

Birth cohort screening for hepatitis C: A systematic review of economic evaluations

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Introduction

- An Irish national clinical guideline for Hepatitis C Screening, published by the National Clinical Effectiveness Committee, included a conditional recommendation to offer one-off screening for hepatitis C to people in Ireland born between 1965 and 1985.
- A health technology assessment (HTA) is currently underway to inform a decision on the introduction of birth cohort screening in this cohort of approximately 1.5 million people.
- As part of the HTA, a systematic review of cost-effectiveness was undertaken to identify and critically appraise the relevant international evidence on the cost-effectiveness of birth cohort screening for hepatitis C.
- The review also aimed to identify why cost-effectiveness may vary and what implications this has for countries considering its introduction.

Methods

- Economic evaluations that compared birth cohort screening with no screening or risk-based screening, where patients were treated with direct-acting antivirals, were included.
- The proposed methodology was registered on PROSPERO (CRD42019127159). Electronic searches were carried out from 2000 up to 13 February 2019 in Medline, Embase, the Cochrane Library and grey literature sources.
- Screening, critical appraisal and data extraction were performed by two people, with disagreements resolved through discussion. The quality and credibility of studies were assessed using the Consensus for Health Economic Criteria (CHEC)-list and ISPOR appraisal tools, respectively.
- Reporting adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and national HTA guidelines..

De novo cost-effectiveness analyses, in light of jurisdiction-specific disease prevalence, screening uptake, treatment costs and treatment eligibility criteria, are required to determine the value of birth cohort screening for hepatitis C.

Figure 1: Birth cohort screening versus no screening

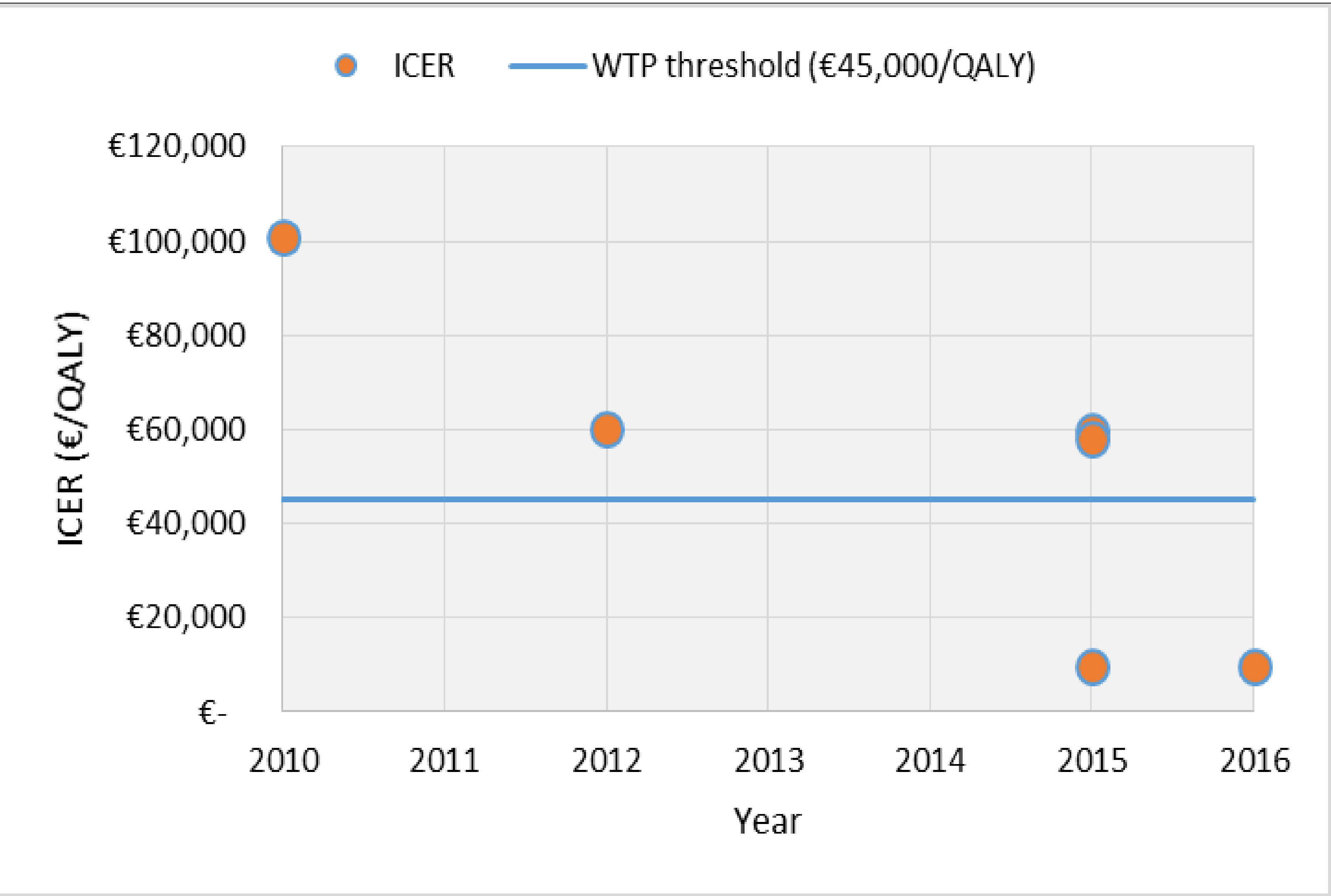
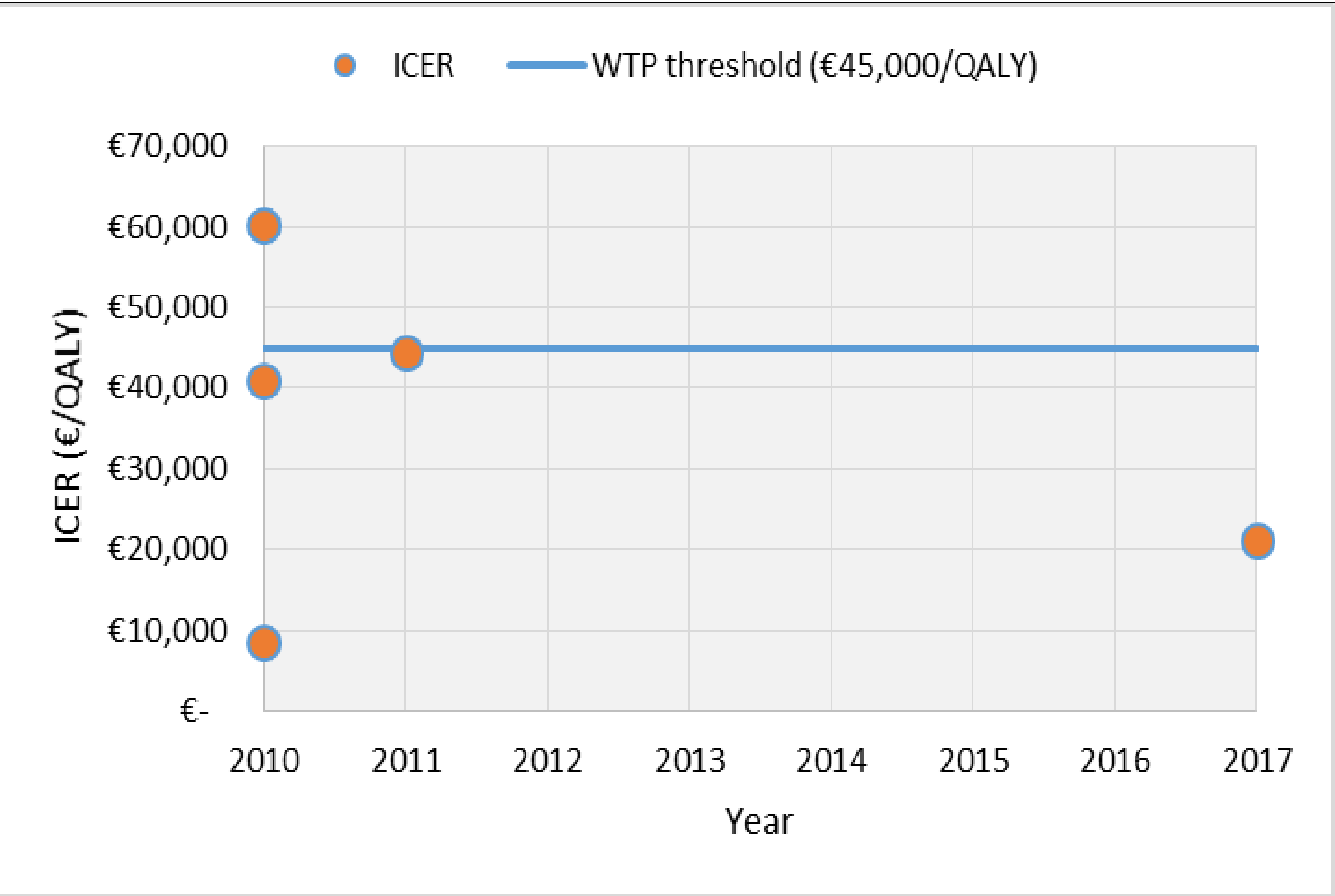


Figure 2: Birth cohort screening versus risk-based screening



ICER – incremental cost-effectiveness ratio; QALY – quality-adjusted life-year; WTP – willingness-to-pay. ICERs expressed in 2018 Euro.

Results

- Overall, thirteen studies were included. Quality was variable, ranging from low to high. Studies were generally only partially applicable or not applicable to Ireland. Study quality and credibility were limited by unclear reporting of data sources, model validation, and inadequate assessment of uncertainty.
- Seven studies compared birth cohort screening with no screening. ICERs ranged from €7,574 to €105,121 per QALY gained (Figure 1). Screening was dominant in one study.
- Six studies compared birth cohort screening with risk-based screening. ICERs ranged from €21,194 to €60,307 (Figure 2). Screening was dominant in one study.
- Uncertainty surrounding the cost-effectiveness of screening was mainly influenced by the uptake rates of screening and treatment, treatment eligibility and costs, liver fibrosis score at diagnosis and the prevalence of chronic infection.

Conclusions

- Each of the 13 included studies found that birth cohort screening was cost-effective. However, willingness-to-pay (WTP) thresholds vary from country to country. Applying the findings to a WTP threshold of €45,000 per QALY gained, birth cohort screening would be considered cost-effective in eight studies.
- Given the variation in results and the influence of context-specific factors on cost-effectiveness (e.g. prevalence, disease-stage of diagnosed cases, treatment costs and treatment eligibility criteria), jurisdiction-specific economic evaluations will generally be required to inform policy.
- No study examined a systematic population-based screening programme. Such a programme should be assessed as it is likely to be associated with higher screening uptake.
- As per other jurisdictions, an Irish-specific cost-effectiveness analysis is required to determine the value of birth cohort screening for people in Ireland born between 1965 and 1985.