

A Dynamic Modeling Approach to Theorize the Unintended Consequences of the Hospital-delivery Subsidy Program in Jiading, Shanghai

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ABSTRACT

In 2004, the Jiading district government introduced a “Hospital-delivery Subsidy Program” in three state-owned hospitals in Jiading to encourage the female migrant workers (PMWs) to give birth in these hospitals. However, the overall quality of maternal care at these hospitals deteriorated after the launch of the subsidy program.

This retrospective research explores how the unintended consequence was generated endogenously, assesses the impact of the second intervention, the Checkpoint Policy, and compares policy options.

Our modeling and simulation exercise has established a theory to explain the deterioration of the perceived quality of maternal care in these three hospitals after the implementation of the subsidy program. A substantial number of ineligible PMWs (NEPMWs) were attracted to the system due to the word-of-mouth influence and the generosity of the subsidy program. As the bed and workforce capacities failed to catch to meet the large inflow of NEPMWs, the perceived quality of care deteriorated. The large surge of NEPMWs crowded out the eligible PMWs (EPMWs) and local pregnant women. The EPMWs would deliver in other non-hospital facilities while the local pregnant women delivered in the tertiary hospitals, which primary function is to provide complex medical and surgical interventions.

The use of temporary beds to meet the bed shortage further aggravated the perceived quality of care. So long as the temporary beds could fill up spaces in the hospital, the pregnant patients would be admitted. With the intervention of the Checkpoint policy, the inflow of NEPMWs was drastically reduced. Hence, the bed occupancy ratio and work pressure of maternal health workers reduced. The local pregnant patients (LPPs) and EPMWs were able to enroll and enjoyed a higher quality of care. Consequently, the simulation results imply that LPPs delivered in tertiary hospitals and EPMWs delivered outside of Jiading hospital reduced significantly after 2008.

Although our simulation showed the effectiveness of the Checkpoint policy, its implementation was complex. The process involved the engagement of actors outside of the hospitals. The intervention might fail without cross-sectoral collaboration.

This study shows that the effective intervention point, in this case, requires the redesigning of the decision rules or structure in the system. Changing the parameter values, such as changing the amount of the subsidy and increasing the workload of the MHWs to verify the household registration status, seems to be less infective. The findings from this study can be generalized to the field of policymaking.