

News and Views

Presentation on Impact of Climate on Public Health: Emerging/ Re-emerging Infectious Diseases in Bangladesh

Dr. Kazi Selim Anwar, Engr. Ahmed Arif Rashid

A presentation on public health titled '**Impact of Climate on Public Health: Emerging/Re-emerging Infectious Diseases in Bangladesh**' was presented at a national seminar on World Meteorological Day on 23 March 2023, with the theme '**The Future of Weather, Climate & Water Across Generations**' by Dr. Kazi Selim Anwar, Head, Medical Research Unit (MRU), Ad-din Women's Medical College.

Chief- contributors:

Dr. Kazi Selim Anwar, Head, Medical Research Unit (MRU), Ad-din Women's Medical College

²Engr. Ahmed Arif Rashid, Deputy Director (Engr.), Bangladesh Meteorological Dept.

³SM Quamrul Hassan, Meteorologist, BMD, Professor of Dermatology, Rajshahi Medical College Hospital

Other contributors:

⁴Prof. M Azraf HK, Professor, Dept. Dermatology, Rajshahi Medical College Hospital

⁵Prof. ARM Luthful Kabir, Head, Dept. of Pediatrics, AWMCH

⁶Dr. Sk. Ariful Hoque, Head, Virology, CARS, Dhaka, University

⁷A/Prof. Fatema Khanam, Associate Professor, Medicine, Bangladesh Medical College Hospital, Dhaka

It goes without saying how climate change impacts human health eminently by disrupting eco systems and societal systems. Disruption to eco systems brings about allergies, food & water borne diseases, asthma etc. while malnutrition, work capacity conflict and mental health illness are caused by the disruption to societal systems, by and large give rise to sickness, injuries, deaths from extreme events and storm surges.

When the host and agent are in an unbalanced state, we had been around epidemic to pandemic catastrophe.

Glimpse on Climate Change Global Warming: Where do we stand!

According to American Public Health Association (APHA) climate change affects human health by worsening air quality, spreading vector-borne diseases, devastating lower SES communities. Drought, flood, storm, and thunderstorm are manifestations of extreme weather events. To fight against these environmental disasters, strong climate change adaptation strategies and interventions to safeguard public health is profoundly needed.

In this presentation, the American Public Health Association's (APHA) provided illustrations were used to show how climate change affects health through air quality, extreme weather and vector borne diseases.

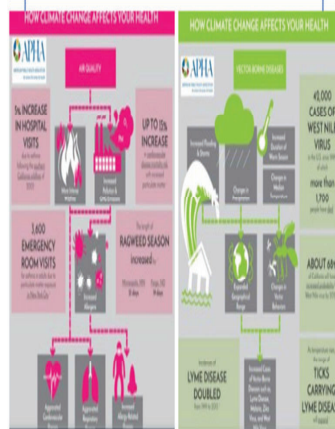
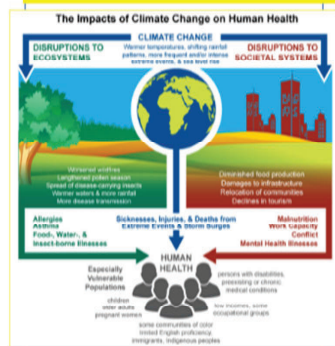
Most emerging infectious diseases of our country is associated with few/some types of climate/weather issues, particularly with its spatiotemporal variations. Since no full-fledged epidemiological research on EID exists in Bangladesh involving meteorological variables, so far, it is imperative that public health experts be tie up in a team with BMD meteorologists to shape up this crucial task prudently towards predicting EID based on Weather forecasts/ epidemic control activities. We have enough data base on dengue, COVID-19, Hand Foot Mouth (HFMD) Disease.

Details of this poster has been delineated below in two sections:

National Seminar on World Meteorological Day: 23 March 2023

Theme: 'The Future of Weather, Climate & Water Across Generations'

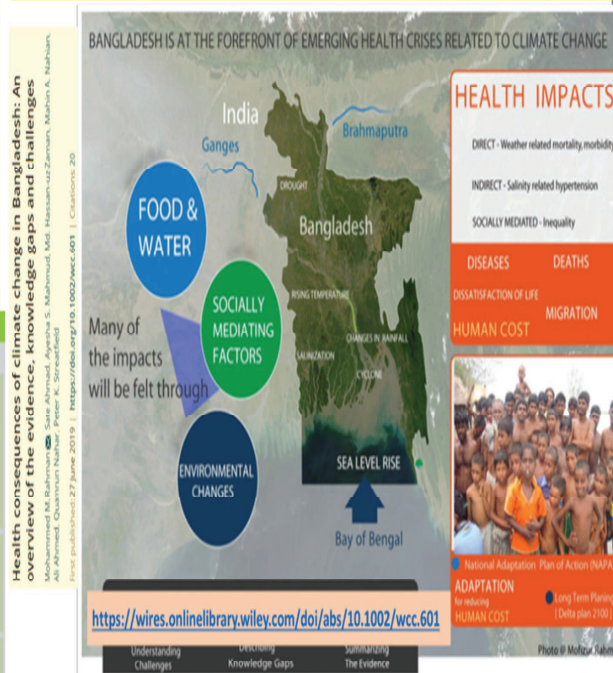
The Impacts of Climate Change on Human Health



Bangladesh's Climate Refugees: Can They Fight The Rising Sea? Insight | Climate Change In Asia



Impact of Climate on Public Health: Emerging/Re-emerging Infectious Diseases in Bangladesh



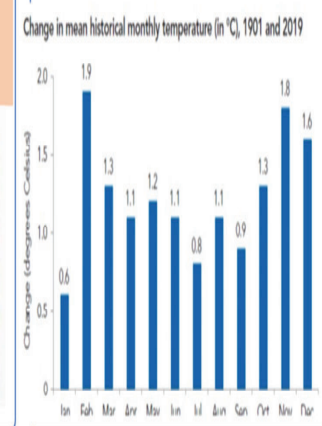
Epidemiological Triad Model



Glimpse on Climate Change Global Warming:

Where do we stand!

Climate Change in Bangladesh: Impact on Infectious Diseases and Mental Health



American Public Health Association

How Climate Change Affects Human Health

- ❑ Worsened air quality
- ❑ Spreading vector-borne diseases
- ❑ Devastates Lower SES communities

Extreme Weather Events:

Drought, Flood, Storm, Thunderstorm

- ➔ Needs strong climate change adaptation strategies
- ➔ Interventions to safeguard public health



EMERGING & RE-EMERGING INFECTIOUS DISEASES

The emerging viruses of the 21st century

PARIS, June 10, 2022 (ISS/APPI) - The recent explosion of monkeypox cases

Combating Severe Dengue in Children in Ad-Din Hospital Utilizing WHO-2009 Classification: Insight on a Rapid Appraisal of Pocket Outbreak in Urban Dhaka, Bangladesh

¹Dr. Kazi Selim Anwar, MD (Moscow, USSR), M. Phil. (Liverpool Univ., England)

²Prof. ARM Lutful Kabir, MBBS (Dhaka), FCPS (Bangladesh College of Phys Surg, Bangladesh)

³Dr. Sudipta Roy, MBBS (Raj MCH), FCPS (Bangladesh College of Phys Surg, Bangladesh)

Dr. Kishor Kumar Paul, Purni Dhar Choudhury, Enayetur Raheem, et al. 2018. Risk Factors for the presence of dengue vector mosquitoes and determinants of their prevalence and larval site selection in Dhaka, Bangladesh. PLoS ONE 13(4): e0194571-1-19.

www.PosterPresentations.com

Climate & Public Health/ Re/Emerging Infectious Dis (EID)

>2500 years ago, Hippocrates termed 'Epidemics' to describe diseases propagation through populatn, in a seasonal fashion,¹⁻²

His thesis: 'Air-Water-Place' proved environment & seasonal influence → Direct physicians/public health scientists towards our community-health but focusing sun, soil, elevation, geography, climate.¹⁻³

Bangladesh Health National Adaptation Plan (HNAP)
(Pending approval)
Ministry of Health and Family Welfare, WHO Country Office, Bangladesh

National Strategy for Water Supply and Sanitation
December, 2014
Local Government Division, Ministry of Local Government, Rural Development and Cooperatives, Government of the People's Republic of Bangladesh

Vulnerability and Adaptation Assessments (V&A)
Assessment of Health Vulnerability Reduction to Climate Change in Bangladesh
Final Report
June, 2014
WHO Country Office for Bangladesh

Vulnerability and Adaptation to Climate Change in Coastal and Drought Prone Areas of Bangladesh: Health and WASH
August, 2015
WHO Country Office for Bangladesh

How Weather → Climate associates with Pub Health/ EID

★ What Our Study Yields in Bangladesh

Here are some climate dependent EIDs

Dengue (DEN),²⁴ (Mosquitoes: *Aedes aegypti* / *albopictus*)

Chikungunya,⁶ (Mosquitoes: *Aedes aegypti* / *albopictus*)

HFMD (Hand, Foot, Mouth Dis.),²⁴ Virus: EV-71, Coxsackie A16

COVID-19,³ Corona/virus' SARS-CoV-2

These EIDs associated with climatic (ambient air, drinking H₂O, toxic/contaminated food) with weather components (T°, humidity, wind velocity, & rainfall) causing EID.¹⁰

Malaria,⁴ (Mosquitoes: *Anopheles- Plasmodium*)

Cholera,^{7A} (Bacteria: *Vibrio cholerae* V. chol 0139B)

Typhoid, (Bacteria: *Salmonella typhi*, *Para A, B*)

These EIDs associated with climatic (ambient air, drinking H₂O, toxic/contaminated food) with weather components (T°, humidity, wind velocity, & rainfall) causing EID.¹⁰

EFFECT OF GLOBAL WARMING IN BANGLADESH: status quo

Impact of Climate change on Agriculture in Bangladesh Byomkesh Talukdar, Fri Sep 28, 2007

Concluding Part

Knowing climatic patterns to assist public health planners, for diagnosing based on forecasting weather depended issues (heat/ cold waves: *El-Nino, La Nina*), towards:

- Early forecasting of probable EID-outbreak
- Proper assessment of spatiotemporal variation for any upcoming EID-outbreaks.

Bottomline:

Most Emerging Infectious Diseases our country is associated with few/some types of climate/weather issues → particularly with its spatiotemporal variations

Since no full fledged epidemiological research on EID exists in Bangladesh involving meteorological variables, so far, it is imperative that public health experts be tie up in a team with BMD meteorologists to shape up this crucial task prudently towards predicting EID based on Weather forecasts/ epidemic control activities.

We have enough dBase on DEN, COVID-19, HFMD

66