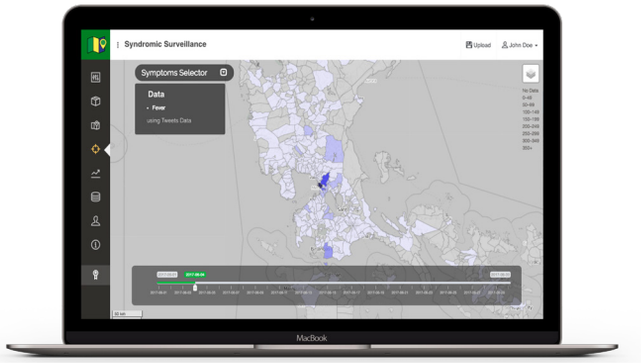
ABOUT FASSSTER



FASSSTER is a web application for creating disease models for Dengue Fever, Typhoid Fever and Measles, and for visualizing syndromic surveillance reports through a spatio-temporal map.

Sources of anonymized data integrated with FASSSTER include Electronic Medical Records (iClinicSys and SHINE OS+), Philippine Integrated Surveillance and Response (PIDSR) System, Twitter, and Advanced Science and Technology Institute (ASTI) weather data.

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FASSSTER

Feasibility Analysis of Syndromic Surveillance Using a Spatio-Temporal Epidemiological Modeler For Early Detection of Diseases

PARTNERSHIP

Ateneo de Manila University developed FASSSTER in partnership with the Department of Health (DOH) and the Department of Science and Technology – Philippine Council for Health Research and Development (DOST-PCHRD) to complement the disease surveillance programs implemented by the DOH.

DOST-PCHRD

DISEASE MODELING

Disease models are developed using IBM's Spatio-Temporal Epidemiological Modeler (STEM). The STEM application follows the compartmental model approach which reflects the actual and the forecasted number of individuals classified under different disease states (e.g. Susceptible, Exposed, Infectious, and Recovered) at a given point in time.

A disease model is created by building different STEM components such as initializers (initial number of people infected with the disease), schedulers (time period for forecasting of number of cases), population, and geographic models. Once the components are set up, disease-specific indices (e.g. vector birth rate, infectious to carrier progression rate) are derived and applied from records of the Philippine Health Statistics and the Philippine Integrated Disease Surveillance and Response (PIDSR) system.

When a disease model is developed using the STEM application, it is uploaded, viewed, and modified through the FASSSTER web application (fassster.ehealth.ph).

CONTENTS OF THE WEB APPLICATION

DASHBOARD

FASSSTER's dashboard features historical trends of Dengue, Typhoid Fever, Measles, and related symptoms. The dashboard was designed with the assistance of a Department of Health Regional Office.

SPATIO-TEMPORAL EPIDEMIOLOGICAL MODELER (STEM) MAP FORECASTING

By uploading the disease models created in IBM's STEM to FASSSTER's web application, forecasted number of cases of three diseases are visualized through a spatio-temporal map.

SYNDROMIC SURVEILLANCE VISUALIZATION

FASSSTER's syndromic surveillance allows for visualization of the actual number of cases of Dengue, Typhoid Fever, Measles, and related symptoms through a spatio-temporal map. Cases may be filtered depending on data source (e.g. Electronic Medical Records, Twitter), age, sex, blood type, blood pressure, body mass index, and the year when a certain case is documented. In addition, the system allows for visualization of anonymized tweets when Twitter is the preferred data source.

DATA REPORTS

Using the data from the PIDSR system, FASSSTER generates reports (e.g. mortality, case fatality rate) on summary of notifiable diseases or syndromes filtered depending on the region, province, municipality/city, duration, and morbidity week.