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Revisiting Healthcare Management in India: Opportunities from Migrant Mobility Data during COVID-19

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REVISITING HEALTHCARE MANAGEMENT IN INDIA: OPPORTUNITIES FROM MIGRANT MOBILITY DATA DURING COVID-19

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INTRODUCTION

Since the outbreak of Covid-19 in March 2020, India resorted to lockdown to enforce social distancing accompanied by pandemic surveillance to combat the crises. This was considered a step in the right direction for a country like India facing severe resource crunch in public healthcare when facing a rapidly spreading pandemic. India's public investment in healthcare is one of the lowest in the world. India allotted 1.28% of GDP as health budget in Financial Year 2018, as compared to the national target of 2.5%. As a result, there is only one government doctor for every 1445 Indians, much lower than the WHO's prescribed norm of one doctor for 1000 people. The availability of government beds is abysmally low with only 0.7 beds per 1000 population (Taneja et al., 2020). This lack of resources and state of health infrastructure along with strong proclivity of Covid transmission prompted countrywide complete lockdown.

However, the nationwide lockdown pushed India's millions of migrant workers into a state of extreme vulnerability and peril. Lockdown, combined with social distancing measures, loss of employment, unsafe shelter, information asymmetry in communication prompted a chaotic exodus of distressed migrants to their native places across India. With the world coming to a stand still due to lockdown as a measure to combat COVID-19, limited employment opportunities, impending fear of unknown future and financial crisis, thousands of underprivileged people and labourers started to march back to their native places and home states. A World Bank report estimated that, lockdown in India has impacted the livelihoods of a large proportion of the country's nearly 40 million internal migrants. Countrywide reverse migration increased the risk of the virus spreading, as was witnessed in Italy in early March 2020 and China in January 2020.

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An international study showed, fanning out from the urban centers like Delhi, Mumbai, and Chennai, hotspots of Covid-19, to their native villages, mostly in the eastern and northeastern parts of India exposed the entire nation to an asymptomatic infection like Covid-19. The study showed, spread of Covid-19 can be traced along the routes of migration, proving the hypothesis that migration and contagion are positively correlated to an important degree (note correlation is not causation) (Lee et al., 2020). So tackling the pandemic related migration issues subsumes solution to a diverse set of long-term problems of migrants, such as healthcare management.

India's Migration Corridors and Healthcare Management

As state borders were opened up and allowed migrant workers to return, there were serious concerns about testing and treatment infrastructure, and contact-tracing capabilities in their home states.

Corridors of Migration

The North Indian states of Uttar Pradesh and Bihar have the highest percentages of rural populations, with 18.6 percent and 11.1 percent of people living in villages, respectively, as of the 2011 Census. These states are also the largest migrant-sending states. Substantial flows of labor migrants relocate from Uttar Pradesh to Maharashtra, Delhi, West Bengal, Haryana, Gujarat, and other states across northern and central India. Migrants from Bihar relocate to the same destinations, with the highest numbers to Delhi and West Bengal. Other major migrant-sending states are Rajasthan, Madhya Pradesh, Andhra Pradesh, Chhattisgarh, Jharkhand, and Orissa. Predictably, all of the major sending states are characterized by very low social and economic development indices and the major urban destinations are the growing economic magnets in an increasingly liberalized Indian economy. The cities of Mumbai, Delhi, and Kolkata are the largest destinations for internal migrants in India. Many of the migrants to these cities are intrastate migrants, relocating from rural areas of Maharashtra and West Bengal. All three cities also absorb large numbers of people from other states across India. (Singh et al., 2015)

Seasonal flows of migrants vary by area and industry, but several fine-grained studies of seasonal migration reveal extensive flows. Significant numbers of people from drought-prone regions—including areas of Andhra Pradesh, Karnataka, and Maharashtra—migrate seasonally to work in brickmaking, construction, tile factories, and crop-cutting operations. According to one study, 90 percent of laborers in the construction industry are internal migrants. Circular migrants are also attracted by agricultural work, such as the rice harvest season in West Bengal and the sugar cane harvest in Gujarat. Finally, while longer-term migration flows tend to be male-dominated, circular or seasonal flows in India—which are most prevalent among the poorest and tribal populations—tend to have a more even balance of men and women.

POOR HEALTHCARE MANAGEMENT IN MIGRANT SOURCE STATES

Covid-19 pandemic posed significant challenges to public health systems in India. UP ranked at the bottom among 21 large states in Niti Aayog's Health Index report published in June 2019. UP was followed by Bihar, Odisha, Madhya Pradesh, Uttarakhand and Rajasthan, all major home states for migrants. The table below shows that the five states that send out the most number of migrants, many of them now returning, are also home to 39% of registered TB patients (2016)--a high-risk category for contracting COVID-19 and expected to have the worst treatment outcomes, as we reported on March 24, 2020. With the exception of West Bengal, all these states register higher infant mortality rates than the national average, government data submitted to the Rajya Sabha in March 2020. Infant mortality rates are considered an important indicator of the overall health of a community and its healthcare infrastructure, according to NITI Aayog health index. How can this chain be broken to arrest the spread of Covid-19 to Indian villages where populations are more widely spread and are vulnerable with only one doctor for close to 10000 people?

India has a tiered healthcare system with the Service centres (SC) at the bottom, followed by Primary Healthcare centers (PHC), Community Health Centers (CHC,) and finally the District Hospitals (DH) at a rural and peri-urban setting. The first connection of clinical personnel with the community is through the Auxiliary Nurse Midwives (ANMs) in SCs. For example, if we were to look at a State such as UP or Bihar, where the maximum number of migrant workers hail from, about 10% of the SCs do not even have ANMs and people need to travel up to 10km to find the nearest medical facility. At the PHC level, about 8% do not have clinical staff, 39% do not have lab technicians and 18% of them do not even have a pharmacist. To add to this, in some States, 50% of District Hospitals do not have adequate ICU beds, specialists or pollution control board clearances. The shortage of ambulances is another big challenge at this level. Additionally, as per the MoHFW infrastructure guidelines for COVID-19 management, district hospitals need to have a dedicated 10-bed isolation ward of about 2,000 sq. ft., with appropriate ventilation and negative pressure facility. The government has introduced trains furnished with hospital beds for healthcare access. But even with this and the district hospitals gearing up, the penetration to the lowest level of the healthcare system in remote corners is practically impossible, and certainly not at the rate at which the virus spreads (Aggarwal, 2020).

A key element was if it is adequate to handle the demands of a pandemic where timely testing is key. The advanced RT-PCR test could not be done in the remote corners of the country as currently this test requires extremely skilled molecular biologists and is authorized to be done only in the 100-odd ICMR labs and few private diagnostic centres in the country. Also, a patient would need multiple tests and (occasionally) Lung CTs to monitor the disease over the course of a three-week period. Although the most common type of sample is the nasal swab, there are five other types of samples that could be taken depending on the condition of the patient. All of them need to be

transported at 4℃ before 5 days to the testing centre with appropriate protective packaging. Some of the sample collections may even require highly skilled physicians. However, migrant home states have poor public health infrastructure and healthcare management. With other complexities such as comorbidities, low immunity, and ill affordability of good treatment, the contrast gets only starker. Recent estimates from Azim Premji University indicate that 29% of the big cities' population would constitute daily wagers looking to head back to their hometowns, mostly in States such as U.P. and Bihar. Therefore, the consequences of these millions, with many of them possibly being infected, returning back home could be terrible. Even though medical technologies and awareness have improved in manifold ways over the last 100 years, we are also facing a new virus that is far more infectious and spreads in stealth mode.

Once a person tests positive, the system needs to conduct contact tracing to identify and quarantine all those who might be susceptible, identify geographic hotspots, and seal them to prevent mobility. The government launched the Aarogya Setu app on April 2, to be installed by all smartphone users, so that they can easily map out the people who might have unknowingly come in contact with COVID-19 patients. But here is the catch — India has only about 500 million smartphone users. Hence, contact tracing would largely fall upon the shoulders of the ASHA workers (Accredited Social Health Activist is a community health worker instituted by the Ministry of Health and Family Welfare as a part of the National Rural Health Mission) who are already overburdened with other responsibilities. In many States, there are about nine ASHA workers for every 10k people, so the enormity of the problem is apparent.

A focused drive to collate updated data on migrants within states is important in order to correctly gauge the funds required to provide adequate access to food supplies, housing, sanitation, and financial services — all factors that migrant workers find difficult to access currently. National and state governments can shape and pursue proactive migrant policies through improved data capturing and management systems.

Formulating Policies for Returning Migrant Workers: the Challenges

Well-designed migration information base and systems can tremendously boost the ability of state and non-state actors and to develop evidence-based policies for migrant workers. The configuration of timely data will enable the designing of differentiated social strategies for mainstreaming migrants in policies and programs based on age, gender, social category, and geographic location. It will function as a database to monitor outcomes in health, education, and labor market programs.

However, while India's internal migration flows are difficult to enumerate. Migrants in India are a very broad and poorly defined category. Policymakers have found it hard to give clear answers with regard to estimating the magnitude of the problem and its solutions. To provide sustenance and allocate resources for migrants, decision-makers at both centre and states have grappled with questions – how big and how different? There is yet no official estimate of the interstate migrants

in India, their composition, their stratification and distribution. Lack of granular data is an important reason why the nation seems to have just woken up to the migrant crisis — nobody knows the magnitude of the situation, because the data we have is derived from models based on dated information.

There is scarce disaggregated internal migration data in India. The Census and the NSSO are the primary source of migration data in India, which are considered to suffer from inherent severe methodological issues. While the last NSSO survey on migration was conducted in 2007-08, the latest Census figures are available for 2011. These 9-year old census figures are,

Thus, outdated and may not showcase the current migration trends underway. Furthermore, several studies have shown that these figures grossly underestimate the total domestic migration. This can be accrued primarily to the fact that neither Census nor NSSO capture accurately the circular/seasonal migration flows which is a large part of overall migration processes (Dandekar & Ghai, 2015). Infact, it has been shown that have shown that the circular migrants alone were close to 100 million in India in 2008 (Deshingker & Akter, 2009).

The National Sample Survey, conducted by the Ministry of Statistics and Program Information, asks people their "usual place of residence," counting migrants as those who have stayed for six months or longer in a place that is different from their prior "usual place of residence." As with the Census, temporary, seasonal, and circular migrants are difficult to estimate through the NSS data, and the survey's estimates of seasonal migration are far below those of other analysts. The NSS counted 15 million short-term migrants, but other estimates have placed the number at about 100 million.

The Economic Survey 2016–17 estimated an interstate migrant population of 60 million and an inter-district migrant population of 80 million. It calculated the average annual flow of migrants between states at 9 million persons. However, this number uses data from the Railways, which is a popular mode of transport for migrants, but far from the only one. Thus, migration studies scholars are skeptical and argue while new data and estimates are starting to emerge, they suffer from significant drawbacks: a lack of recent and accurate data. Hence, the lack of consistent, wide-ranging data on migrants has made policy-framing and legislation far more difficult (Irudaya Rajan et al., 2020).

The Economic Survey of 2018-2019 says that 93 percent workers are in the informal economy, while NITI Aayog's 'Strategy for New India @75' in 2018 says, "India's informal sector employs

approximately 85 percent of all workers." While sources may differ on the precise numbers, the enormity of the informal workforce is an accepted and known reality. These workers contribute to 50 percent of India's national income and constitute a large part of the human capital base of the country. Considering the large percentage of the population trapped in the informal net, providing legal and economic protection will be a massive undertaking during this pandemic. While India has numerous policies for social security when it comes to education, healthcare, skilling, food security and pensions, most of these schemes are restricted to the organised sector.

With control of epidemics, a central government responsibility but needing adequate state government support, incidences of delay due to political and resource bickering can be addressed using data bases. Data driven trust, transparency with accountability can ensure adequate healthcare support is made available in time. Considerable confidence in government can be generated through this together with quick, corruption free direct transfer of benefits to a jobless migrant's bank account.

CREATING MIGRANT DATABASE

Surveillance begins with the challenges of creating a database of these migrants by collating information available in their Aadhaar, the national identity card, voters ID, Public Distribution System (PDS) card and other records at district, block, other local body level or with their employers. The Chief Labour Commissioner (CLC) of India further mobilized Employee Provident Fund infrastructure, NGOs managing relief camps to be part of the process. Given gravity of healthcare, Accredited Social Health Activists (ASHA), Auxiliary Nursing Staff and other frontline health workers were put on this database generation work. Once created and regularly updated, the database can then be used for constant health surveillance of migrant workers, as reporting is made mandatory for their employers. This then gets closely linked to creating primary, secondary healthcare infrastructure to meet these worker needs.

Using the database states governments in India can shape and pursue proactive migrant policies through improved data capturing and management system. Well-designed migration management information systems can tremendously boost the ability of States to develop evidence-based migration policies. The configuration of timely data will enable the designing of differentiated social strategies for mainstreaming migrants in policies and programs based on age, gender, social category, and geographic location. It will function as a tracking database to monitor outcomes in health, education, and labor market programs. The database would include data on identity, mobility, motivation, labor market inclusion, financial and social inclusion, and health (Mazzoli et al., 2020). The full scope of the typology on migrants characterized by location, such as international, national, interstate, rural, urban, and temporality including long-term and short-term, seasonal, and circular (Varma, 2014). Migration policies may cover various areas, including

"travel and temporary mobility, immigration, emigration, nationality, labor markets, economic and social development, industry, commerce, social cohesion, social services, health, education, law enforcement, foreign policy, trade and humanitarian" issues (International Organization for Migration, 2020).

Only when database can ultimately be linked to the migrant's mobile phone, not only their movements can be completely tracked real time but can be systematically controlled by scheduling for their safe transit across country using different modes of transport. This will also control for security related issues linked to mob violence and arson by enforcing mandatory, uniform disciplinary measures across states that also ensures minimum spread of disease in transit.

With migration data, much of this infrastructure can be planned for what is now seen as burgeoning urban poor, migrant population, living in ghettoes like worker camps. At the same time support for such healthcare would need more trained paramedics, nursing and other healthcare staff to be planned based on such data available. As a sizable population with unaddressed health issues, as exposed by Covid-19 pandemic, the migrant workers together with other marginal groups can eventually drive creation/ restoration of a public healthcare hierarchy.

CONCLUSION

Even if migrants are covered by health insurance, their health surveillance leading to better productivity, health and hygiene can reduce the burden on government exchequer and hence tax payer's money in the long run. While successive governments have tried to bring such migrants under universal banking for inclusive growth, Covid-19 threats have exposed futility of thinking piece meal and not using data for greater impact on healthcare, social security, mass transportation as well. The data will help improve the woeful state of public health in India, reduce challenges of panic mass movement. In the long run, the data infrastructure created and the pool of information contained can help undertake socio-economic programs besides healthcare to address the well being of a large, less addressed section of the population. Government can help develop protocols using prescriptive analytics to do this in an organized and systematic way using limited resources available. For now, only a robust model can allow migrants to work in far off places safely even if crises like Covid-19 strike, which according to some experts will be on the rise, not wane away altogether. It could help state mechanism to respond well to such crises and not become a victim of political parleys affecting speed and effectiveness of response.

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