

Excess Days in Acute Care (EDAC) after Hospitalization for Pneumonia

Evidence: Summary of the empirical data

In 2007, the Medicare Payment Advisory Commission (MedPAC) called for hospital-specific public reporting of readmission rates, and identified pneumonia as a priority condition (MedPAC, 2007). Since then, pneumonia continues to be the most common infectious cause of hospitalization in the US, leading to more than 1 million hospitalizations per year and incurring billions of dollars in healthcare costs (Lindenauer et al., 2018; Jain et al., 2018;). Approximately 20% of pneumonia patients are rehospitalized within thirty days, representing the second-highest proportion of all rehospitalizations at 6.3% (Jencks et al., 2009). Among patients 65 years [of age] or older in the United States, pneumonia is the third leading cause of rehospitalization, accounting for more than 88,800 readmissions at a cost of \$1.1 billion in total costs (Hines et al., 2014).

In the context of the Centers for Medicare and Medicaid Services' (CMS's) publicly reported measures, the increasing use of ED visits and observation stays has raised concerns that current readmission measures do not capture the full range of unplanned acute care in the post-discharge period (Vashi et al., 2013; Rising et al., 2012; Feng et al., 2012). Observation stays can occur in many different parts of the hospital, including dedicated treatment rooms, ED, or inpatient units. In particular, there is concern that high use of observation stays could in some cases replace readmissions, and that hospitals with high rates of observation stays in the post-discharge period may therefore have low readmission rates that do not accurately reflect the quality of care (Vashi et al., 2013; Nuckols et al., 2018).

Figure 1. Pneumonia EDAC Logic Model



The diagram in Figure 1 indicates some of the many care processes that can influence post-discharge acute care utilization after a hospitalization for pneumonia. These complex and critical aspects of care – such as communication between providers, patient education, patient safety, and coordinated transitions to the outpatient environment – all contribute to patient outcomes but are difficult to measure by individual process measures. The goal of this measure is to improve patient outcomes by providing patients, physicians, and hospitals with information about hospital-level, risk-standardized excess days in acute care (EDAC) following hospitalization for pneumonia. Measurement of patient outcomes allows for a broad view of

quality of care that encompasses more than what can be captured by individual process-of-care measures. Complex and critical aspects of care, such as: communication between providers, prevention of, and response to, complications, patient safety and coordinated transitions to the outpatient environment, all contribute to patient outcomes but are difficult to measure by individual process measures. The goal of outcomes measurement is to risk-adjust for patients' conditions at the time of hospital admission and then evaluate patient outcomes. This excess days in care measure was developed to identify institutions, whose performance is better or worse than would be expected based on their patient case-mix and therefore promote hospital quality improvement and better inform consumers about care quality.

Interventions during and after hospitalization can be effective in reducing utilization rates in geriatric populations (Zuckerman et al., 2016; Liu et al., 2021; Coleman et al., 2006; Courtney et al., 2009; Koehler et al., 2009) and, particularly, for older patients (Young et al., 2003; Li et al., 2021; Dunlay et al., 2014). Several randomized trials have reduced 30-day readmission rates by 20-40% (Jack et al., 2009; Leppin et al., 2014; Courtney et al., 2009; Garasen et al., 2007; Koehler et al., 2009; Mistiaen et al., 2007; Al-Damluji et al., 2015; Weiss et al., 2010; Krumholz et al., 2012; Balaban et al., 2008; Patel et al., 2018). These types of interventions have also been demonstrated to be cost saving (Liu et al., 2021; Naylor et al., 2004; Krumholz et al., 2002; Stauffer et al., 2011). Outside the randomized controlled trial setting, there is also increasing evidence that hospitals and health plans have been able to reduce readmission rates through more generalizable quality improvement initiatives (Gerhardt et al., 2012; Stauffer et al., 2011; Graham et al., 2012; Harrison et al., 2011; Hernandez et al., 2010; Radhakrishnan et al., 2018).

In the case of pneumonia, studies have also reported reductions in emergency department (ED) visit rates for patients with other conditions after implementation of interventions that focused on the inpatient and outpatient settings (Husan et al., 2020). Although many current hospital interventions are known to decrease the risk of readmission within 30 days of hospital discharge (Leppin et al., 2014; Radhakrishnan et al. 2018), current process-based performance measures cannot capture all the ways that care within the hospital might influence outcomes.

Measurement of patient outcomes allows for a comprehensive view of quality of care that reflects complex aspects of care such as: communication between providers and coordinated transitions to the outpatient environment. These aspects are critical to patient outcomes and are broader than what can be captured by individual process-of-care measures.

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