Learning from Tweets: Opportunities and Challenges to Inform Policy Making During Dengue Epidemic
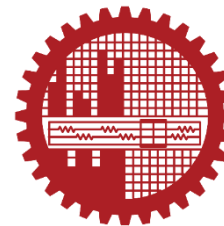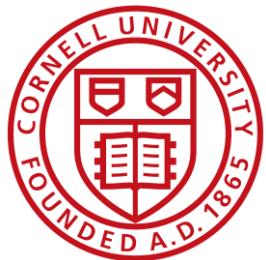
Farhana Shahid
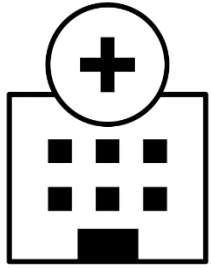Aditya Vashistha

Shahinul Hoque Ony
Takrim Rahman Albi

A. B. M. Alim Al Islam

Sriram Chellappan
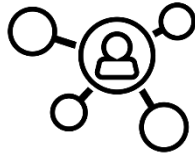
Epidemic within low-resource communities
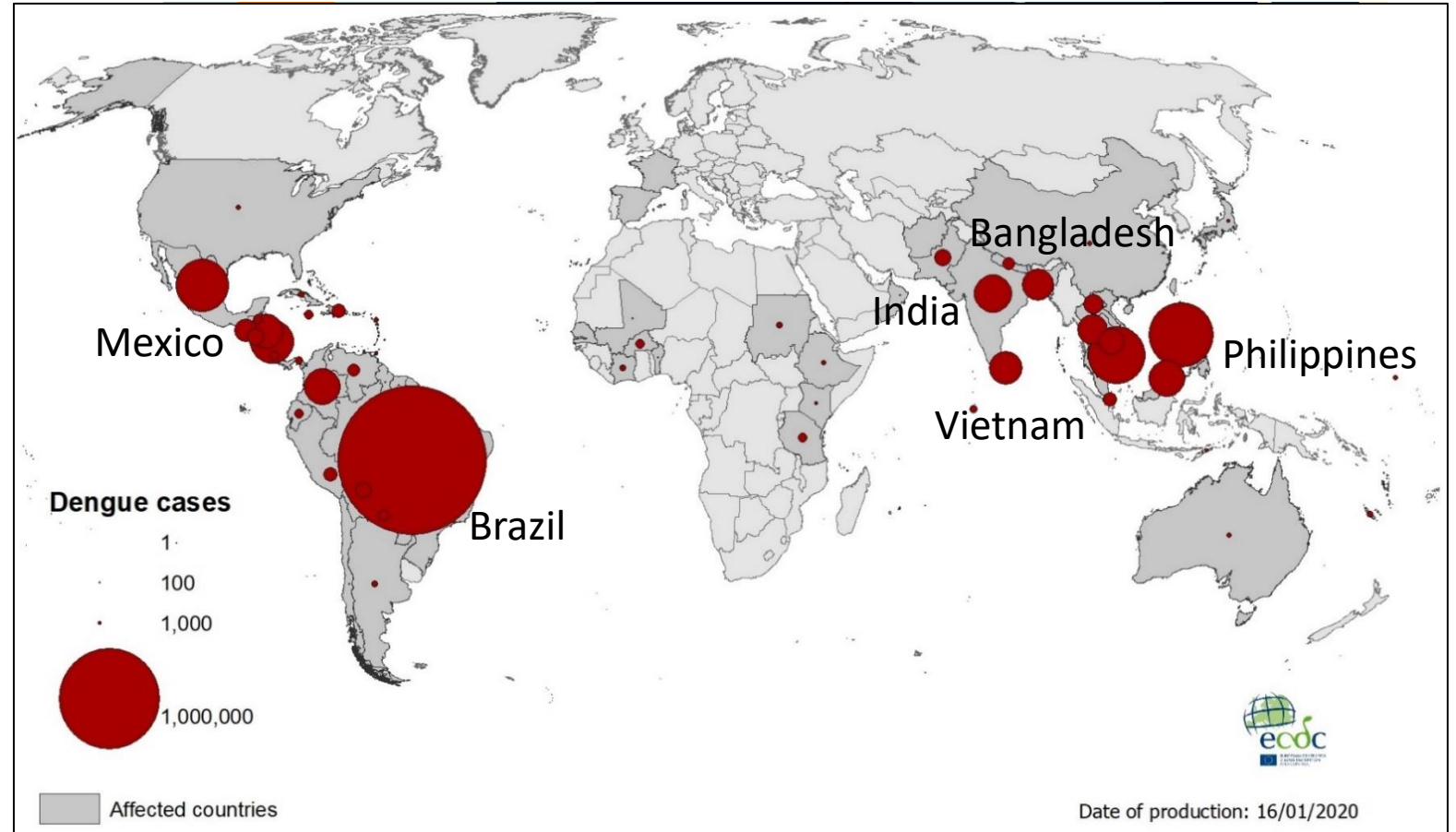

Poor government infrastructure

Poor access to data

Low Internet penetration
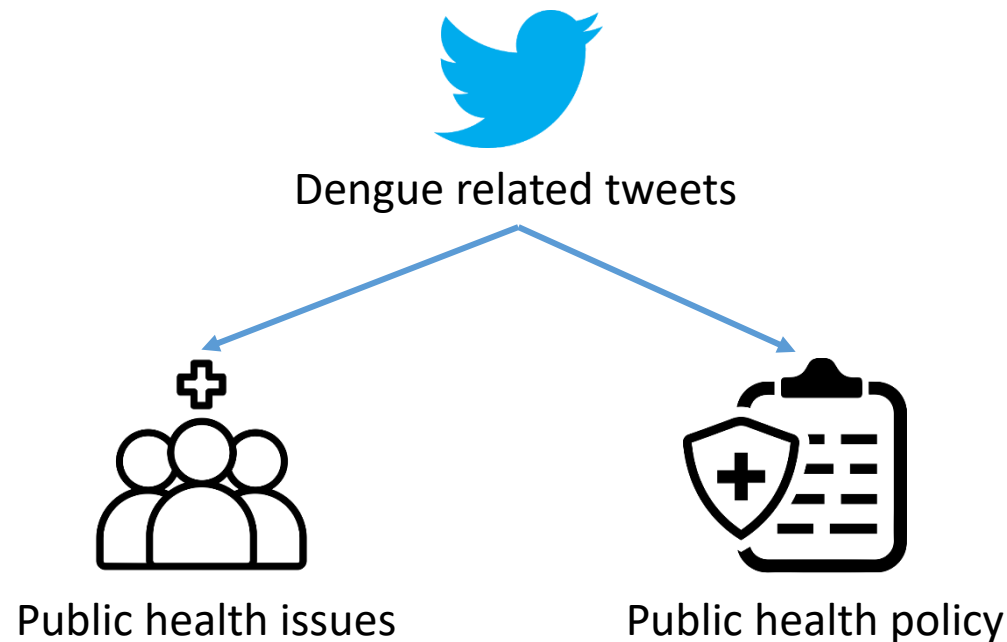
Low adoption of social media

4.2 Million dengue cases in 2019!

Research Questions

RQ1: What can dengue related tweets reliably tell us about the public health issues in Bangladesh?

RQ2: How Twitter data can guide public health policy for dengue epidemic in Bangladesh?

Dengue related tweets

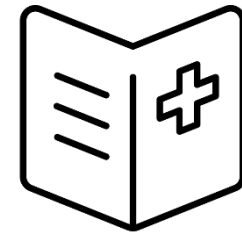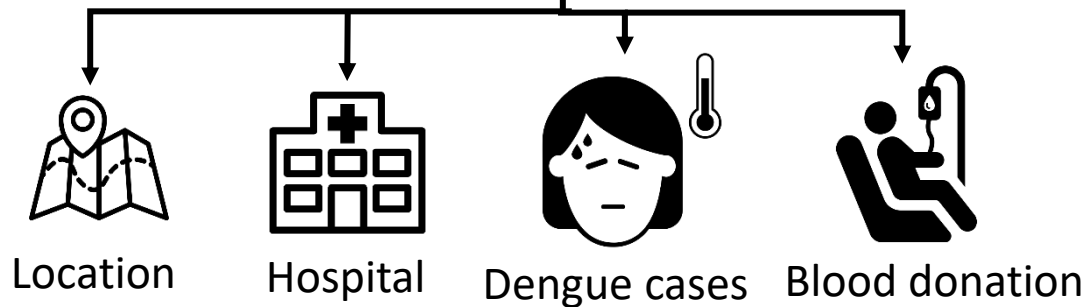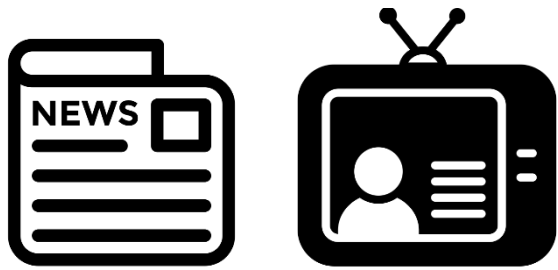Public health issues   Public health policy

Methodology

28k Dengue related tweets

Biterm topic model

Public conversation around dengue

Dengue related data from government reports

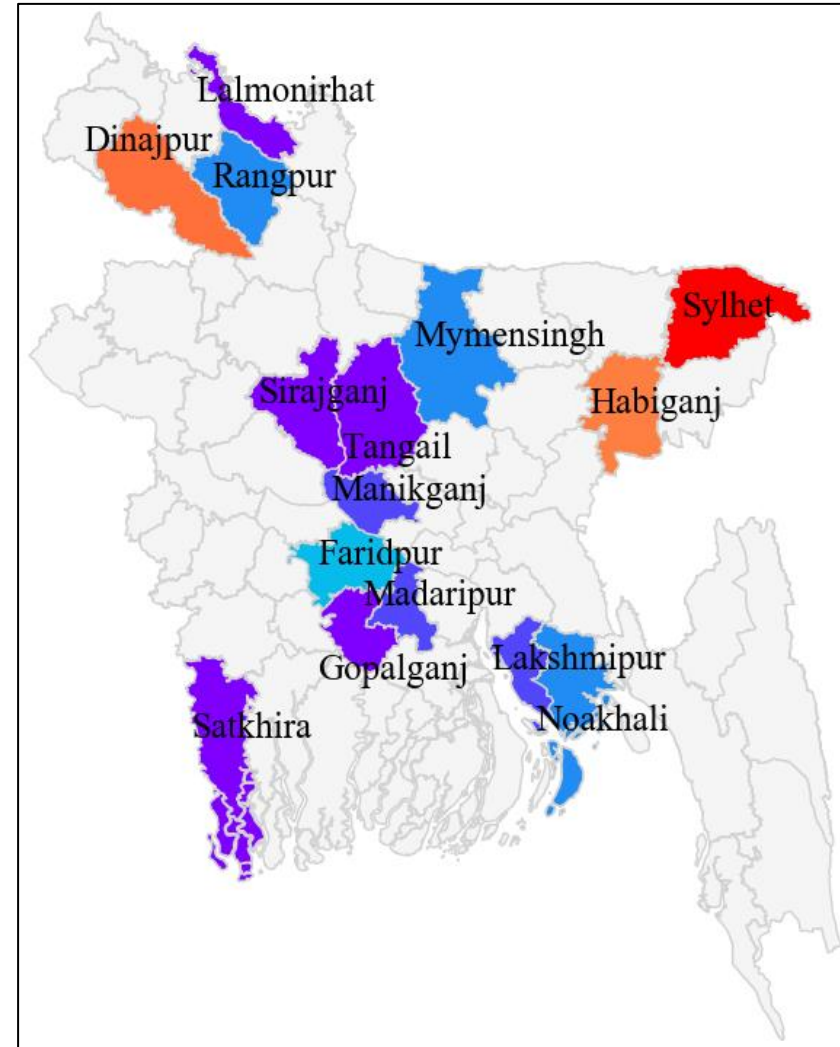Location   Hospital   Dengue cases   Blood donation
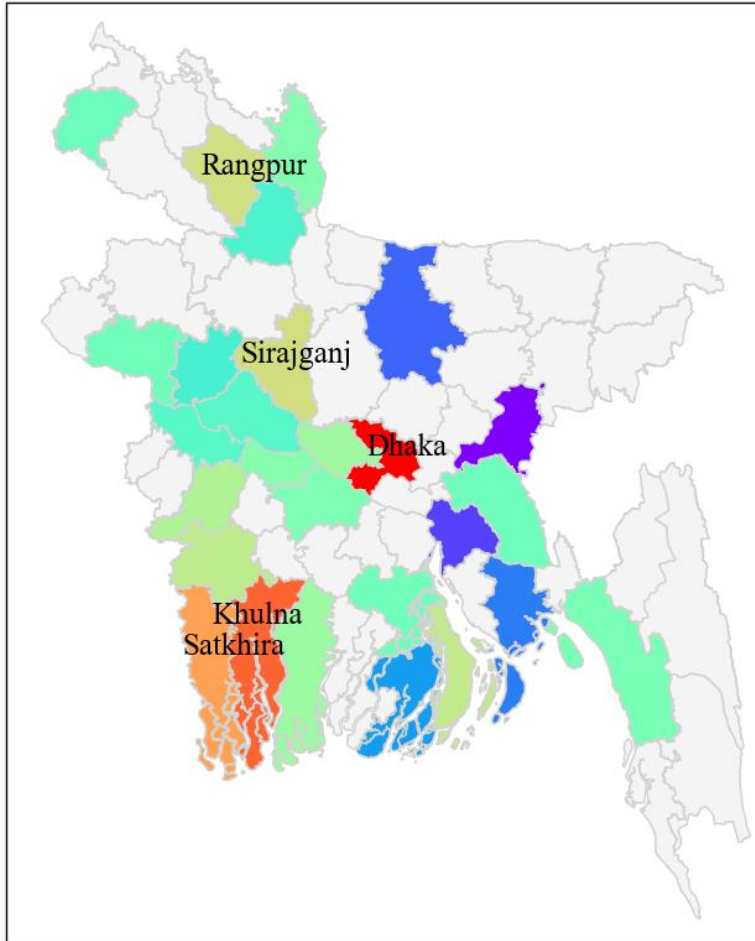
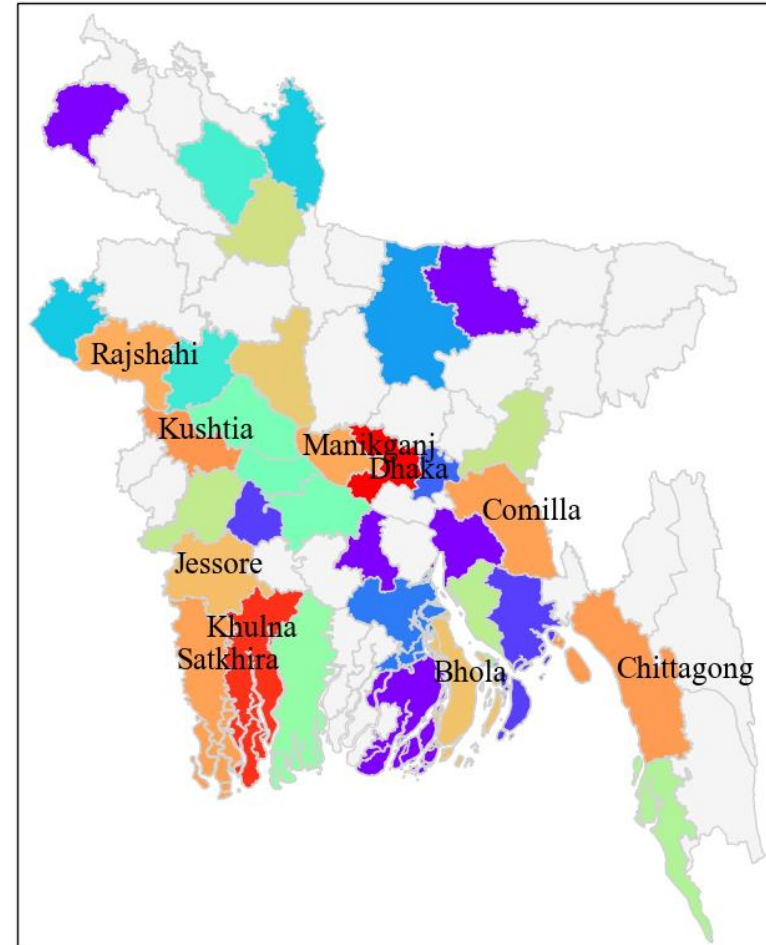# Shortcomings in Government Health Reports

Local news and print media

Higher cases of dengue in these areas as per tweets compared to government reports

High-transmission during Eid

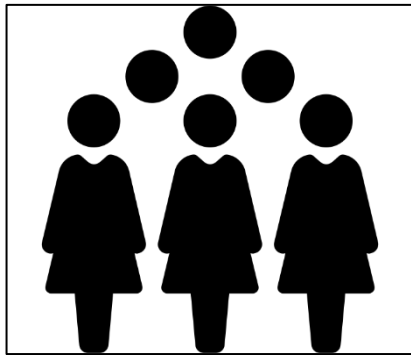Significantly greater cases of dengue after Eid-ul-Adha!
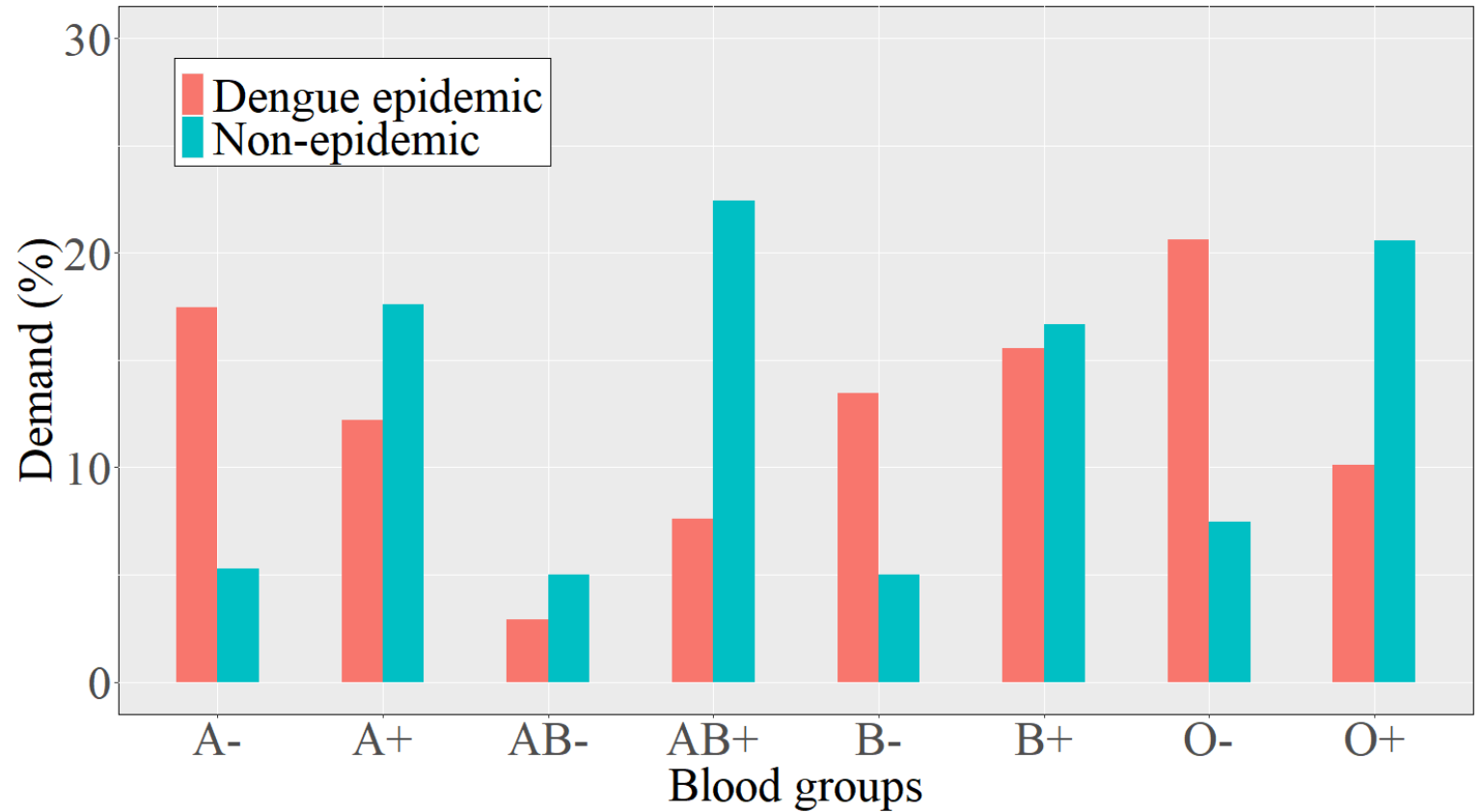

Dengue cases 1 week before Eid

Dengue cases 1 week after Eid
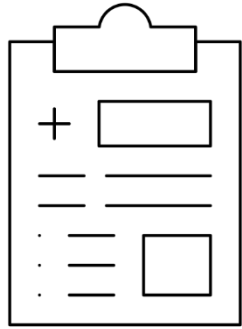
Gendered Effects and Blood Demands

Women died more of dengue than men

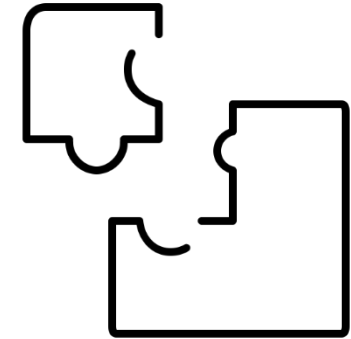Significantly greater demand for Rh- blood groups during dengue epidemic

Better Monitoring and Projections
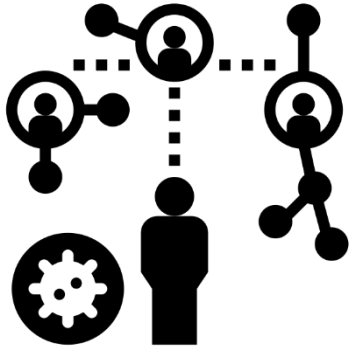

Shortcomings in government health records

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Verified information from trusted news sources

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Cases of infection in remote areas of the country

Actionable Insights for Policy
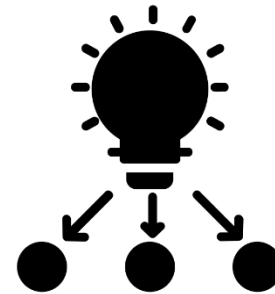

Disease spread during Eid

Destroy Aedes at transportation hubs

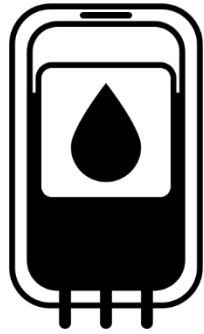Raise awareness to discourage infected people to travel
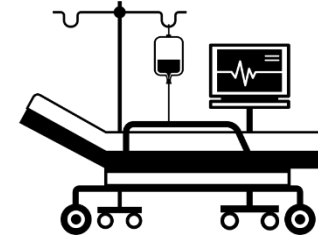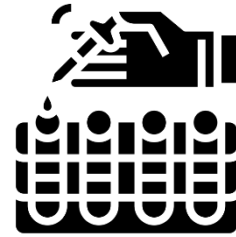

Highly infected areas

Reallocate limited resources to highly infected areas
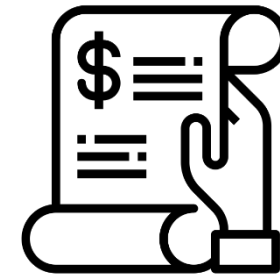
Maintaining Healthcare Services

Preserve Rh- blood groups

Shortage of diagnosis and treatment facilities

Anomaly in test results

Excessive hospital bills

Identify areas for improvement and regulation

Thank You!

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fs468@cornell.edu