

Preference-Based Valuation of Diagnostic Error in Predictive Stroke Triage

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Abstract

This article examines how the general population arbitrates the trade-offs introduced by point-of-care predictive tests used to triage acute ischemic stroke patients between two distinct treatments. Theoretically, we model a social planner who maximizes collective welfare defined over the health outcomes of two patient groups, explicitly incorporating diagnostic uncertainty and hospital capacity constraints. Because test performance is bounded by a ROC curve linking sensitivity and specificity, a structured trade-off emerges between inter-group equity and overall diagnostic performance.

Empirically, we estimate these preferences using a discrete choice experiment administered to 1,600 adults representative of the French population. Holding QALYs constant, respondents are willing to accept roughly two additional poor outcomes among less severe patients to avoid a single poor outcome among the most severe patients, revealing a pronounced priority given to the more critical cases. When outcomes are expressed as rates (per 100 patients), this asymmetry decreases but remains above one, indicating that the preference for severe cases persists while remaining compatible with a desire for balance across groups.

Overall, our results suggest that predictive tests that are sensitive yet imperfect can be socially acceptable, provided that systematic misclassification and congestion effects are effectively managed.

Keywords: Predictive medicine, Social preferences, Discrete Choice Experiment.

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