

# BMJ Open Quality Practical lessons in implementing frailty assessments for hospitalised patients with COPD

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## INTRODUCTION

*Frailty* is a comprehensive health measure characterised by an individual's vulnerability and diminished reserve when faced with health stressors.<sup>1–3</sup> As one becomes increasingly frail, the ability to recover from acute illnesses is impaired, leading to progressive disability, increased risk of hospitalisation, need for supportive living environments and death.<sup>1–6</sup>

Current estimates suggest that 40% of community-dwelling adults are at risk of becoming frail, while 40% of hospitalised patients are 'vulnerable' or 'mildly frail'.<sup>5,7,8</sup> Hospitalisation is a key risk factor for the progression of frailty, especially among older adults.<sup>5,9–11</sup>

Frailty is measured with the Clinical Frailty Scale (CFS), a validated measure that is correlated with a comprehensive Frailty Index.<sup>1</sup> Assessing frailty during patient encounters could help clarify the appropriateness of interventions and improve prognostication and shared decision making, which are essential components of patient-centred care.<sup>2,12–15</sup>

Our health system is currently organised to address single organ illnesses and frailty is often overlooked as a consequence of normal ageing.<sup>16</sup> This pilot project was designed to assess the feasibility of implementing the CFS among hospitalised patients with chronic obstructive pulmonary disease (COPD), to assess the differences in frailty assessments between health providers, and to understand the distribution of frailty among hospitalised patients with COPD.

## METHODS

Over an 11-month period, the CFS was included in routine nursing assessments on a respiratory ward at a tertiary care hospital (online supplementary appendix 1). Frailty assessments were linked to a clinical pathway designed to allocate supportive resources (eg,

physiotherapy, dietetic services, education) to patients based on the degree of frailty identified. Adult patients who were hospitalised for a COPD exacerbation and enrolled in the clinical pathway were eligible for this study.

After peer-delivered education on the use of the CFS, nurses assigned a frailty score to patients using their clinical assessment and the physician's consultation note at the time of hospital admission. Frailty assessments were based on the patient's functional status 2 weeks prior to hospitalisation.

Two respiratory physicians independently assessed frailty by retrospectively reviewing nurse and physician admission notes. These physicians were blinded to the nurses' assessment and not involved in the hospital care.

We described age, length of stay, and care costs among different degrees of frailty, and compared agreement in frailty assessments between nurses and respiratory physicians.

## RESULTS

Approximately 20 nurses completed frailty assessments on 46 of 50 patients hospitalised for COPD exacerbation between December 2016 and October 2017.

Table 1 describes the degrees of frailty observed, based on physician assessment. A total of 27 patients (54%) were assessed as mild or moderately frail, suggesting that these patients had progressive impairment and needed assistance with activities of daily living (eg, shopping, housework) prior to hospitalisation. Thirty-five per cent of patients were rated as 'vulnerable', suggesting that symptoms of COPD were limiting their activities.

Increasing severity of frailty was associated with trends in increased cost, length of stay, prior hospitalisations and subsequent hospitalisations with 'alternate level of care' (ALC) designations (table 1).

Physicians classified patients as *more frail* in almost half of cases (45.7%). This was predominantly observed in nurse-assessed

**Table 1** Description of frailty assessments among patients hospitalised with COPD exacerbation, based on physician assessment

	<b>Managing well and vulnerable n=21 (42%)</b>	<b>Mildly frail n=9 (18%)</b>	<b>Moderately frail n=18 (36%)</b>	<b>Severely frail and very severely frail n=2 (4%)</b>
Age, mean±SD	71±9	72±9	72±10	76±12
Total length of stay, median (IQR)	4 (2–7)	5 (4–6)	6 (4–10.25)	11 (10–12)
Previous hospitalisation in the last 2 years, median (IQR)	1 (0–2)	1 (0–1)	2 (0–3)	6 (6–6)
Total cost (\$C), median (IQR)	4366 (2490–7094)	5396 (5025–6386)	6636 (3826–11 171)	14 109 (13 182–15 037)
Subsequent hospitalisations with ALC* designation, number of hospitalisations (number of days)	1 (5)	2 (75)	4 (84)	1 (5)

\*ALC designation refers to 'Alternate Level of Care'. This designation is assigned to patients in hospital who are ready for discharge but cannot access the appropriate postacute care (ie, long-term care or assisted living). Patients with ALC designation remain in hospital beds, but are not receiving active acute medical care.<sup>19</sup>

COPD, chronic obstructive pulmonary disease.

cases of 'vulnerable', where 25% of those patients were considered 'moderately frail' by physicians. There was agreement in frailty assessments in 52.2% of cases, with a kappa score of 0.35, suggesting 'fair' agreement.<sup>17</sup>

## DISCUSSION

Our study has four main findings. First, there was a high degree of compliance (92%) with the use of the CFS in a real-world hospital setting among front-line nursing staff on an acute respiratory ward. This supports the routine use of the CFS by nurses at the hospital bedside. Previous work has demonstrated good compliance with the CFS on a general medical ward, but this was based only on physician-rated frailty.<sup>8</sup>

Second, more than half of the patients in our sample were mild or moderately frail at baseline, suggesting that these patients are at risk for poor outcomes (including rehospitalisation). Studies have shown that more than one-third of patients with COPD who are frail at the onset of hospitalisation do not recover their functional baseline 3 months after discharge.<sup>11</sup> Identifying patients earlier in their functional trajectory (when 'vulnerable' or 'mildly frail') could facilitate the introduction of important interventions that may stabilise or reduce the burden of frailty (eg, pulmonary rehabilitation and nutritional support).<sup>4 18</sup> Further, identifying patients in the later stages of frailty may also facilitate the timing of supportive care interventions (ie, palliative care and supportive home personal care).

Third, there were clear trends in increased costs, lengths of stay and subsequent 'ALC' designations. These suggest that health systems should consider incorporating the CFS measurement into routine care to identify patients at

risk of further functional decline, and to allocate appropriate resources.<sup>2 19</sup>

Finally, and most importantly, we identified key differences in the way front-line healthcare staff apply the CFS. There was 'fair agreement' between nursing and physician staff, and nurses tended to classify patients as less frail when compared with their physician colleagues. Further work to educate health providers about frailty and to standardise routine collection of patient-reported functional abilities is needed to better align frailty assessments before the CFS can be used in patient-centred treatment plans.

A limitation of this study was the non-concurrent frailty assessments between nurses and physicians. We attempted to mitigate this by blinding physicians to the nurses' assessment and ensuring that both health providers used the same clinical information to provide frailty assessments. The evaluation of frailty education and training for nurses was not included in this analysis, but is being explored in a separate project.

## CONCLUSION

The CFS can be implemented in nursing practice as a tool to complement disease-specific care for patients with chronic respiratory disease. Further work is required to educate health providers on frailty assessments and ensure they are reliable and accurate, and linked to improvements in patient outcomes.

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