Care needs and resource utilization patterns in transitional hospital-to-home care programs in Ontario

Transitional hospital-to-home care programs support safe and timely transition of care clients from acute care settings back into the community. While these programs are becoming more established and more extensively implemented, important questions have emerged about patterns of care needs and the corresponding resource utilization and allocation for transitional care clients.

Case-mix systems that classify clients into groups based on their clinical profiles and resource utilization can assist with care planning, predicting health human resource needs to allocate resources, and calculating reimbursement rates in bundled care funding models. We used a well-established home care case-mix system to examine care needs and resource utilization in 8 transitional hospital-to-home care programs. Our analysis suggests that clients in transitional care are remarkably different from clients in traditional long-stay home care. Transitional care programs have a higher proportion of clients with clinically complex needs and a lower proportion of clients with reduced physical function.

Project Overview

Transitional hospital-to-home care programs are designed to provide coordinated care for older adults who are being discharged from acute care settings, promoting recovery and functional independence.[1] They are effective at reducing hospitalizations, readmissions, and emergency department use while also enhancing client experiences and quality of life.[2]

The complexity of client needs in transitional care requires a robust funding model that aligns economic incentives with efficiency, responsiveness, and care coordination. **Case-mix systems** that classify clients into groups based on their clinical profile can be leveraged to understand trends in care needs and health human resource utilization to inform bundled care pricing.[3]

The **Resource Utilization Groups version III for Home Care (RUG-III/HC)** case-mix classification system[4,5] uses routinely collected data from standardized comprehensive client assessments (interRAI-HC) to classify long-stay home care clients into one of seven hierarchical categories based on their clinical characteristics: 1) Special Rehabilitation, 2) Extensive Services, 3) Special Care, 4) Clinically Complex, 5) Impaired Cognition, 6) Behaviour Problems, and 7) Reduced Physical Functions, with 23 further sub-groups based on the degree of limitations with activities of daily living (ADL) and instrumental activities of daily living (IADL).[4,5] These groups reflect historical patterns of resource utilization and can be used to inform individual care delivery and program planning.

What did we do?

We examined how well the RUG-III/HC case-mix classification system applies to clients in transitional hospital-to-home care programs in Ontario. Using data from standardized comprehensive interRAI-HC assessments conducted at the start of 1,680 transitional care episodes in 8 multi-week transitional hospital-to-home care programs delivered by SE Health, we classified care episodes into established RUG-III/HC groups to explore the distribution of clients across groups compared with long-stay home care.

Using billing records for each care episode, we calculated patterns of resource utilization within and across RUG-III/HC groups using four “case-mix indices” that represent the relative care resource utilization of

paid care alone as well as combined paid and unpaid (i.e., caregiver) care in terms of time and cost. Using statistical methods, we determined the degree to which the RUG-III/HC predicts care resource utilization in transitional care.

What did we find?

The results suggest that clients in transitional hospital-to-home care programs differ from those in traditional long-stay home care. Transitional care clients are more likely be classified as having **Clinically Complex** needs (43% vs 21%) and less likely to be classified as having **Reduced Physical Functions** (37% vs 56%) or **Impaired Cognition** (2% vs 13%). The RUG-III/HC groups that account for the largest share of transitional care clients have low ADL limitations but a range of IADL limitations.

We found considerable variation in the distribution of clients in RUG-III/HC groups across the 8 transitional care programs, particularly differences with clients who are classified in the Special Rehabilitation and Special Care services groups, potentially reflecting varying client populations or differences in referral patterns between programs.

The RUG-III/HC case-mix indices explain a moderate amount of the differences in resource utilization in the transitional care programs. When considering paid and unpaid care time and accounting for differences across transitional care programs, the RUG-III/HC **predicts 24% of the differences** in resource utilization. This level of prediction is similar to that in the original development of the RUG-III/HC groups and in other case-mix systems.

What's next?

To improve the capacity of the case-mix groups to predict resource utilization in transitional care programs, we are currently exploring ways to adapt the RUG-III/HC groups to increase its relevance and applicability for transitional care. We are working in collaboration with those who operate and monitor the programs to explore alternative groupings (i.e., disaggregating large groups, aggregating small ones) and additional classification criteria that are relevant in transitional care settings.

How can this impact home care?

These findings contribute to the application of the RUG-III/HC case-mix classification system to newer forms of home care such as transitional hospital-to-home care programs. The results of this project can be used to inform individual care delivery, program planning and evaluation, resource allocation, comparing outcomes, and prospective calculation of bundled care pricing. Case-mix classification systems such as the RUG-III/HC can be used to inform the development of evidence-based policies and practices for transitional hospital-to-home care in Canada.

Publication

Our research has been published in *BMC Health Services Research* and is available free of charge:

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