

Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Pneumonia (PN) Hospitalization

Evidence: Summary of the Empirical Data

Pneumonia continues to be the most common infectious cause of hospitalization in the US, leading to more than 1 million hospitalizations a year and incurring billions of dollars in healthcare costs (Lindenauer et al., 2012; Jain et al., 2018; FastStats: pneumonia, CDC). The annual mortality rate (deaths per 100,000 population) is 15.1 (FastStats: pneumonia, CDC). Among patients 65 years [of age] or older in the United States, pneumonia is the leading infectious cause of death (Fry et al., 2005; Bratzler et al., 2011).

Figure 1. Pneumonia Mortality Logic Model



The goal of this measure is to improve patient outcomes by providing patients, physicians, and hospitals with information about hospital-level, risk-standardized mortality rates 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 mortality 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.

Pneumonia mortality is costly and represents an undesirable outcome of care from the patient's perspective, and highly disparate pneumonia readmission rates among hospitals suggest there is room for improvement. Current hospital interventions have been shown to be associated with lower risk of mortality within 30 days of hospital admission (Lee et al., 2014; Radhakrishnan et al. 2018). Current process-based performance measures; however, 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.

The diagram above indicates some of the many care processes that can influence mortality risk. Numerous studies have demonstrated that appropriate (guideline recommended care) and timely treatment for pneumonia patients can reduce the risk of mortality within 30 days of hospital admission (Gleason et al., 1999; Houck et al., 2001; Jha et al., 2007; Lee et al., 2014;). Evidence that hospitals have been able to reduce mortality rates through these quality-of-care initiatives illustrates the degree to which hospital practices can affect mortality rates (Lee et al., 2014; Radhakrishnan et al. 2018).

The pneumonia risk standardized mortality rate (RSMR) measure is thus intended to inform quality-of-care improvement efforts, as individual process-based performance measures cannot encompass all the complex and critical aspects of care within a hospital that contribute to patient outcomes. As a result, many stakeholders, including patient organizations, are interested in outcomes measures that allow patients and providers to assess relative outcomes performance for hospitals (Bratzler et al., 2007).

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