

Digital Diabetes Screening in Switzerland: A cost-effectiveness analysis

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1. Problem

Undiagnosed diabetes remains a major challenge in Switzerland. Opportunistic screening detects too few at-risk adults early enough [1]. Digital tools can scale detection, but their cost-effectiveness and performance thresholds remain unclear.

2. Research Questions

Under what conditions does digital diabetes screening become cost-effective for the Swiss healthcare system?

3. Methods

A decision-analytic simulation modeled digital screening for 7 million Swiss adults. The model combined a 5-year cost-effectiveness and probabilistic sensitivity analysis with 1,000 Monte Carlo runs [2]. Parameters varied: screening cost CHF 5–120, sensitivity 60–95%, specificity 90–99%, uptake 20–80%. Outcomes were plotted contrast to CHF 100,000/QALY Willingness-to-Pay (WTP) threshold. Early detection was assumed to lower complication risk by 15% [3].

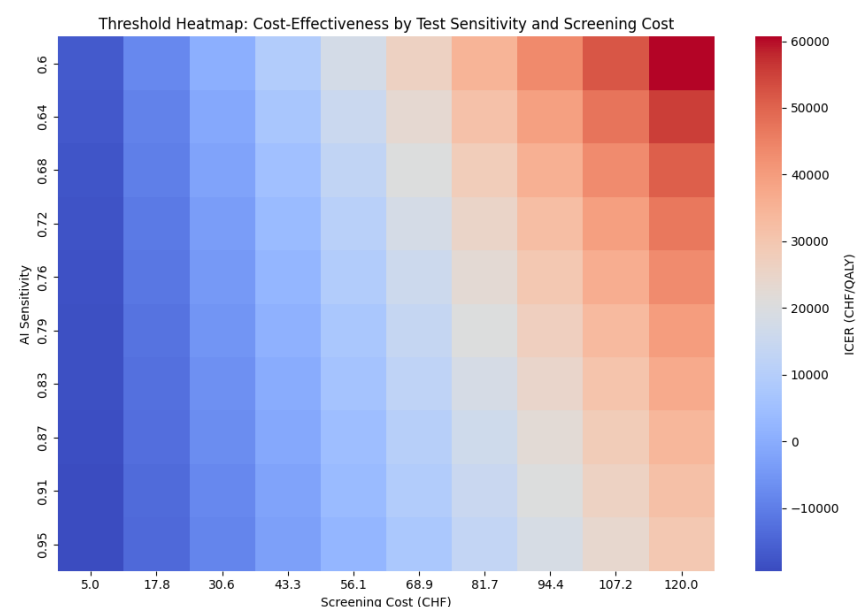
4. Results

Digital screening was dominant (lower cost, higher QALYs) in most simulations. At 50% uptake and CHF 5/test: ICER = –CHF 18.565/QALY. Cost-effectiveness persisted when specificity > 90% and uptake > 30%.

Figure 1. Cost-Effectiveness Plane — Each dot = one simulation; most fall below the WTP line.



Figure 2. Threshold Heatmap — Blue = dominant region.



Sources

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