Collaboratory

grEPI | Global Repository of Epidemiological Parameters

Progress report: Product Development

31 March 2025

Epidemiological Parameters Community of Practice

World Health Organization | HUB Pandemic and Epidemic Intelligence

01 Welcome!

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02 EpiParameters

CoP updates

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Epidemiological Parameters

CoP Updates 2025

Past

Webinar	Collaboratory Summit 2025	PEI Innovation Forum
EpiScanner: Real-time Epidemic Scanner (FGV and Fiocruz)	Presentation on the Epi Parameter CoP and reference to grEPI in breakout sessions	Session 12: Fostering Cross-Community Collaboration to Advance Pandemic and Epidemic Intelligence
27 January 2025	19-21 March 2025	24 March 2025

Ongoing

Virtual consultations
Core WG: grEPI MVP
31 March & 24 April 2025

Upcoming

Virtual consultations	Webinar	Webinar	Virtual consultations
Core WG: grEPI MVP	Unravelling climate impacts on arboviral disease transmission (Robert Koch Institute)	Real-time tracking of pathogen evolution (Nexstrain)	Lessons learnt using the Mpox product (xMart) for parameter summaries
24 April 2025	April 2025	12 May 2025	June 2025

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Planned integrations

Monkeypox CoP global dashboard

Early edition of grEPI (xMart) was fully integrated into the WHO Mpox R Shiny dashboard.
Global Mpox Trends

Dengue and Other Arbovirus Analytics CoP

Planned work for this community to contribute dengue and other arbovirus parameters to the grEPI MVP.

Decision Support Simulator

The Decision Support Simulator will feature modelling scenarios for dengue and COVID-19. The intention is to have parameters from grEPI MVP feeding directly into this tool.

Influenza H5N1 Modelling CoP

Planned work for this forthcoming community to contribute parameters to the grEPI MVP.

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Strategic scoping

Type of Product	Purpose of Product	Ownership of Product
In-house software product; developed (DB, API, GUI), hosted and maintained by the WHO	Digital Public Good (DPG) for health – Global Repository of Epidemiological Parameters	WHO-owned (proprietary) product, not open-source, under Collaboratory Initiative

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Minimum Viable Product (MVP) scoping

WHO?	WHERE?	HOW?
Person / system allowed to insert data	Relational Database	Data import features
- Roles / Permissions - Client credentials (API)	- Reference data - Entities - Relations / Cardinality - Views	- grEPI API - Integration Services - Other methods (e.g., UI)
WHAT?	**WHY?**	**WHEN?**
Data extracted from reviewed literature	Public global repo of extracted data	No pending prerequisites
- Data Dictionary - Data Model - Reference data from external sources	- Data view / Data search - Data export - Data visualisation	- Infrastructure for grEPI - grEPI MVP - Data migration scripts

Requirements/Features/Development

- Relational database including separation per “literature type” + quote by line number , page....
- Reference data from other sources (REFMART, ICD11, WHO GIS Hub,...)
- Pathogen-related data not in ICD11
- Migration scripts
- User Interface – view, search, export
- Accreditation for extractors - we need to say where we got extracted data from
- Data visualisation - good ways of summarizing (dashboards) -> consult academia
- Comment fields / discussion on parameters
- Deduplication/Data quality check / Administration / Moderations
- API endpoints (GET data, PATCH?, delete not possible))
- Versioning of entries
- Upload single parameter
- Roles and permissions
- Audit of all changes and user actions

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03 grEPI

Solution Architecture

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Solution Architecture

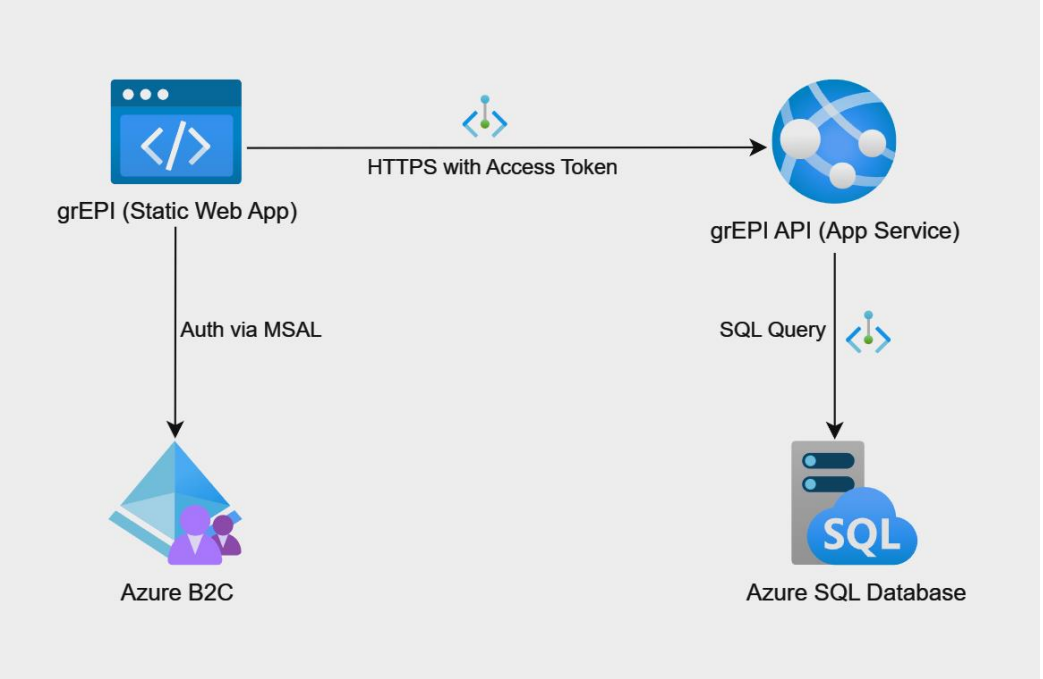
Components:

1. Angular 18 App (Static Web App)
    - Frontend hosted as a static web app.
    - Communicates securely over HTTPS.
    - Uses MSAL.js for authentication via Azure AD B2C.
    - Secured with a Private Endpoint and exposed via Application Gateway

2. Azure App Service API
    - Backend API hosted on Azure.
    - Secured with a private endpoint.
    - Uses Microsoft Identity Web for Authentication and Authorization
    - Queries the database securely using a private link.

3. Azure AD B2C (Authentication)
    - Manages authentication and authorization.
    - Supports secure authentication via MSAL.js and Microsoft Identity Web.

4. Azure SQL Database
    - Stores application data securely.
    - Accessed via a private endpoint.



04 grEPI

Overview and demo

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05 grEPI

MVP Roadmap 2025

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MVP roadmap 2025

Q1 2025

MVP Development Iteration 1

grEPI MVP prototype v1

Major outcomes:

- Infrastructure: User Acceptance Test (UAT) environment hosted on WHO cloud infrastructure -> temp URL: https://collab-forum-test.who.int:4433/
- Relational database v2 implemented + history of changes
- API v2 implemented
- Graphical User Interface: 58 use cases fully implemented (Common + Reference data module)
- Documentation and Test Plan

Q2 2025

MVP Development Iteration 2

grEPI MVP prototype v2

Expected major outcomes:

- Infrastructure: Development (DEV) environment hosted on WHO cloud infrastructure
- Infrastructure: User Acceptance Test (UAT) environment -> final URL
- Relational database v4 implemented
- API v4 implemented
- Graphical User Interface: Epi Parameter estimate CRU - static and dynamic parts + versioning
- Requirements + GIS standard

Q3 2025

MVP Development Iteration 3

grEPI MVP prototype v3

Expected major outcomes:

- Linked entities (Articles, Models, Observational studies, etc)
- GIS data
- Roles and Permissions
- API public GET endpoint(s)
- API private POST endpoint(s)
- Commenting on epidemiological parameter estimates
- Accreditations

Q4 2025

MVP go-live readiness

grEPI MVP

Expected major outcomes:

- Infrastructure: Production (PROD) environment hosted on WHO cloud infrastructure
- Data migration / Import
- User Acceptance Testing
- Terms and Conditions of Use
- Change and release management

06 Q&A

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07 Next steps

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Next steps

Share your feedback
and
help us clarify outstanding points

https://collab-forum.who.int/forum/t/feedback-on-grepi-mvp-iteration-1-prototype/1531

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Thank you!

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