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University Northwest, Gary, IN 46408. *Hypothesis Testing with the Benefit/Risk Model.*

The threshold probability of a certain treatment for a given disease and the disease probability are used to decide whether or not the treatment should be administered to a patient who is suspected to have the disease. The threshold probability is based on both treatment benefits and treatment risks. In this article we derive a benefit/risk model which enables hypothesis testing for deciding whether or not a particular treatment should be administered to a patient. Hypotheses are given in terms of the disease probability and the threshold probability, and a test statistic is developed for this hypothesis testing. We also develop a hypothesis testing to recommend which of two available treatments to be administered to a patient. A new measure of treatment desirability, combined mortality rate (CMR), is introduced. CMR directly measures the desirability of a treatment that reflects both treatment benefits and risks. (Received August 25, 2000)