Reflections from COVID-19 Pandemic: Contact Diary for Assessing Social Contact Patterns in Nepal

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ABSTRACT

Management of COVID-19 in Nepal will certainly benefit from the experiences of other countries. However, they are less likely to be suitable for Nepal both in terms of context and resource availability. Social contact pattern studies have shown that understanding the nature of human-to-human contacts can help describe the dynamics of infectious disease transmission. The findings of such studies will help the country prepare itself for future outbreaks, inform mathematically modelling and public health interventions that match domestic capabilities. Methods such as self-reported contact diary can be used to conduct such studies following a feasibility study.

Keywords: Contact diary;COVID-19; disease transmission; social contact pattern.

INTRODUCTION

The Coronavirus disease 2019 (COVID-19) pandemic has posed a threat to the social fabric of human society. Governments across the globe have been compelled to implement "social distancing" [1] measures to disrupt and contain the transmission of the virus. The spread of respiratory infections as COVID-19 is associated with social encounters between individuals. Hence, contact pattern studies that use nature of human interactions to model exposure to infectious agents are needed. They can be used to predict the transmission dynamics of a variety of diseases like COVID-19 that spread primarily through close contact or respiratory route.

SOCIAL CONTACT PATTERN STUDIES

One of the initial steps taken to understand the transmission of infectious diseases was in 1992 with the introduction of "who acquires infection from whom matrix".[2] However, it was not until 2008 when results of the first large scale multi-country study was published which demonstrated the importance of social encounters to understand and model disease transmission.[3] According to the study, locations such as home, workplace, school and leisure spaces contributed two-thirds of all contacts. Meanwhile, most contacts of young adults and school-going children were with individuals of similar age, defined as "age assortativeness". [4] Likewise a study that estimated age-specific contact patterns from various

data available from 152 countries across the globe also revealed that contact amongst individuals of similar age category were more frequent than with other age groups especially at work, school and workplace.[5]

ROLE OF SOCIAL CONTACT PATTERN STUDY IN NEPAL

The management of COVID-19 in Nepal is likely to be informed and guided by the experiences of countries who have effectively deployed resources at a massive scale to contain the spread. But such efforts may not be replicable in Nepal considering the context and resource availability. To better prepare for the outbreak of COVID-19 like infectious diseases in the future social contact pattern studies should be conducted in various sub-groups of the population. They will provide information to inform assumptions of mathematical modelling and guide tailored non-clinical interventions suited to domestic capabilities.

METHODS USED TO STUDY SOCIAL CONTACT PATTERNS

Direct observation would be an ideal method to record social contacts, however, it will be logistically challenging and intrusive. Devices such as proximity sensors is limited to closed groups such as peer group where each study participant carry sensors.[6] Paper or web-based self-reported contact diary[7] is the most commonly used tool.[8] In a contact diary, study participants guided by a study-

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specific definition of contact over a specific time frame, record characteristics of encounters relevant to disease transmission. The characteristics of social encounters reported by the self-reported diary can be disaggregated based on the location of contacts (home, schools, workplace, public transport, etc.), characteristics of people who came in contact, the frequency of contact, the day of the week the contact was made and type of contact (physical or non-physical/verbal).[9] Given its acceptability in other countries as the primary tool for data collection, it has the potential to be used in Nepal as well. However, a pilot study on its feasibility will help make a definitive recommendation.

LIMITATIONS OF SELF-REPORTED CONTACT DIARY

The approach is likely to be challenging with infants, children, illiterate population and the older population who are dependent on others. In the case of infants, young children and senior citizens requiring support it will be useful to consider their primary caretakers as "proxy"[9] to analyse their social contacts. Meanwhile, for illiterate individuals, utility of a picture driven contact dairy can be explored. It is worth noting that contact diary is a self-reporting format so the information about contacts is largely dependent upon the individual's willingness to report. To tackle this issue an integrated data collection method can be adopted. The combination of contact diary (paper or web-based) and face-to-face interviews can compensate for potential low reporting rates on one hand, while help validate the reported contacts on the other.

CONCLUSIONS

It is important to conduct such a study in rural and urban context where nature of individual contacts are likely to be very different given the difference in population density. Further, the nature of contacts is likely to be different based on geography i.e. Mountain, Hill and Terai region because of the differences in environment and the context. Therefore, a nationally representative contact pattern study can be conducted in rural and urban areas of the three geographical region. The insights provided by such a study will help policymakers outline smart containment strategies as opposed to a complete lockdown as well as a preparedness plan. Whether the next pandemic will occur is not a question of if but when. Therefore, time to start is now.

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