

Risk-adjusted mortality rates: Why you should care about them

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● These rates indicate the quality and safety of hospital care—but can be misleading.

HAVE YOU EVER HEARD of risk-adjusted mortality? Maybe you're thinking, "No! It sounds like something only a healthcare administrator or researcher would be interested in."

Actually, every healthcare professional should know—and be concerned—about risk-adjusted mortality. Risk adjustment refers to methods of determining if a patient's characteristics might warrant greater use of medical services. It takes into account illness severity and certain other patient demographics and characteristics. In effect, risk adjustment levels the playing field to allow comparisons of the quality and safety of hospitals and healthcare providers.

Such comparisons, though, aren't as easy as they might sound. This article explains the concept of risk

adjustment for mortality measures and explains why it's important to nurses.

Expected vs. observed mortality rates

Obviously, some patients die during hospitalization. Healthcare organizations try to predict how many patients will die over a specified period. Called *expected mortality rates*, these predictions are calculated using complex statistical regression modeling based on various factors, including case mix—a term that, to some degree, denotes illness severity of the hospital's general patient population.

All nurses can relate to illness severity. We know that comorbidities, such as obesity, heart failure, and diabetes, affect a patient's admission diagnosis (or diagnoses) and prescribed treatment approach. Typically, more comorbidities per patient predict poorer health outcomes. For example, a 63-year-old obese female with diabetes who undergoes total knee replacement surgery has a lower chance of a good outcome than a healthy 52-year-old male with no comorbidities who has the same procedure.

Unfortunately, determining illness severity of patient



mortality

How documentation practices can affect mortality indicators

populations isn't an exact science. Multiple patient-classification systems have been used to address severity. Although each one may define severity differently, most use patient demographics, primary diagnoses, comorbid conditions, and vital procedures to define different severity levels and treatment complexity.

Observed mortality rates, another key metric for healthcare organizations, refers to the actual number of patients who die while hospitalized. Healthcare professionals strive to prevent death and help patients achieve an optimal state of health.

Yet some hospital deaths can't be prevented because of the severity of certain conditions. In those cases, even the best treatment may provide only comfort care before death.

On the other hand, some patient deaths are preventable but result from medical error. Many hospital quality and patient-safety practices have been implemented to help prevent unexpected deaths like these. Examples include evidence-based practices for patients with comorbid conditions, timely administration of appropriate medications, highly skilled rapid response teams, updated infection control practices, and coordination of continuing care at discharge.

Defining risk-adjusted mortality ratios

Risk-adjusted mortality ratios are quality data that compare actual deaths to expected deaths. They're expressed as the ratio of observed mortality to expected mortality. A mortality ratio above 1.0 means the actual number of deaths exceeds the predicted number, whereas a ratio below 1.0 means fewer patients died than expected. Ratios above 1.0 suggest unsafe, lower-quality care; those below 1.0 suggest safer, higher-quality care.

Why risk-adjusted mortality rates don't always reflect care quality

Risk-adjusted mortality rates have become key indicators of the quality of hospital care; the data are now widely available on the Internet. The Centers for Medicare & Medicaid Services hold hospitals accountable for such data by disallowing some payments based on certain diagnosis-related groups.

However, risk-adjusted mortality measures aren't necessarily valid indicators of the quality or safety of health care. (See *How documentation practices can affect mortality indicators*.)

Also, the percentage of hospitalized patients who die is small; some studies show as few as 5% of hospital deaths result from unsafe care. Yet these data are used

Accurate documentation practices are vital to risk-adjustment models but vary widely among organizations and practitioners. Patient-classification systems typically use acuity levels to determine illness severity, but these systems also vary.

Documentation practices that increase the acuity level may lead to higher numbers of expected deaths, while practices that lower the acuity level may lead to decreased numbers of expected deaths. Either way, observed mortality always increases the numerator more than the denominator, because expected mortality never exceeds 100%. Conversely, expected deaths are never calculated as 0%, so accurate documentation of illness severity is vital to risk adjustment.

All of this depends on accurate administrative coding of the primary diagnosis and the identified comorbid conditions. The 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) is now in use. Although it's improved over the previous revision (ICD-9), its correct use still hinges on accurate documentation.

broadly to rank hospitals in terms of quality care and ability to prevent deaths, determine centers of excellence, adjust reimbursement levels, and identify some hospitals as outliers. Such classifications may be misleading and cause erroneous evaluation of hospitals, which in turn can lead to loss of public and professional confidence and unnecessary regulatory scrutiny of those hospitals. What's more, a hospital's case mix can vary widely based on location, patient demographics (including age and socioeconomic status), complexity of care provided, and organizational characteristics (such as for-profit vs. not-for-profit and private vs. public).

Obviously, some form of risk adjustment for mortality is needed, but direct comparisons don't necessarily reflect the quality and safety of care delivered. Still, when you're aware of these issues, you can gain a deeper understanding of the importance of delivering safe, high-quality care. ★

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