IS UNIVERSAL FIBROSIS SCREENING NECESSARY BEFORE DAA THERAPY? A DECISION CURVE ANALYSIS OF AGE-BASED STRATEGIES

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Background: Australia has committed to hepatitis C virus (HCV) elimination, yet treatment uptake has plateaued despite universal access to direct-acting antivirals (DAAs). Pre-treatment fibrosis assessment can delay DAA initiation. We propose a "Treat First" model that starts pan-genotypic DAAs without fibrosis assessment when cirrhosis risk is low, reserving assessment for those at higher risk. We evaluated age cut-offs to selectively trigger fibrosis assessment versus the current "screen all" strategy.

Methods: We performed a meta-analysis of 10 HCV studies. Outcomes were cirrhosis and clinically significant portal hypertension (CSPH), defined by median liver stiffness ≥12.5 kPa and >20 kPa, respectively (transient elastography, Fibroscan). We compared strategies assessing fibrosis only in people aged ≥35, ≥40, or ≥45 years with "screen all" and "screen none". Decision curve analysis quantified net benefit across 0–30% threshold probabilities, representing the minimum disease risk at which a clinician would justify assessment to balance case detection against unnecessary assessments.

Results: The pooled sample included 6,581 individuals (median age 48 years; 72% male); cirrhosis prevalence was 16% (n=1,074) and CSPH 8% (n=554). For cirrhosis (Figure 1a), age-based strategies had higher net benefit than screening all at thresholds ≥1% (≥35 years), ≥3% (≥40 years), and ≥5% (≥45 years). For CSPH (Figure 1b), age-based strategies were superior at thresholds ≥1% (≥35 years), ≥1% (≥40 years), and ≥5% (≥45 years). Applied to New South Wales HCV testing data, a 40-year age cut-off would reduce fibrosis assessments by 41%, with an estimated 2% missed cirrhosis and 0.8% missed CSPH.

Conclusion: Universal pre-treatment fibrosis assessment only provided greater net benefit at extremely low cirrhosis thresholds (<1%). Incorporating age-triggered selective assessment into a "Treat First" pathway could reduce low-value pre-treatment testing and accelerate DAA initiation, supporting progress toward HCV elimination.

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Figure 1. Net Benefit of Age-Based Fibrosis Assessment Strategies Compared With Universal Screening