfield, Erik Hjerde, John Huddleston, Emma Hodcroft, Nestoras Karathanasis, Terje Klemetsen, Jover Lee, Victor Lin, Eddie Lulamba, Sello Makhubela, Placide Mbala-Kingebeni, Colin Megill, Gerald Mboowa, Themba Mutemaringa, Christopher Mvelase, Sarah Mwangi, Richard Neher, Aitana Neves, Ndodo Nnaemeka, Pascale Ondoa, Harris Onywera, Samuel Oyola, Ahmed Ogwel Ouma, Idowu Olawoye, Barney Potter, Nadim Rahman, Cornelius Roemer, David Salgado, Pavel Sagulenko, Andrew Severin, Thomas Sibley, Abdourahmane Sow, Tsaone Tamuhla, Yenew Kebede Tebeje, Sofonias Tessema, Nicki Tiffin, Jacques van Helden, Peter van Heusden, Zahra Waheed, Michael Wiegand, Pawel Zmora.

Last updated: December 2024