A WEB-BASED DENGUE MONITORING SYSTEM FOR JAFFNA DISTRICT

Nirthika R.[1], Ramanan A.[1] and Gajapathy K.[2]

[1]Department of Computer Science, University of Jaffna, [2]Department of Zoology, University of Jaffna

nirthika.rajendran@gmail.com

Abstract

Dengue is the most prevalent mosquito-borne viral disease among humans, spread rapidly among people living in most of the districts of Sri Lanka. Early recognition of an outbreak supports the health officers to plan pre-emptive measures. However, there is no automated dengue surveillance system in Sri Lanka to notify and prevent these kind of communicable diseases.

In this work, we focus on the Northern region and propose a web-based model for data entry notification process. The risk factors for dengue is also analyzed to produce a prediction of outbreaks.

In contrast, a gap analysis was conducted to develop an automated system, with the help of previous related researches, Northern regional health officers and medical doctors of Jaffna Teaching Hospital.
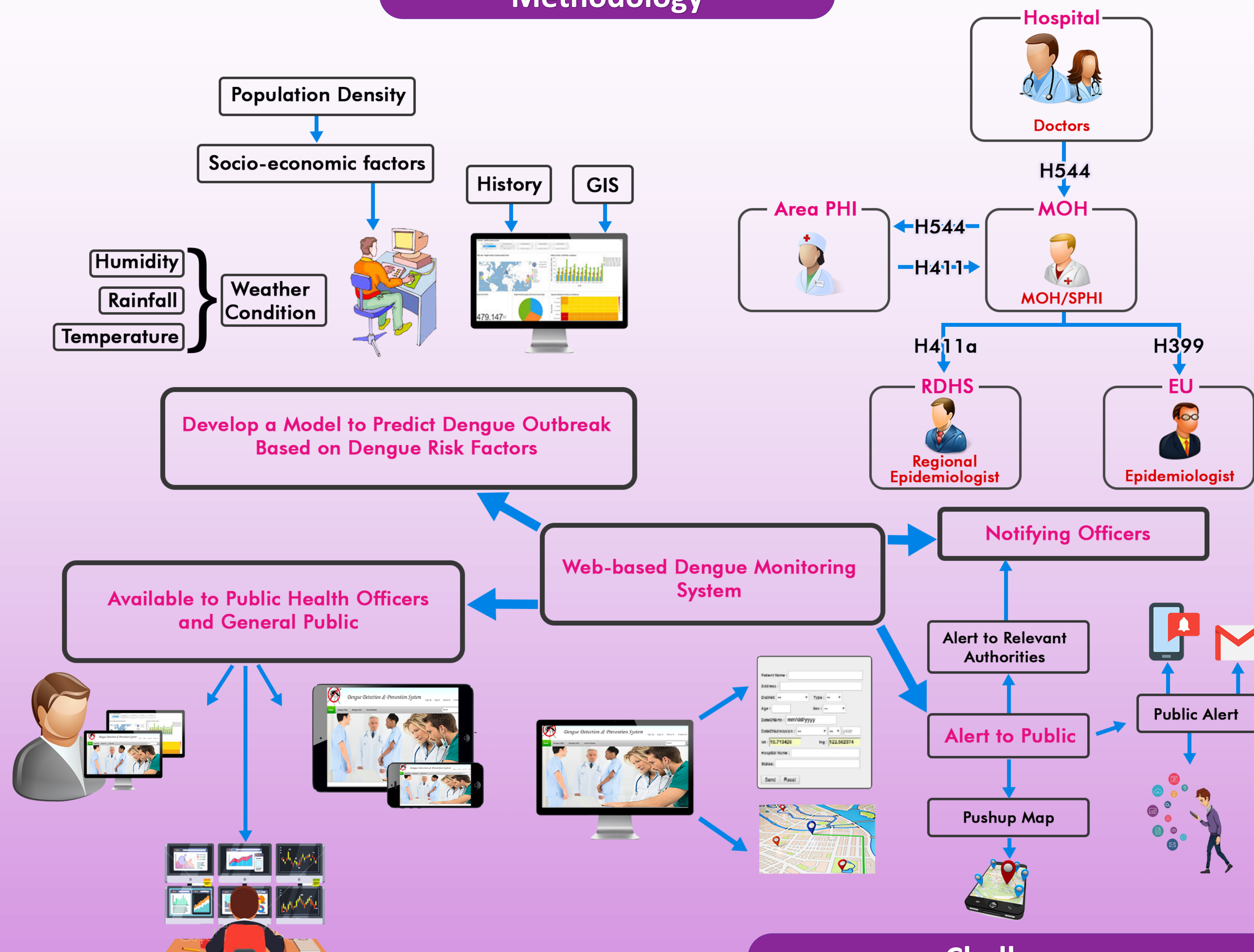
Objective

- To identify specific factors that influence the information flow in the notification process of existing manual notifiable disease surveillance system at different levels, such as completeness, timeliness, sensitivity, etc.
- To speed-up the monitoring and prevention of dengue cases in the Jaffna district via a web-based intelligent system.

Roles

- **MOH** – Medical Officer of Health
- **PHI** – Public Health Inspector
- **SPHI** – Supervising Public Health Inspector
- **RDHS** – Regional Directorate of Health Services
- **EU** – Epidemiological Unit

Methodology

Notification Transition

- Doctor → MOH : Using **H544** (Notification of Communicable Disease form)
- PHI → MOH : Using **H411** (Communicable Disease Report - Part I)
- MOH → RDHS : Using **H399** (Weekly Return of Communicable Diseases (WRCD) form) weekly
- MOH → EU : Using **H411a** (Communicable Disease Report - Part II) weekly

Challenges

Monitoring System
- Make a bridge in the gap of each roles.
- Missing notification from private and indigenous medical officers.
- Lack of usage of an automated system

Controlling
- Influence of the risk factors such as
  - ✓ Urbanization/development
  - ✓ Sewerage system
  - ✓ Living conditions
  - ✓ Medical facilities

Advantages

- Active surveillance
- Reduction of missing notifications and can include laboratory findings in the notification process.
- Centralized data under a point of control.
- Reduce time to notify and prevent action (expecting within two days).
- Solution for the existing manual process.
- Include all responsible roles into one system.
- Summary of data and prediction will be effective.

Future Work

The prediction module needs to be analyze and select the appropriate prediction model for all other factors such as humidity, rainfall, population density, etc.

References

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