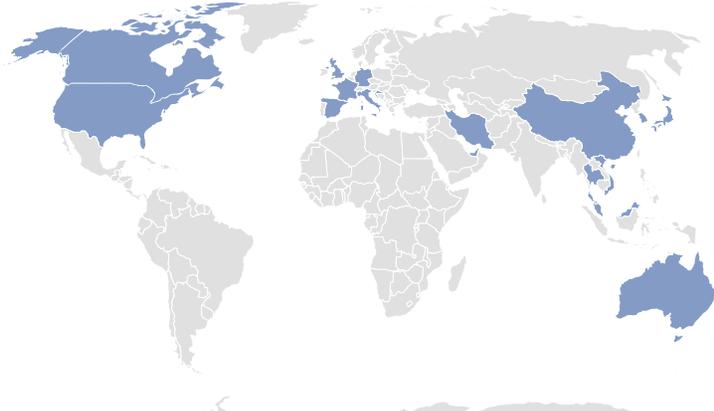


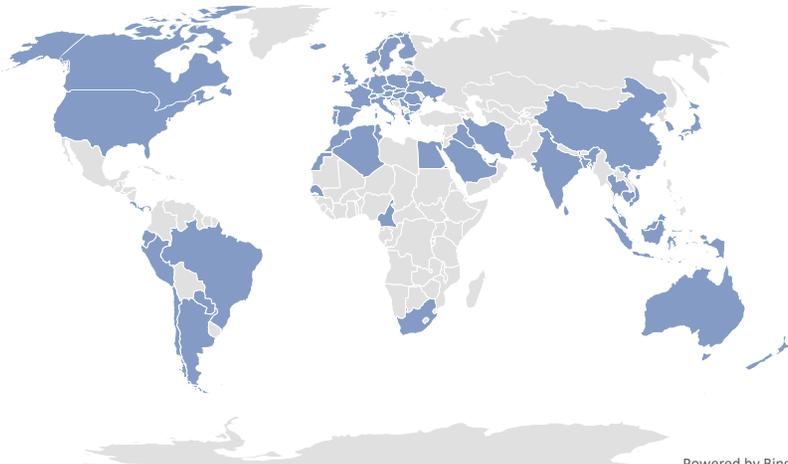
Figure 1. The inefficiency of international travel restrictions to contain the spread of COVID-19

Countries with local transmission by February 28 2020

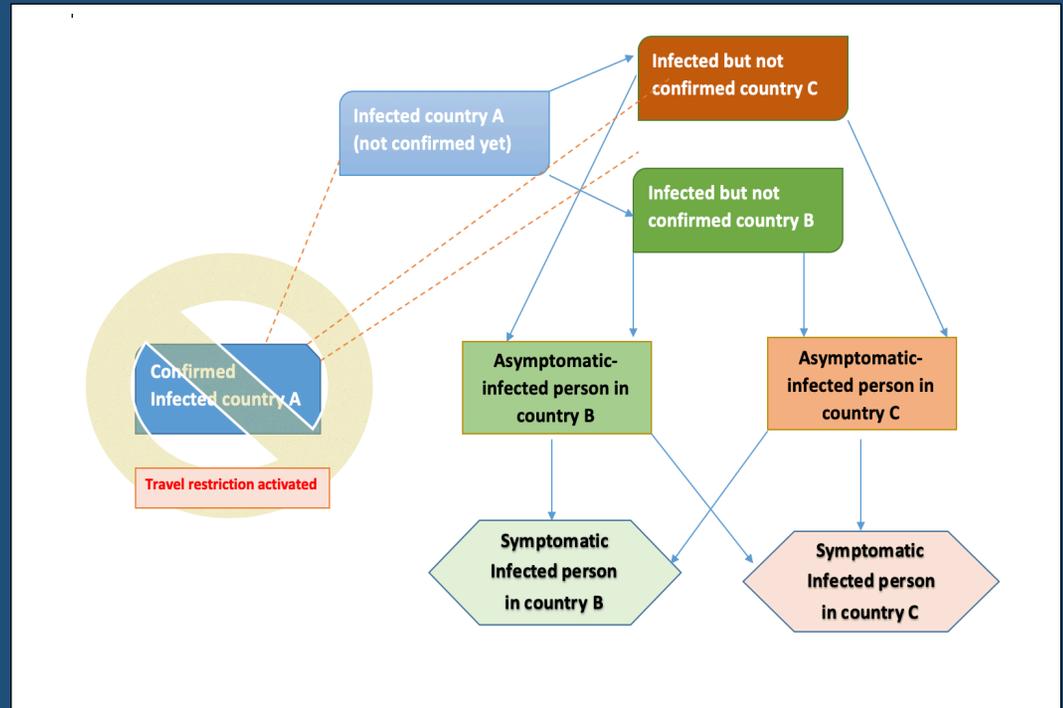


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Countries with local transmission by March 16 2020



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The diagram on the right indicates the process of virus spread at early stage. Assume the virus originates from country A, the infection has started to spread to country B and C when no confirmed cases have been found yet. When country A has confirmed its epidemic of virus and announced its infective status, assume that country B and C activate travel restrictions to country A immediately, it still fails to stop the spread. The solid blue arrows are pathways for actual spread, while the orange dotted lines indicate false pathway blocked by travel restrictions.

The two maps on the left indicate the actual spread of COVID-19 by February 28 and March 16. Most countries had activated international travel restrictions in late January and early February. The maps demonstrated our diagram assumption.