

ONE HEALTH Knowledge-Café



Webinars | Dicussions | Online courses | Networkings

Epidemiology of COVID-19 and Risk Communication Approaches





The session will focus on the epidemiology of COVID-19 cases globally, the distribution in selected countries on different continents and how those countries have managed to develop and disseminate risk communication messages. The speakers will share their perspective on the country preparedness and response, key lessons learned and strategies of communicating effective messages to protect the public from the COVID-19.

Join with us to hear multi-disciplinary perspectives, from speakers from different continents, expertise and disciplines

Register to this webinar:

https://www.cih.lmu.de/events/2021/webinar-epidemiology-covid-19risk-communication/registration-form-24062021



Dr Guru Prasad Dhakal Jigme Dorji Wangchuck National Referral hospital Bhutan



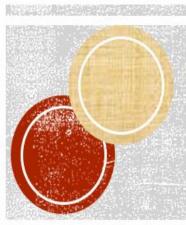
Dr Cristobal Quininao
Universidad de O'Higgins
Chile



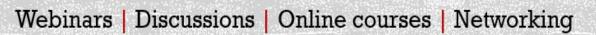
Dr Taufique Joarder Public Health Foundation, Bangladesh

One Health Knowledge Café

- A collaborative effort of more than 11 individuals representing CIH partners and alumni
- Represents Asia, Africa, Europe, South America and North America
- Brings together the expertise and network of researchers and professionals from various disciplines, countries and expertise to enable cross learning, sharing and network building
- Monthly talks, webinars, online courses, discussions
- Supported by LMU^{CIH} through DAAD/Exceed Program, funded by BMZ



ONE HEALTH Knowledge-Café





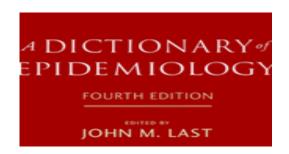
Epidemiology of COVID-19 and Risk Communication Approaches

Dr. Guru P. Dhakal Head of the Dept and Assoc. Professor Department of Medicine Jigme Dorji Wangchuck National Referral Hospital Bhutan

Epidemiology

The study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to control of health problems





Outline of presentation

- Global Scenario of COVID-19 disease
- South-East Asia Scenario
- Epidemiology in Bhutan
- Risk communication- importance, approaches as in Bhutan's context.

Background

 In Dec 2019 China reported the outbreak of Pneumonia of unknown cause in Wuhan and the early cases were were linked to Huanan sea food market.

The NEW ENGLAND

JOURNAL of MEDICINE

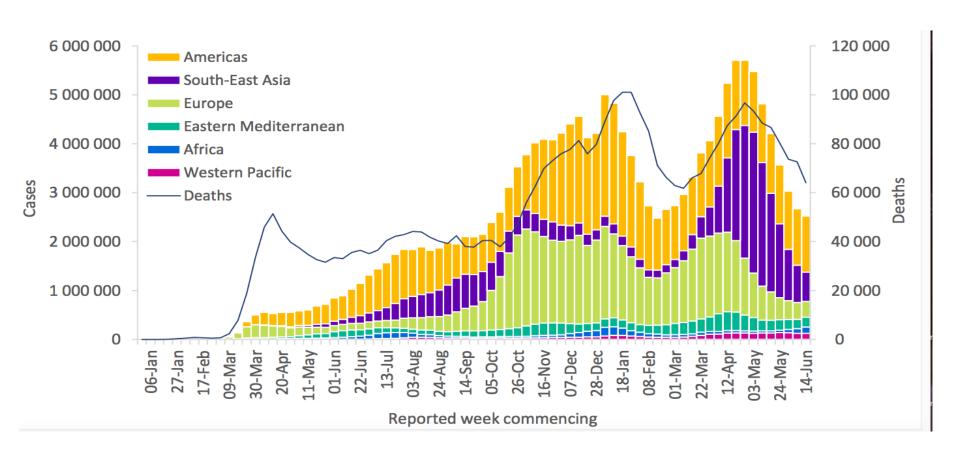
- Thailand was the first country to report the disease outside China on 11th January 2020.
- Declared a public health emergency of international concern in January 2020
- World Health Organization declared COVID-19 as Pandemic on 11th March 2020

PLOS ONE

Estimating the basic reproduction number for COVID-19 in Western Europe

Isabella Locatelli, Bastien Trächsel, Valentin Rousson 6*

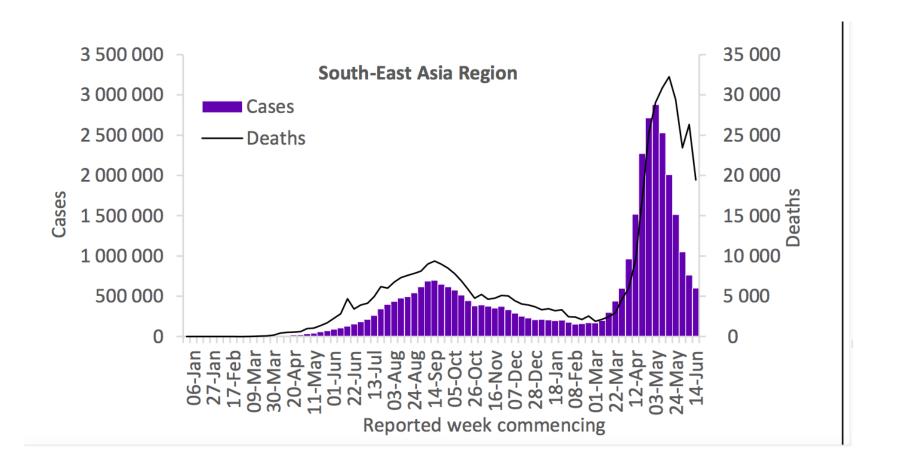
Global scenario as of 20th June 2021



Global scenario

- Number of cases reported > than 177 million
- Over 2.5 million new weekly cases- 6% decrease
- Over 64 000 deaths- 12% decrease
- The Americas and Western Pacific Regions similar to the previous week
- South-East Asia and the European Regions reported a decline
- The African Region recorded a marked increase in the number of weekly cases

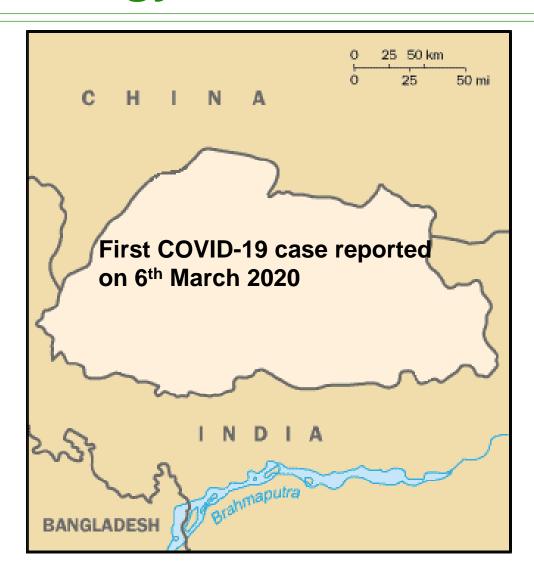
South-East Asia region



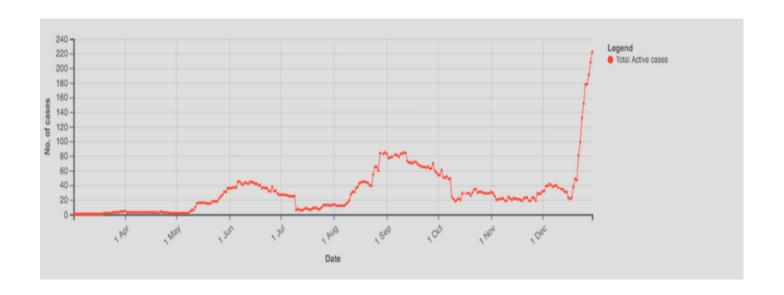
South-East Asia scenario

- Over 600 000 new cases- decrease by 21%
- 19 000 new deaths- decrease by 26%
- Highest numbers of new cases were reported from India Indonesia and Bangladesh
- Highest number of deaths were also reported from these three countries

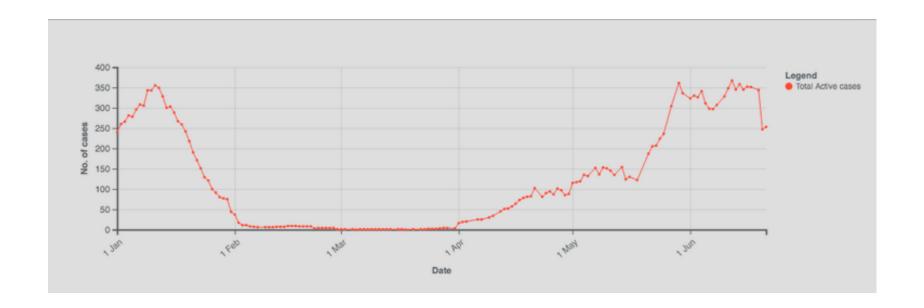
Epidemiology of COVID in Bhutan



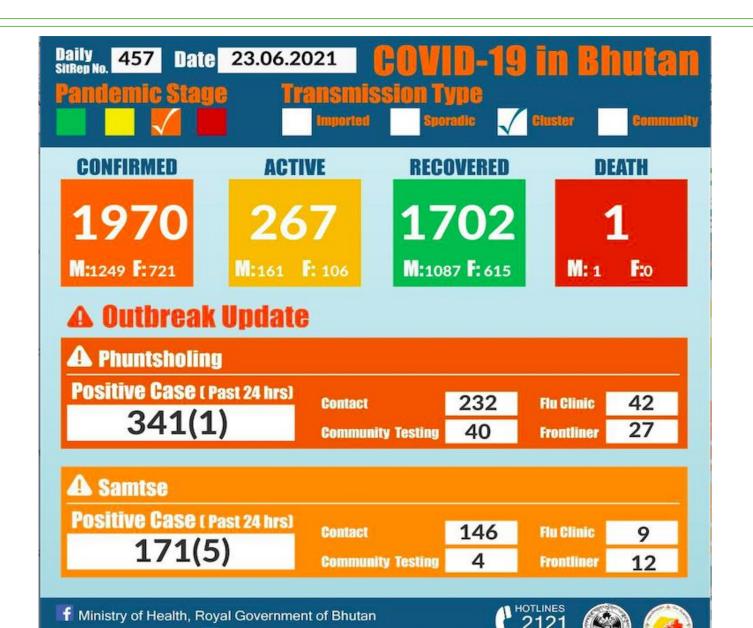
Summary of cases 2020



Summary of cases 2021



Total cases as of 23rd June 2021



Epidemiological Summary

- Globally > than 177 million cases reported so far
- Both the new cases and deaths are declining compared to previous week, except in the African regions
- India, Indonesia and Bangladesh have reported the highest number of cases as well as deaths in our region in last week
- Predominant variant- Alpha-177 countries but in Bhutan it is Delta at present

Risk communication-Importance

- Information crisis
- People are becoming complacent and risk perceptions regarding COVID-19 are lowering.
- Pandemic fatigue is increasing
- Plays important role in breaking the chains of transmission and mitigating the impact of the pandemic.

COVID-19
Global Risk Communication
and Community Engagement
Strategy

December 2020 — May 2021

Risk communication

 "The right message at the right time from the right person can save lives"

Ref: CDC

WHO published the first COVID-19 global risk communication and community engagement (RCCE) in March 2020.

Approaches

- People centered and community led approaches
- Increased trust and social cohesion, and ultimately a reduction in the negative impacts of COVID-19.

COVID-19 Global Risk Communication and Community Engagement Strategy

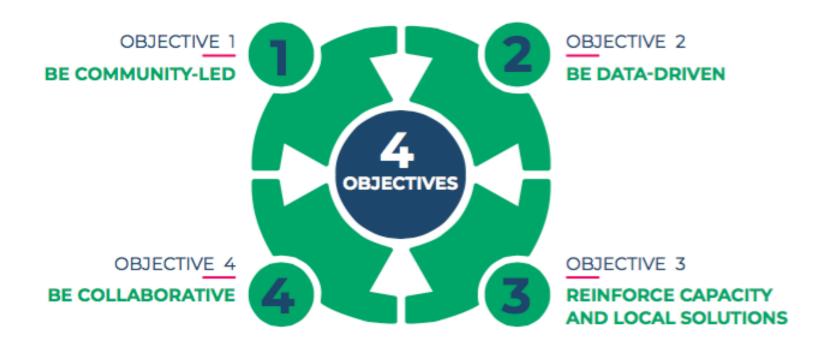








Strategic Objectives



COVID-19
Global Risk Communication
and Community Engagement
Strategy

December 2020 — May 2021

Interim Cuidance 28 December 2020

Guiding Principles

- Nationally led
- Community centered
- Participatory
- Trust Building
- Open and transparent- even in uncertainty
- Volunteerism

- Informed by data
- Integrated and Co-ordinated
- Inclusive
- Accountable at all levels



Summary

- People centered and community led approach has been found to be impactful
- Nationally led, community centered, integrated and accountable principles could be followed in providing risk communication and community engagement in the period of COVID 19 disease.

References (if otherwise not indicated)

- CDC- Emergency preparedness and response, Crisis and risk communication.
- CDC- Science brief: Emerging SARS-CoV-2 variants.
- CDC- SARS-CoV-2 Variants classification and Definitions.
- Wikipedia- COVID 19 Pandemic in Bhutan.
- Ministry of Health, Royal Govt of Bhutan (Website)
- WHO, COVID-19 Weekly Epidemiological update, Edition 45, published 22nd June 2021

Thank you



COVID-19 first and second waves: how different are their patterns? A small county called O'Higgins

Prof. Cristóbal Quiñinao



Epidemiology of COVID-19 and Risk Communication Approaches One Health Knowledge Café Project

June 24, 2021

First Part:

The European Case



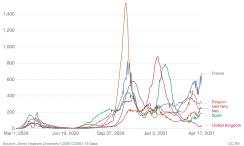
Coronavirus disease

- The coronavirus disease 2019, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was initially concentrated in Wuhan, the capital of Hubei. China
- It was declared as a Public Health Emergency of International Concern by the World Health Organization (WHO) on January 30, 2020
- By April 27, 2021, the total reported cases globally are over 145 million and deaths above three million, with about one third of cases and deaths occurring in Europe
- The pandemic has shown very serious health system as well as socio-economic implications, despite the efforts made to "flatten the curve".



Daily new confirmed COVID-19 cases per million people Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.





- We downloaded COVID-19 data for January 1, 2020 - April 17, 2021 from 'Our World in Data'
- These countries were selected as showing similar trends in terms of first wave onset, and all of them had a distinct second wave



- We assume that during the COVID-19 pandemic, the biological mechanisms of virus replication may help in studying the evolution of the number of cases
- We use the well-known exponential growth model to analyze the evolution of the number of active cases in each country
- Since only infected people can transmit the disease, we estimate the number of active cases per million at any day, as the sum of the new cases for the past 10 days (CDC and the WHO recommendations)
- Denoting by $N_i(t)$ the number of active cases for country i and by $\sigma_i(t)$ the growth rate, the exponential model reads

$$N_i(t) = N_i(t_0) \exp\left(\int_{t_0}^t \sigma_i(s) \, ds\right),$$

or simply

$$\log(N_i(t)) = \log(N_i(t_0)) + \int_{t_0}^t \sigma_i(s) \, ds$$



■ Assuming that for any small time increment $[t_n, t_{n+1}]$ the growth rate is approximately constant $\hat{\sigma}_i(n)$ we obtain the linear relationship

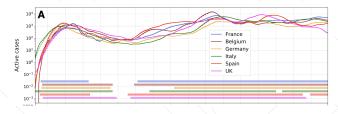
$$\underbrace{\log(N_i(t_{n+1}))}_{y_{n+1}} = \underbrace{\log(N_i(t_n))}_{y_n} + \hat{\sigma}_i(n)(t_{n+1} - t_n).$$

Model

For country i at day j, we compute the best $\hat{\sigma}_i(j)$ as a linear regression problem for the past two weeks. This time interval minimizes the numerical oscillations. We obtain a nice approximation for the growth rate $\sigma_i(t)$ which itself gives as a proxy for the speed of transmission of the desease at each country.



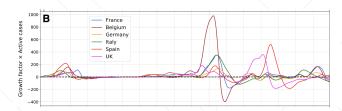
Can a mathematical model reproduce the pandemic curve?



- There are several mathematical models that have been developed to understand the dynamics of COVID-19 infection
- The set of methods can be classified into three classes: fitting an empirical function; using the SIR-type equations; and stochastic simulation of individuals and networks
- Our simplistic description can be used as an approximation for the growth factor and also for the time derivative of the new active cases which is given by

$$N_i(t)' = \sigma_i(t)N_i(t).$$





Can the first and the second wave be identified?

- The onset of the first wave occurred within a 2 week-timeframe in all six countries (between February 25 and March 07, 2020), while in a 2 month-timeframe during the second wave (between July 6 and September 10, 2020).
- In 3 countries (France, Belgium, and Germany), the second wave is still ongoing.
- In addition, the algorithm we applied allowed the identification of a distinct third wave (still ongoing) in Italy and Spain (Figure 1A). The only country where the second wave ended, and the third did not arise was the UK.



How are the dynamics of the waves?

- Initial wave: sharp initial growth and subsequent normalization
- Second wave: a slow initial growth, followed by several fluctuations of relevant magnitude, with alternations of fast increases and declines in the number of cases.

These fluctuations were often very rapid, preventing a clear distinction between different outbreaks. This suggests that they belonged to the same wave (the second), whose dynamic was likely highly affected by the measures taken by single governments (measured which changed over time).



How are the dynamics of the waves?

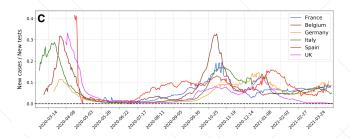
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What is the pattern of mortality in the first and in the second wave?

- The number of deaths in the first six weeks after the wave onset was overall higher in the first than the second wave
- However, the duration of the second wave was more than double than the first wave as well as the total number of deaths in almost all countries: the ratio of duration between second wave and first wave was 2.6, and the ratio of deaths between second wave and first wave was 2.4
- Though the situation may differ between countries, we can conclude that the second wave has a longer duration and results more mortality than the first wave





Is the different pattern of cases and mortality between waves depending on changing test policies?

- Normalizing the number of new cases on tests performed, we could observe that the magnitude of the first wave was probably underestimated (if compared to the second) in all countries but Germany (for France, data on tests performed are available only since May)
- The normalization confirmed the few new cases notified in the inter-wave period and the subsequent onset of the second wave, with values of the ratio cases/tests relatively high, if compared to the first inter-wave period for all the duration of the second wave

Second Part:

Libertador General Bernardo O'Higgins Region

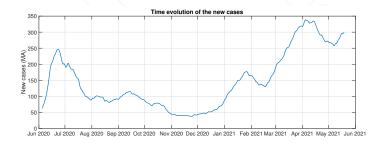
O'Higgins Region



- It is one of Chile's 15 first order administrative divisions
- It is bordered to the west by the Pacific Ocean, to the east by Argentina, to the north by the Valparaíso and Santiago Metropolitan Regions, and to the south by the Maule Region
- Current O'Higgins Region Population: 915k People



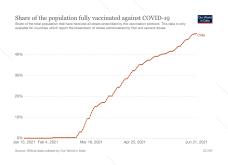




- Initial wave: sharp initial growth and subsequent normalization
- Second wave: a slow initial growth, followed by several fluctuations of relevant magnitude, with alternations of fast increases and declines in the number of cases.

O'Higgins Region





- There is a clear change in time evolution of the new number of cases by each age group. People under 40 has become the *source* of new contagious
- Two possible explanations are the appearance of SARS-CoV-2 variants and also the vaccination program
- Underestimating the risks of covid in younger age groups is another possible cause of the change in the distribution of the disease in the population

Vaccination program

Started in Febrary 2021, with focus in 70+ age group. In May 10th we started the vaccination process of the 30 to 40 age group.

Epidemiology of COVID-19 and Risk Communication Approaches in Bangladesh

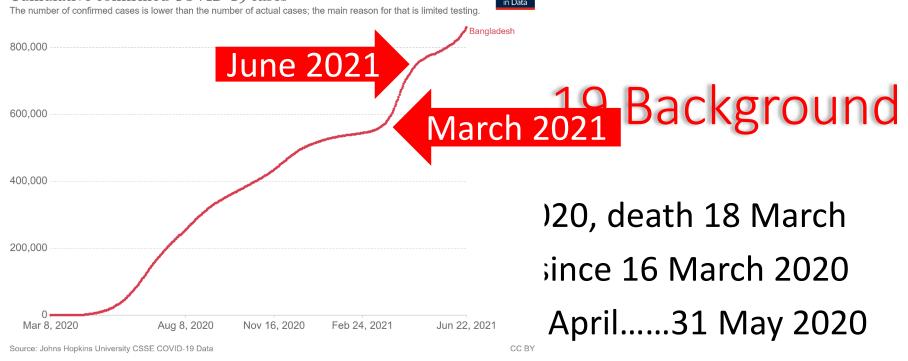
Dr. Taufique Joarder, MBBS, MPH, DrPH (Johns Hopkins)

Vice-Chairperson, Public Health Foundation, Bangladesh



24 June 2021 One Health Knowledge Café





- Consecutive waves: March, June 2021
- 'Lock down': 5 11 March......continued indefinitely
- Total cases: 866,877; Total Deaths: 13,787
- New cases: +5727 (One of the highest in the world)
- Tests per million: 38,518 (One of the lowest in the world)
- WHO RCCE Guideline: 10 January 2020; Bangladesh RCCE Draft: 19 June 2021



PHFBD KAP Study

- Poor knowledge: 55.5%
- Negative attitude: 49%
- Poor practice: 53.5%
- Lower knowledge & practice in rural areas
- 73% went outside home during lockdown
 - 38% went out due to work
 - 34% went out to purchase essential goods

(**Reference:** Rabbani et al. Knowledge, Attitude and Practice towards COVID-19 among people in Bangladesh during the pandemic: a cross-sectional study. Accepted in *JMIR Formative Research*)



Public Health Foundation Bangladesh



PHFBD KAP Study-Recommendations

- Customized information: villagers, slum-dwellers, township residents, urban middle-class
- **Special emphasis:** elderly, females, less educated, farmers, day laborers, rural residents, married, large family, meager earning, residents of Rajshahi division.
- Contextually appropriate channels: including television and social media
- Lockdown with well-planned support system: subsistence support, arranging emergency requirements, voluntary support group
- Communicating clearly: what to do, who to consult, NO 'national holiday'
- No arbitrarily increasing the duration, consult epidemiologists first
- Engage religious, cultural, political, and other community-based agents
- Develop evidence-informed, context-specific RCCE & SBCC strategy

PHFBD Stigma Project



- COVID-19 cases and families: Law enforces violating medical ethics by publishing location details, coloured stickers on doors, even thrown out of homes
- Frontline health workers: Requested by landlords to leave
- Police officers: Perceived as contagious considering nature of their job
- Traditionally vulnerable population: Domestic workers, garment workers, slum dwellers, public transport workers and in general poor people are discriminated and stigmatised, blamed for spreading disease

কারা কোভিড–১৯ সংক্রান্ত সামাজিক

কুসংস্কারের সম্মুখীন হচ্ছেন?

- কোভিড–১৯ এ আক্রান্ত রোগী এবং তাদের পরিবার
- ডাক্তার এবং অন্যান্য সম্মুখভাগের স্বাস্থ্যকর্মী ও তাদের পরিবার
- বিদেশফেরত মানুষজন
- গরীব এবং সুবিধাবঞ্চিত মানুষেরা
- পুলিশ, সাংবাদিক এবং প্রয়োজনীয় কর্মীরা (পরিচ্ছন্নতা কর্মী, ডেলিভারি–কর্মী, মুদি দোকানদার, ফায়ারফাইটার্স)
- কোভিড–১৯ এর মত লক্ষণযুক্ত রোগী এবং কোভিড–১৯ বেশি ছডিয়ে পড়া অঞ্চলের মানুষেরা

দশে ফিরলেই একঘরে করা হতে পারে' #bacharlorai

**করেনা দৃদিনে চিকিৎসার অপরাধে ঘর।
করেনা খোদ্ধা চিকিৎসক।

PREPARED BY DR PRITOM DAS, DR M TASDIK HASAN
PRESENTED BY YOUTH POLICY FORUM & PUBLIC HEALTH FOUNDATION



Based on research evidence, newspaper articles, & call for anonymous stories using google forms

(**Reference:** Hasan MT, Hossain S, Saran TR, Ahmed HU. Addressing the COVID-19 related stigma and discrimination: a fight against "infodemic" in Bangladesh. Minerva Psichiatry 2020;61:184-7. DOI: 10.23736/S0391-1772.20.02088-9)

PHFBD Stigma Project-Recommendations

- Verified information from state specified authentic sources
- Social media monitoring and prompt legal steps against propaganda, falsehood and conspiracy theories
- Provide evidence-based guidelines

Vaccine Hesitancy among Health Professionals

- Will receive COVID-19 vaccine
 - Immediately 40%; in the future 54%
- More likely to delay
 - Female, nurses, 18-34 years, public HCPs, last year's flu vaccine non-recipients
- Main reasons to delay/refuse
 - 'concerns regarding side-effects of vaccines' and 'compromised quality due to expedited vaccine development'
- Recommendation: tailored & targeted strategies & vaccine promotion

(**Reference:** ABM Maksudul Alam and Md Anwarul Azim Majumder et al. Disproportionate COVID-19 vaccine acceptance among healthcare professionals on the eve of nationwide vaccine distribution. Under review in the *Expert Review of Vaccines*)

Fear and Stigma Study

Structural fear

- Fear of contagion
- Loss of livelihoods
- Duration of the crisis
- Evolving nature of the virus infection
- Administrative surveillance (flagging households, scary procedure of lockdown)
- Mistrust in medical management (Stigmatizing health workers; escaping medical procedure)

Methods: Content analysis of print,

visual and social media;

netnography; telephone interviews,

literature synthesis

Derivative/liquid fear

- Infodemic
- Loss of false safety (stigmatizing religion & science by frontiers of opposites)
- Fear of outsiders (immigrant returnees/ relatives from Dhaka or infected areas)
- Social surveillance (compartmentalization; surveilling & defining suspicious behavior, taking authority to get into people's privacy)
- Dead body management
- Fear of violence (fleeing from camps & houses)

Reference: Shahaduz Zaman and Sumon Rahman. Fear and Stigma in the Context of Corona Epidemic in Bangladesh: A Rapid Research. *Bangladesh Health Watch*.

https://r.bangladeshhealthwatch.org/public/upload/research/file/file_name1615922908264959165.pdf



Fear and Stigma Study-Recommendations

Macro-level (State-level structural interventions)

• Law enforcers stop discrimination, reduce dramatizing and terrorizing, stop infodemic, mass-media anti-stigma campaign, restore livelihood

Meso-level (Interventions at the community level)

 Community mobilization (politicians, administrators, CHWs, medical representatives, Imams), small group interactions between stigmatized and non-stigmatized

Micro-level (Interventions at the individual level)

 Educate individuals though mobile text and social media, psychosocial support to stigma victims

Wealthy and the political elites Impersonal trust —Interpersonal trust Health of the ruling party are getting Fidelity ation one type of treatment, while the adesh members of general public are getting something different. Con So far, we have been blaming only the Some managed to get out of doctors for not giving services. Now, we can the country via chartered see how important service management is in flights, some ministers booked coordination with other health actors. Health ICUs even before requiring one. system cannot be managed by the doctors Hearing such news, as a middle-Fairness alone. [FGD-5, service holders of different or lower-middle-class member of the society, I can't help losing professions, non-clinical background] trust in the health system. All facilities are there to protect the erpersonal upper layer of the society. [FGD-Confidence Communication 4, undergraduate students pursuing food and nutrition degrees at a public university, Confidentiality non-clinical background]

ust

Health Systems Trust Study-Qualitative Findings

- Criticism on the decision to disguise lockdown as a 'general holiday'
- Doctors spreading misinformation through social & mainstream media
- Some doctors were found promoting unproven medicines
- Doctors themselves comp support

Recommendations

- Transparency in COVID-
- Free flow of correct dire
- Scientifically oriented R
- Engage religious, cultura
- Explicit policy & guideline

"When they [government] say it is a 'aeneral holiday'

"Doctors did not receive proper training or treatment

guidelines, only online training, nothing on triage, how

^c to handle indoor patients, no idea about treatment

^c guideline, nothing on donning and doffing of PPE, or

⁵ mental stress management. I feel like swimming in an

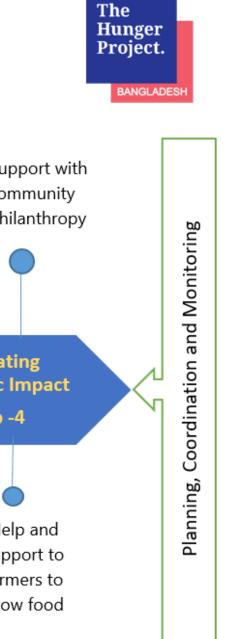
Funfathomable sea, without proper training." [FGD-7,

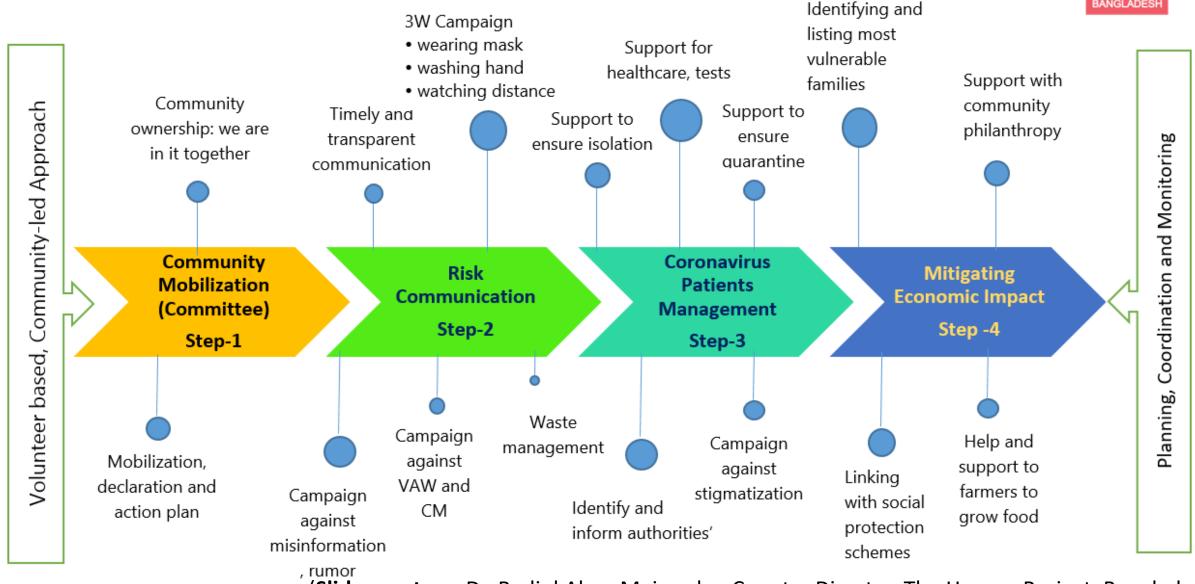
practicing clinicians, clinical background]

(**References:** Joarder et al. Trust in the Bangladeshi health system during the COVID-19 pandemic: A mixed-methods exploration. Accepted in *Journal of Public Health and Development*Joarder et al. Urban educated group's perceptions of the COVID-19 pandemic management in Bangladesh: a qualitative exploration. Published in *F1000Research*)

Positive Example:

Coronavirus Resilient Village (CRV) Approach





(Slide courtesy: Dr. Badiul Alam Majumder, Country Director, The Hunger Project, Bangladesh)

Activities undertaken in CRV areas

Implemented in 12,000 villages
Supported by Swiss
Development Cooperation

- From the outset volunteers created realization in villagers: "we are in it together"
- Volunteers carried out 3W campaigns
 - Promote washing hands
 - Watching distances
 - Wearing masks
- Follow up meetings of COVID-19 Prevention and Resilient Committees at village level
- To create behavioral change, trained each volunteer repeatedly met 20-25 families, using specialized communication materials
- They held courtyard meetings to create awareness among mothers against child marriage, violence against women, stigmatization, and nutrition



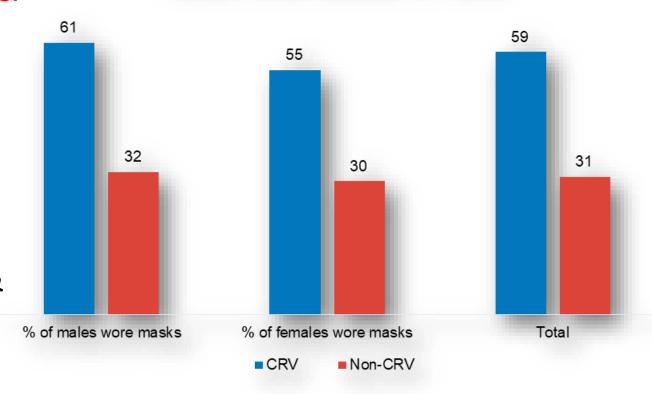
Results & Lessons Learned

Percentage of males and females who wore masks while outside of home

Less infection & death observed
 In intervention areas

Lessons learned

- Higher level of awareness
- National, multi-stakeholder effort & coordination
- Well thought out, science based approach



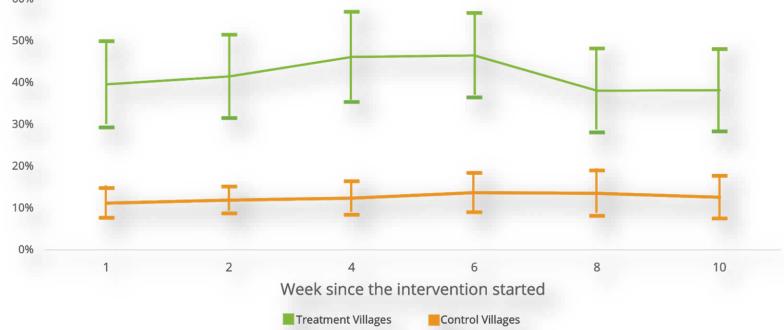
- Local government involvement for planning, coordination & monitoring
- Community ownership and engagement through social mobilization
- Economic & social challenges

Positive Example: N.O.R.M.

RCT carried out in Bangladesh: 600 villages; 350,000 subjects

Carried out by Yale University, Stanford Medicine, Innovation for Poverty





 NORM intervention more than tripled mask usage (13% to 42%) Increased physical distancing

Activity combination that works to NORMalize mask-wearing



No-cost

door-to-door

Offering information

free masks distributed on mask-wearing via video and brochures

Reinforcement

in-person and in public

(Slide courtesy: Mushfiq Mobarak, Professor, Yale University)

Modeling

and endorsement by trusted leaders

Scale-up Coalitions in Bangladesh & Beyond





Bangladesh National/Rural - 77 M

(Launched)

NGO: BRAC, Government: a2i, DGHS?

Bangladesh Urban - 2.5 M (Piloted, full-scale launch Jun 25) DNCC Mayor, BIGD, Shakti Foundation Dhaka, Chittagong, Rajshahi

Nepal - 20 M C-19 RAT (ENPHO, Small Earth Nepal), municipalities



Gujarat/Rajasthan- 1M

(Launched)

NGO-led - SEWA, CSBC, J-PAL

Gujarat - Govt 63 M

Govt-led - Health Secretary CSBC, J-PAL

Telangana - 35 M

Health Commissioner, Chief Finance Sec, CEGIS, CSBC, J-

PAL

Bihar - 99 M

West Bengal - 60 M



Lahore City- 11 M

(Launching Jun 20)

Commissioner, LUMS

KP Province - 36 M

Minister of Finance & Health (Mr. Taimur Jhagra), LUMS

Montevideo - 2 M

State senator, volunteer groups

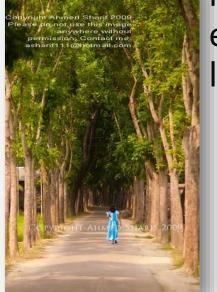
Guanajuato, Mexico (6 M)

IADB, Governor's office, Health Ministry

Lessons Learned from N.O.R.M. Study

- Reinforcement is critical: Frequent reminders in public places to wear the freely distributed masks
- Social sanctions were sufficient: Creating shame/ awkwardness was sufficient; threats of legal sanctions (chowkidar presence) were not necessary or helpful in rural Bangladesh
- Local leaders engagement important: Local hires helped establish rapport with the community leaders quickly. Social leaders, especially, members of the mosque and market committees,







Contact:

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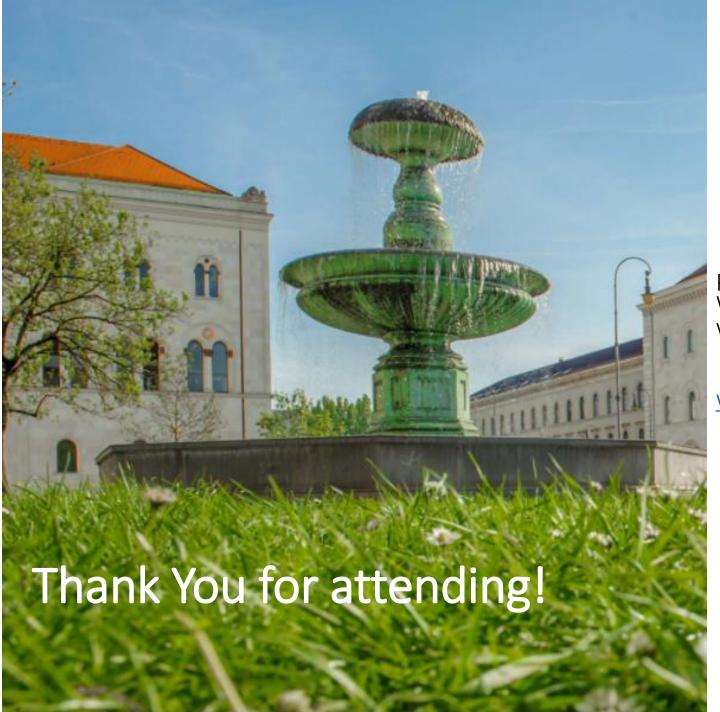
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THANK YOU



PowerPoint slides and Webinar Recording will be available via:

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