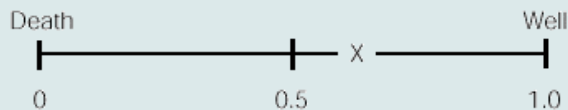


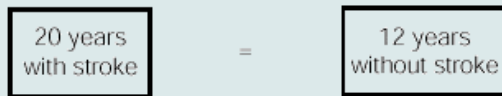
Primer on Utilities

Utilities are numerical expressions of patient preferences for a particular state of health. Although utilities and measures of functional status both reflect quality of life, utilities describe how patients feel about or value living with a given clinical condition, and measures of functional status generally reflect the limitations experienced by patients with a clinical condition (e.g., New York Heart Association class for congestive heart failure). Utilities are typically assessed on a scale from 0 (death or worst health imaginable) to 1 (best health).

Visual Analogue Scale



Time Trade-off



Standard Gamble

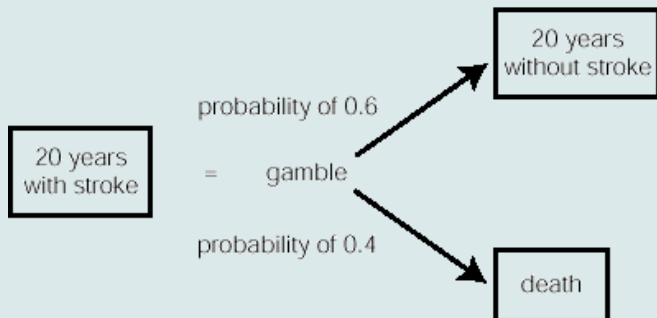


FIGURE. Three ways to measure or express a utility of 0.6 for disabling stroke.

Patient utilities may be measured by using a variety of techniques (Figure). With the simplest approach, the visual analogue scale, patients simply mark an "X" on a continuous

scale between 0 and 1. More commonly, utilities are elicited by asking patients to make a series of choices to identify at what point they are indifferent about the choice between two options. There are two commonly used iterative approaches to assessing utilities. With the time trade-off method, for example, patients might be asked whether they would prefer to live 10 years in good health or 20 years with a disabling stroke. If they chose the latter, the choice might be modified to 15 years in good health or 20 years living with a disabling stroke. This iterative process would continue until a patient was indifferent about the choice between the two options—for example, that living 12 years in good health was equivalent to living 20 years with a disabling stroke. In this case, the utility for stroke is the ratio of the two values: $12/20=0.6$ (Figure). With the standard gamble method, a patient is instead asked to choose between life with a specific condition and a gamble with variable probabilities of life without the condition and death.

Average utilities for a wide variety of clinical conditions or symptoms may be obtained from the literature. One often-used catalogue is the Beaver Dam study.¹ This population-based study describes utilities (obtained by two different methods) for patients with a variety of common clinical conditions, such as severe back pain (0.87), insulin-dependent diabetes (0.72), and cataract (0.94).

One familiar application of utilities is the quality-adjusted life-year (QALY). To calculate QALYs, time spent in a particular outcome state is multiplied by the utility for life in that state. For example, 10 years after a disabling stroke (utility of 0.6) is equivalent to 6.0 QALYs ($10 \times 0.6 = 6.0$ QALYs). This aggregate measure is frequently used in decision analysis and cost-effectiveness analysis to compare the relative value of clinical interventions.

Reference

1. Fryback DG, Dasbach EJ, Klein R, et al. The Beaver Dam Health Outcomes Study: initial catalog of health-state quality factors. *Med Decis Making*. 1993;13:89-102.