

Modeling and Public Health Interventions: Non- Pharmaceutical Interventions to disrupt transmission of COVID-19 in Barbados

This document complements the modelled estimates of COVID-19 infections by Hambleton et. al for Barbados and seeks to provide definitions and recommendations for non-pharmaceutical interventions (NPIs) aimed at reducing the severity of healthcare system impact of COVID-19 by disrupting disease transmission. It is important to note the models presented are based on assumptions and present both the worst and best case scenarios (none vs. all NPI measures or vaccine). An important approach to the application of these estimates to resource planning in the local context, is the assumption that a range of NPIs will be implemented and that moderate disruption (up to 75%) of disease will be achieved. Further considerations for effective NPI use are: i) the existence of policy and legislative support ; ii) availability of outputs from active and passive surveillance systems to monitor disease progression and guide public health measures including initiation and reactivation of NPI strategies given the likelihood of repeat waves of the epidemic; iii) combinations of NPIs have a synergistic effect. Surveillance systems should include testing of all SARIs at the Queen Elizabeth Hospital (tertiary level) and sentinel surveillance in the community for COVID-19.

NPIs are based on behavior change and in general have low compliance, but can be improved by strategies suited to the local social, economic and cultural context.

Strategy	Description and Recommendations (Rec)
	(Implement recommendations a-Hard, b-Fast and c- Repeatedly (HFR) for each modeled wave of infection until burnout occurs)
Information, Communication, Education	These provide persons with factual information about a topic so that they can make informed decisions about the prevention and treatment of disease and the promotion of health. Rec 1: <i>ICEs should be age and gender specific and target high risk groups e.g. Young adults 18-24 years, Persons over 70 years (regardless of co-morbidities), General public *messaging to key groups keeping in mind NCDs in country population, and men regarding seeking care early.</i> Rec 2: <i>A health communication specialist is needed as part of an effective risk communication plan.</i>
Mass Gathering	Not defined by a specific numerical value but rather if the number of people congregating is large enough to be a potential strain on the planning and response resources of the health system in the community where it takes place. Rec 3: <i>The decision to alter or postpone gatherings should be dependent on whether the risk of transmission in the current situation justifies the potential negative impacts of altered social interactions.</i>
Social Distancing	Maintaining a distance of 1-2m (3-6 feet) from the all individuals in the population. Rec 4: <i>To achieve high compliance a distance of 1-2m should be taken in the workplace, school or home.</i>
Social distancing>70	No data exist on the impact of social distancing in older age groups on COVID-19 transmission. Rec 5: <i>Even in the absence of evidence, social distancing for over 70s is proposed to reduce the morbidity and concomitant mortality given their high-risk group status for COVID-19 .</i>
Community containment	Community containment is the application of a physical or legal barrier to prevent movement of people in geographical (cordon sanitaire) (1). Quarantine: means the movement restriction of potentially exposed persons who are not ill. Typically involves restricting individuals or groups and to their homes or designated quarantine facility. Rec 6: <i>Community containment should be applied when quarantine and social distancing alone are deemed insufficient with the aim of severely curtailing personal interactions, to essential activities such as procuring vital supplies (2).</i>

References: 1) Institute of Medicine (IOM). 2007. Ethical and Legal Considerations in Mitigating Pandemic Disease, Workshop Summary. Washington, DC: The National Academies Press.

<http://www.nap.edu/catalog/11917.html>

2)A Wilder-Smith, MD, D O Freedman, MD, Isolation, quarantine, social distancing and community containment: pivotal role for old-style public health measures in the novel coronavirus (2019-nCoV) outbreak, Journal of Travel Medicine, Volume 27, Issue 2, March 2020, taaa020, <https://doi.org/10.1093/jtm/taaa020>