Resource utilization groups in transitional home care programs: Validating the RUG-III/HC case-mix classification system in a novel population of home care clients

Home care program planning requires a broad understanding of client needs and resource utilization patterns. This project applied the RUG-III/HC case-mix system to a novel population of home care clients in Ontario – transitional hospital-to-home programs - to understand patterns of resource utilization among clients.

Case-mix indices can be used to evaluate trends in care client resource utilization within and across home care programs.

The RUG-III/HC case-mix system suggests that clients in transitional hospital-to-home care programs differ substantially from traditional long-stay home care clients. Clients in transitional care programs are more clinically complex and tend to have a lower degree of functional limitation. However, there is considerable variation in client needs across hospital-to-home programs.

Project Overview

The determinants of health service needs and utilization in home care settings are complex and multifaceted, and can be influenced by a client's health status, their functional ability and level of autonomy, as well as the availability of paid and unpaid care[1]. There is a need to support informed care decision-making and resource allocation in home care settings.

Case-mix systems that classify clients into groups based on their clinical profile can be used to understand trends in client care needs and resource utilization. The **Resource Utilization Groups version III for Home Care (RUG-III/HC)** case-mix system is a classification algorithm that was developed to describe the care utilization patterns of long-stay home care clients[2,3].

The RUG-III/HC uses data from routine client assessments (i.e., interRAI Home Care [interRAI-HC]) to classify home care clients into one of seven hierarchical groups: 1) Special Rehabilitation, 2) Extensive Services,

3) Special Care, 4) Clinically Complex, 5) Impaired Cognition, 6) Behaviour Problems, and 7) Reduced Physical Functions, based on their clinical characteristics, with 23 sub-groups reflecting the degree of limitations with activities of daily living (ADL) and instrumental activities of daily living (IADL). The hierarchical groups reflect historical patterns of health human resource use in long-stay home care settings.

We aimed to 1) evaluate the fit and relevance of the RUG-III/HC case-mix system in a new form of home care in Ontario – transitional hospital-to-home care programs – and 2) evaluate patterns of relative resource utilization across RUG-III/HC groups in this novel client population.

What did we do?

Using patient-level data from interRAI-HC assessments conducted on admission to a multi-week hospital-to-home care program, we classified care clients into groups based on their clinical characteristics using the RUG-III/HC algorithm.

We then used billing records from each client's care episode to explore patterns of resource utilization within and across RUG-III/HC groups by calculating case-mix indices that capture differences in the relative cost and time of paid care alone as well as combined paid and unpaid care.

What did we find?

The RUG-III/HC case-mix system demonstrates that clients in transitional hospital-to-home care programs differ substantially from those in traditional long-stay home care. Clients in hospital-to-home care programs are more clinically complex, tend to have a lower degree of functional limitations, and are less likely to have impaired cognition.

Relative resource utilization of clients in the RUG-III/HC groups follows a decreasing hierarchical pattern of care time and cost both within and across groups, suggesting that the RUG-III/HC accurately describes patterns of relative resource use in this population.

This hierarchical trend is particularly evident when accounting for combined paid and unpaid care, reflecting the importance of unpaid caregiving in home care populations.

There is considerable variation in client needs and resource utilization across hospital-to-home programs, particularly with respect to the need for rehabilitation and special care services.

What's next?

We will be exploring adaptations to the RUG-III/HC to provide a more nuanced case-mix system for transitional home care programs and validating our findings with clinical & financial stakeholders.

How can this impact home care?

Case-mix indices can be leveraged to evaluate resource allocation within & between client populations as well as across home care programs.

The RUG-III/HC case-mix system can be used within hospital-to-home care settings to support:

- Care planning
- Predicting health human resource needs
- Resource allocation
- Comparing care programs & institutions
- Quality improvement
- Pricing care programs

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