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Functional status – an important but overlooked variable in the readmissions equation

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Hospital readmission is not a new problem but ever since the Centers for Medicaid and Medicare Services (CMS) announced that hospital reimbursement would be linked to readmission rates, the quest to understand drivers of this outcome has taken on new and remarkable vigor. Despite the avalanche of new studies on readmission factors¹ and transition interventions,^{2,3} surprisingly few have focused on conditions more prevalent in the aging Medicare population such as functional limitations. This trend in the literature reflects what is perhaps the greatest irony of the CMS readmission policy itself: while focused on improving care for a predominantly over 65 population, it is agnostic to core geriatric vulnerabilities like function and cognition.

In this issue of the Journal, Hoyer and colleagues take an important first step towards exploring such vulnerabilities.⁴ While it may not surprise many hospitalists that these play a role in complex outcomes such as readmission, the effects reported here are striking: odds for readmission were 300% higher for patients with the lowest functional scores compared to those with highest scores after adjusting for other known factors such as comorbidities, age, and severity of illness. In terms of readmission rates, 29% of functionally-impaired medicine patients were readmitted compared to 11% of those with high function (similar but less profound trends were seen in patients discharged from neurology and orthopedic services as well).

While this was a single-site study and functional assessments were made on admission to an acute rehabilitation facility after hospital discharge, their findings are compelling and suggest many important areas for future research. First, the results suggest a need for replication in nationally-representative data to better understand their scope and generalizability. Certainly the number of participants (9,405) gives this study plenty of power, the sample is limited in that presumably all patients had some level of functional decline, but enough potential for functional recovery to warrant discharge to acute rehabilitation; we don't know what effects functional limitations might have on patients discharged to other settings (e.g. community with home rehabilitation or SNF with rehabilitation). Thus, future research should examine whether the impact of functional limitations described in this sample applies to the larger universe of hospital discharges.

We also don't know anything about the functional status of these patients at admission or their functional trajectory prior to hospitalization which limits conclusions about whether the

disabilities observed were hospital-acquired. Functional ability, like vital signs, can be quite variable during the course of acute illness and have to be interpreted in the context of each patient's baseline: the functional trajectory for a patient who was impaired at the time of hospital discharge but independent before hospitalization is likely very different than one who was chronically impaired at baseline. Thus, post-discharge is only half the story at best and future research should explore the functional status and trajectory of patients before admission too.

Finally, to assess functional status, the authors of this study used the Functional Independence Measure score, a well-validated instrument used in rehabilitation facilities. One advantage of using this measure to predict readmission is that in addition to 12 items that assess physical domains overlapping with the Activities of Daily Living (ADL) measures commonly used in hospitals, it also includes 5 items about cognition and thus gives an overall view of both physical and mental status in context of functional ability. On the down side, the FIM score is less well-known in the acute care setting and doesn't include Instrumental ADLs that are often important for patients returning home such as shopping, housekeeping, food prep/cleanup, telephone, transportation, technology like computers. Given the interesting findings by Hoyer et al, future research should explore possible associations with these activities in patients discharged to community as well.

The results by Hoyer et al also have important implications for policy and practice. At the level of national policy and ongoing healthcare reform, Medicare should consider ways to incentivize hospitals to collect data on functional status of patients more consistently. Currently, there is no ICD-9 code to capture functional limitation during hospitalization as a diagnosis or comorbidity (whether hospital-acquired or not) which precludes any discussion about including functional status as an adjustor in the current CMS model for expected readmission rates for hospitals. Regardless of CMS policy and performance incentives or penalties, a lot more could be done at the level of hospital policy and practice to improve screening for functional vulnerabilities on admission and prior to discharge. While this may require greater investment in standardizing physical therapy evaluation for most patients (especially those over 65), the increased readmission rates found by Hoyer et al in functionally-impaired patients suggest it would be penny-wise but pound foolish not to do so. In other words, If hospitals want to reduce their readmission rates by identifying and intervening on high risk patients, identifying functionally-impaired patients seems to be the low hanging fruit.

In summary, Hoyer and colleagues have made an important contribution to the ever-expanding literature on readmission risk factors but they have likely just identified the tip of the iceberg. As Medicare enrollment continues to climb with growth of Baby Boomers over 65 the demand for acute care in older adults will continue to grow.⁵ Moreover, as pressure mounts to improve the quality and reduce costs of hospital care, greater understanding of geriatric vulnerabilities in this population will be increasingly important.

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