COVID-19 Data Intelligence System in Bangladesh

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- **High risk case identifications**
- **Hot zone identification**
- **Resource Allocation**: Health Workers, testing facilities, hospitals, isolation units, ICU, etc.
- **Timely policy response**
- **Symptom monitoring** of health care workers and field administration
3 Important Steps

1. Encourage citizens to do **self-reporting** and expedite finding high-risk cases for testing
2. Identify **hot zones** as early as possible for disease progression
3. Overnight create the largest pool of doctors for **telemedicine**

Use Big Data Analytics to Support Steps 1 and 2
Data Source List

- IVR Triage (333 & 16263)
- *3332# USSD Triage
- Doctors Verified (333 & 16263)
- IEDCR Heat Map
- Home Quarantine data
- Web user data (corona.gov.bd, coronatest.today, etc.)
- App users data (DGHS App, 20 most popular App integration, Chat-bot)

- Field reported data
  - BRAC Health Worker (app)
  - Community Clinic data (app)
  - Front Line Worker Tracking Data (SMS)
- Report from targeted SMS (teachers, imams, postal workers, social safety nets workers)
- DHIS2 Data
- DGHS Hospital Management Data
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<th>Option 1</th>
<th>Option 2</th>
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Self-reporting through **333** and *3332#*
Self-reporting through Web and App
COVID-19 Collective Intelligence System

**Data collection**
- Citizen Self-report
- Report by Community Health Workers
- Report from COVID-19 Tests
- Frontline Workers Self-report

**Data analysis**
- Doctors’ Pool (4,000 doctors)
  - Medical advice
  - e-Prescription
- Data Analytics
- Verification by Doctors
  - High-risk cases
  - Hotzones
  - Recommendations

**Decision making**
- Dashboard for Healthcare Providers (DGHS, IEDCR, public and private)
  - Medical decisions
- Dashboard for Govt. Administration (Cabinet, field admin, police)
  - Admin decisions
- Multi-stakeholder Communication
  - corona.gov.bd
  - TV, radio, community radio, phone, social media
Data Process Flow

Citizen self-report
3.7M

Big data analytics
17,058

High Risk Case identification through doctors verification
2,216

Tested by DGHS and IEDCR
223

2,216 high-risk cases were identified by doctors and 223 tests have been conducted

Current: 48 hours, Target: < 24 hours

Community report
Just started
Volunteer Doctor Pool App of 4,000 Doctors Created Overnight
Sample of Dhaka City COVID-19+ Cases
Possible hot zones can be identified before testing is done.
Geo-fence in the lockdown areas

Geo-fence for home quarantine

Tracing the violator of the lockdown/quarantine

Geofencing to track violators
Hospital capacity and suspected patients load management

Isolation Bed Capacity  
Suspected Patients  
Isolation bed and suspected patients comparison  
Required Isolation bed

Resource mapping may be helpful for early preparation
Observation: People are scared when a doctor calls for verification of symptoms. They have more trust when a psychologist/surveyor with good communication skills call.
Partners

- **Telecom**: Posts and Telecoms Division, Robi, GP, Banglalink, Teletalk, National Telecom Monitoring Centre, Bangladesh Telecom Regulatory Commission

- **Data**: a2i, ICT Division, Directorate General of Health Services, Institute of Epidemiology, CMED, Cramstack, Nascenia, Brainstation, MCC, SoftBD, DataSoft, iDare, Audere, BRAC, Fordham University, Rochester University

- **Epidemiology**: DGHS, IEDCR, Harvard, Columbia, U California Berkley, FAO, UNFPA

- **Behaviour science**: GP, Beehub, Yale, IPA, BIGD, Dhaka University

- **Telemedicine**: 16263, Maya Apa, PulseHealth, DaktarBhai, Tonic, Olwel, Platform, Bangladesh Doctors’ Foundation
Thank You