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Web-based data management system to support surveillance of Molecular Epidemiology Influenza A in Bali, Indonesia

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Introduction

The Molecular Epidemiology of Influenza A in Bali project (“BaliMEI”) aims to conduct five years of active surveillance and characterisation of influenza A among patients presenting with influenza-like illness to health facilities across Bali. The BaliMEI web-based data management system (balimei.ui.ac.id) is developed to manage data and to allow relevant access by different users who involved in this project.

Methods

The database is entered and uploaded into a secured university intranet system.

The web-based system uses SQL language, MySQL DBMS for managing data, and PHPMyAdmin for Graphical User Interface. The system is bilingual and provides case distribution in a map. All information can be downloaded in a professional report format.

System Privileges

1) Simple and convenient data entry and system operation, accommodating users with minimal computing skills and basic equipment.

2) Storing, organizing, and maintaining a central repository for all research data coming from various types of questionnaires, surveys and laboratory tests.

3) Continuously checking and verifying data integrity, quality, correctness and completeness, as well as alerting data enterer about incomplete/multiple data entries.

4) Allowing export of data in excel format for statistical analysis.

5) Maintaining several levels of confidentiality, security and privileges due to the data complexity and multi-country collaboration.

6) Administering monthly and annual project reports.

7) Capable of directly printing the reports in and presenting the data in a clear and concise format.

8) Accessible over the internet 24 hours a day in Bahasa Indonesia and English.

Results and Discussion

Currently 456 ILI cases have been inputted to the web database for 1 year. The system is served as disease surveillance which informed researchers, local health authorities, and international collaborators the current location and time distribution of influenza A (pandemic H1N1 and seasonal H3N2), and influenza B. This system is currently used by the local health authorities to monitor potential animal-human transmission of influenza cases and outbreaks on poultry in several districts. The web database system is being integrated to Indonesia’s Ministry of Health influenza disease registry. A video guideline for the BaliMEI web-based can be found on YouTube (http://www.youtube.com/watch?v=d67Py-o_Ea4).

Acknowledgement

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Project Collaborators

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1. Bilingual
2. Bali Province Map
3. Graphics of Cases Distribution
4. Pie Chart of positive Influenza A & B
5. Download data
6. Download map
7. Print monthly report