

Cost-utility of protocolled practice nurse-led care for children with asthma in Dutch primary care

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BACKGROUND

Asthma is the most prevalent chronic inflammatory disease in children in primary care. In the Netherlands, the Rotterdam Asthma Trial, a multicentre cluster-randomized controlled trial showed that protocolled nurse-led care (PC) in primary care improved asthma control in children aged 6-12 years versus usual care (UC) provided by the general practitioner (GP). This study reports the cost-effectiveness of PC versus UC.

DESIGN & SETTING

Cost-utility analysis alongside the Rotterdam Asthma Trial which was conducted in 49 general practices in the Netherlands.



METHOD

Trial Data:

- Medical costs, productivity costs, and quality of life (QoL) were measured at baseline and 3, 6, 12 and 18 months.
- QoL was measured using the Child Health Utility Nine-Dimension (CHU-9D) instrument and used to estimate quality-adjusted life-years (QALYs), combining QoL with duration.

Statistical Analysis:

- Changes in total costs and QoL from randomization were analysed using repeated-measures linear mixed models (LMM).
- Missing values were imputed using predictive mean matching.
- All costs were expressed in 2024 Euros.
- Uncertainty around incremental costs and effects was assessed via non-parametric bootstrapping with 5,000 resamples.

Economic Analysis:

- The cost-utility study was conducted from the healthcare payer and societal perspectives.

Conclusion

Nurse-led care for children with asthma appears cost- and QALY-equivalent to physician-led care. Since nurse-led care improves disease control, it is worth considering as a viable alternative to GP care.

RESULTS

Figure 1. Cost-effectiveness planes from the healthcare payer and societal perspectives.

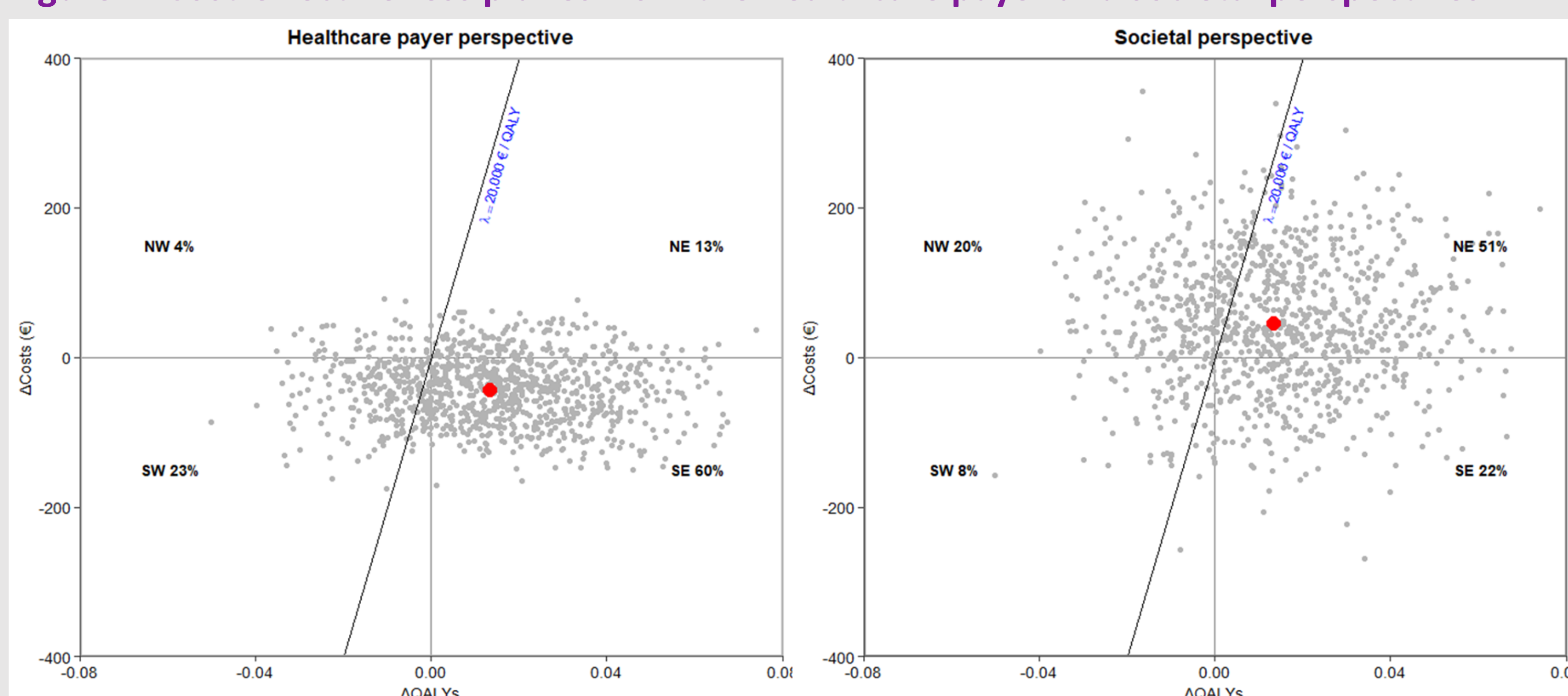


Figure 1 Results:

- **ΔQALYs:** 0.013 (95% CI: -0.022 to 0.048), favoring PC
- **Healthcare payer costs:** €26 lower for PC (95% CI: -€97 to €45)
- **Societal costs:** €68 higher for PC (95% CI: -€101 to €237), indicating an incremental cost-effectiveness ratio (ICER) of €5,355 per QALY for PC vs UC

Differences in costs :

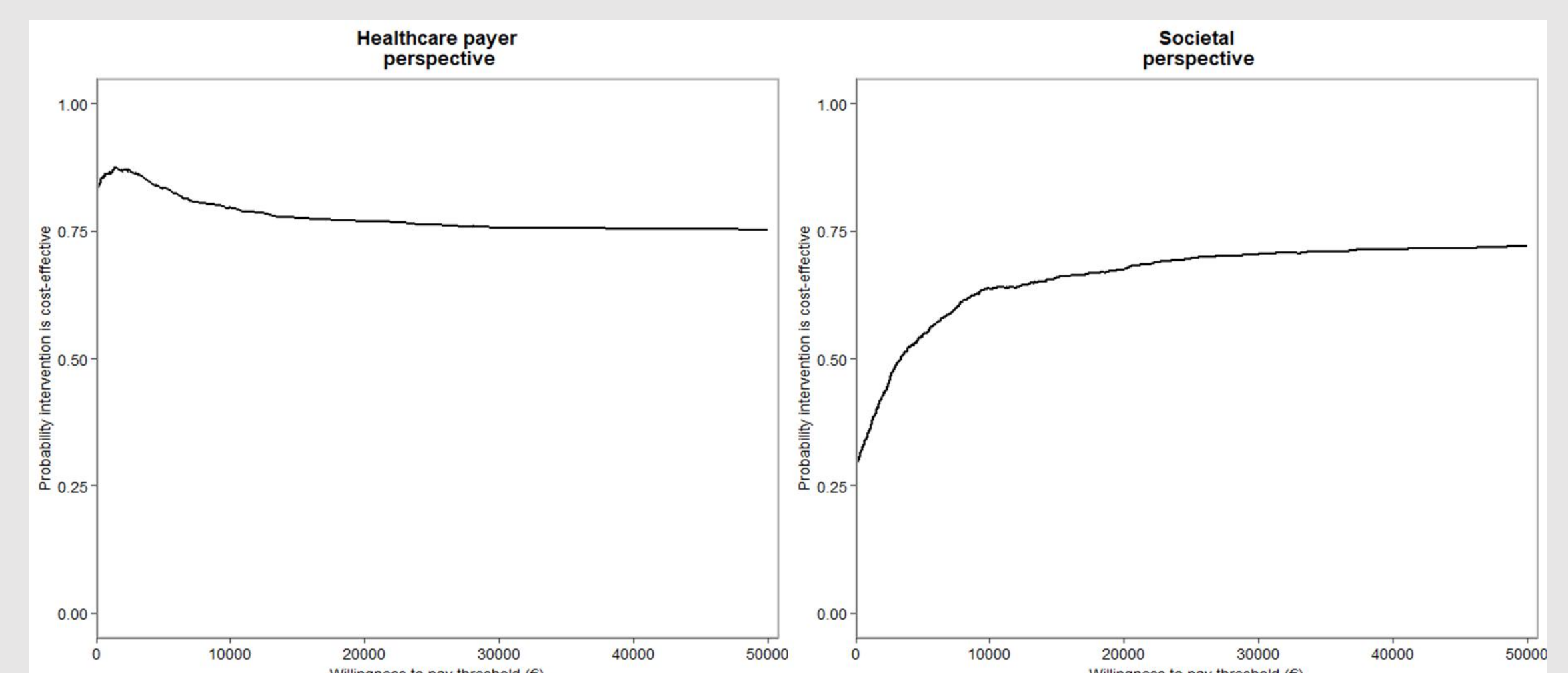
- UC patients had more GP, specialist and emergency visits
- PC patients had higher medication costs

Figure 2 Results:

At a €20,000/QALY threshold:

- Healthcare payer: 76% probability PC is cost-effective
- Societal: 67% probability PC is cost-effective

Figure 2. Cost-effectiveness acceptability curve from the healthcare payer and societal perspectives.



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