

# Understanding the Dynamic Mechanisms of Cancer Patients' Outmigration in South Korea: A Group Model Building Approach

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## Abstract

**Background:** Cancer patients' outmigration poses serious challenges to the South Korean healthcare system. Outmigration, defined as patients from provincial areas bypassing local tertiary hospitals and traveling to large hospitals in Seoul, incorporates complex and dynamic causal mechanisms. Engaging stakeholders as well as examining multidirectional causal relationships is essential for understanding model structures and identifying key leverage points.

**Aims and Objectives:** To engage diverse stakeholders to construct a Causal Loop Diagram (CLD) which explains the mechanism of outmigration through key feedback loop structures

**Methods:** Four Group Model Building (GMB) sessions were conducted, with a total of 29 stakeholders, including medical oncologists, surgeons, cancer patients, and their caregivers. These sessions aimed to define key feedback loops through four standardized exercises: (1) Hopes and Fears, (2) Graphs over Time, (3) Variable Elicitation, and (4) Creating a CLD. Stakeholders were encouraged to identify key variables and construct basic feedback loops through group discussions.

**Results:** Providers and patients actively shared their experiences, thoughts, and mental models as primary stakeholders during the GMB sessions. A complete and enclosed CLD was constructed, and three main subsystems with feedback structures were defined: (1) Patient Reassurance Subsystem, (2) Investment and Hospital Management Subsystem, and (3) Physician Job

Attractiveness Subsystem. Each feedback structure was composed of multiple reinforcing and balancing loops, whose dynamics caused an increase in perceived quality gap between Seoul and non-Seoul hospitals.

**Conclusion:** Patient outmigration results from a complex interplay between diverse stakeholders. This novel application of GMB in South Korea establishes a robust foundation for understanding the dynamic nature of cancer patients' outmigration. Discussions on the key leverage points identified in the CLD can inform future policy directions to effectively address outmigration.

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