

Paper 2 - Design Intervention

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Intervention Design

The Ontario Provincial government is undertaking an initiative to reopen

select restaurants for in-person dining to determine the relationship between in-person dining and the spread of Covid-19 in the community. As Ontario has moved through the peak of the second wave and total daily case counts of Covid-19 are on the decline, Ontario Health believes this is a reasonably safe opportunity to conduct an intervention that tests the impact of reopening in-person dining on future Covid-19 cases in the community. The intervention will take place as a Random Control Trial (RCT) that divides all restaurants in Ontario into two groups by a simple random sample without replacement (SRSWOR).

Health officials will conduct this intervention for two-weeks from March 1st

until March 15th. Once this time period has elapsed, all in-person dining will be closed across the province while health officials monitor for any instances of community spread of Covid-19 where restaurants were open for in-person dining for two-weeks. This time frame was chosen as it is consistent with the current medical knowledge of anywhere from 5 to 14 days from the initial date of infection to the onset of symptoms of Covid-19 to appear in individuals who are not asymptomatic. Data from this intervention will inform both Ontario Health and Public Health Ontario on next courses of action and whether to expand the intervention or not.

Reason for Random Control Trials

The intervention will use the RCT method as it is the most appropriate in the

context of the experiment. All restaurants in Ontario will be divided into two groups. One group will be the treatment group which will be allowed to reopen their in-person dining and the other group will be a control group which will have no change and their in-person dining will remain closed. It's imperative that no bias be present when selecting who is eligible for treatment as there are financial benefits to the restaurants that are sorted into the treatment group. The RCT will give each restaurant the same probability of being chosen randomly to be selected for the treatment or being placed in the control group. This methodology is both statistically fair while providing a transparent and simple enough process that the general public can understand the reasoning behind why only certain restaurants are being allowed to open for in-person dining. The usefulness of RCT's have made them the "gold standard of impact evaluation" (Gertler et al, 64).

An important element to a robust RCT is having a large number of units to

ensure the treatment group and control group are statically identical. This does not mean that each group needs to be prefect clones of each other (Alexander, Hunt Data), as this would make statistical analysis impossible in this case as restaurants are not identical. They vary in size, location, and serve different types of communities. There are also characteristics that are more challenging to observe such as personal motivations and willingness to follow proper protocols with Covid-19 compliance. What is important is the average of those properties are distributed as equal as possible between the treatment and control groups. The larger the size of the groups that were randomly sorted, the higher probability this will be the case. This is a benefit of selecting an RCT for the intervention, with the population being all legal restaurants in Ontario, there is a sufficient high probability of both groups being statically identical.