MSR273

Reproducibility Gaps in a Published Herpes Zoster Vaccine Economic Evaluation: A Structured Reconstruction Using a Web-Based HTA Application

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BACKGROUND

Vaccine assessment in Finland. The Finnish Institute for Health and Welfare (THL) assesses each candidate vaccine for disease burden, safety and cost-effectiveness, and makes a recommendation. THL's National Advisory Committee on Vaccination and the Ministry's advisory board on communicable diseases review the recommendation.[1]

THL's expert group modelled a recombinant zoster vaccine in cohorts aged 50-85 and recommended vaccinating severely immunocompromised groups and 70–75-year-olds at a negotiated price.[2]

The vaccine received EU marketing authorization in 2018[3]. THL's expert assessment was conducted in 2024-2025, and nationally procured vaccination of risk groups in Finland is set to start in 2027[4].

OBJECTIVE & METHODS

Objective. To identify reproducibility gaps when independently reconstructing a published economic evaluation of herpes zoster vaccination that was conducted by Finland's Institute for Health and Welfare (THL) to inform national immunization decisions.

Public sources only. The published evaluation was rebuilt from publicly available documentation.

Feasibility of reconstruction in a web-based tool. Structure, parameters and assumptions were captured in a novel vaccine modelling tool (EasyHTA).

Element classification. Directly reproducible, traceable but requiring interpretation, requiring back-calculation, or not identifiable.

Validation. Because key inputs were missing from the report, validation was restricted to the 85-year cohort that carries the shortest time horizon. Target: within 5% of published ICER.

RESULTS

12 of 15 elements were directly reproducible.



Population size (interpretation): parameter value unreported; inferred from national population projections.

Cost per event (back-calculation): rebuilt from complication cost and frequencies.

Baseline incidence (not identifiable): could not be identified. Calibrated to reported cases, it was 15.6/1,000 for ≥85, matching no reported population or subgroup and suggesting an undocumented adjustment.

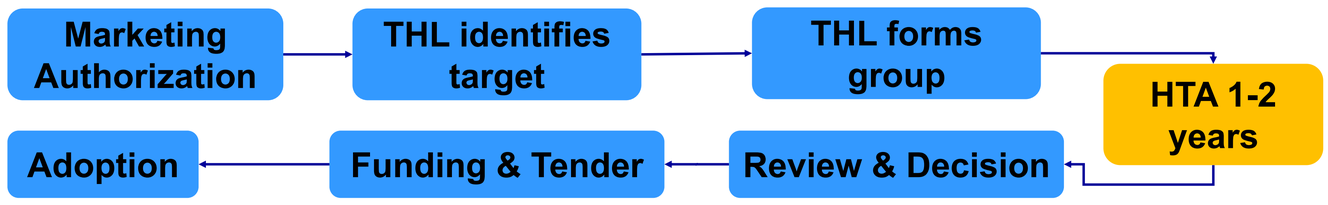
Decision problem, intervention, comparator and modelling approach were fully identifiable. Efficacy, coverage, mortality, utilities and costs were sufficiently transparent. Intermediate outputs were insufficiently disaggregated.

Reconstructed ICER: €84,203 vs. the original €87,800. Difference 4.1%.

Time to results: tool creation and reconstruction analysis took 3 months from the start of the project.

DISCUSSION

A long path from authorization to population.



Assessments are started on the initative of THL. Review, decision, funding, and procurement processes have no fixed timelines, and years can pass between a vaccine's clinical authorisation and its use in the population.[2] Novel solutions can allow for parallel assessments to shorten queues and speed up access decisions. Delays mean preventable disease for patients and avoidable treatment costs for systems.

Transparency should be a design feature of decision-guiding reports.

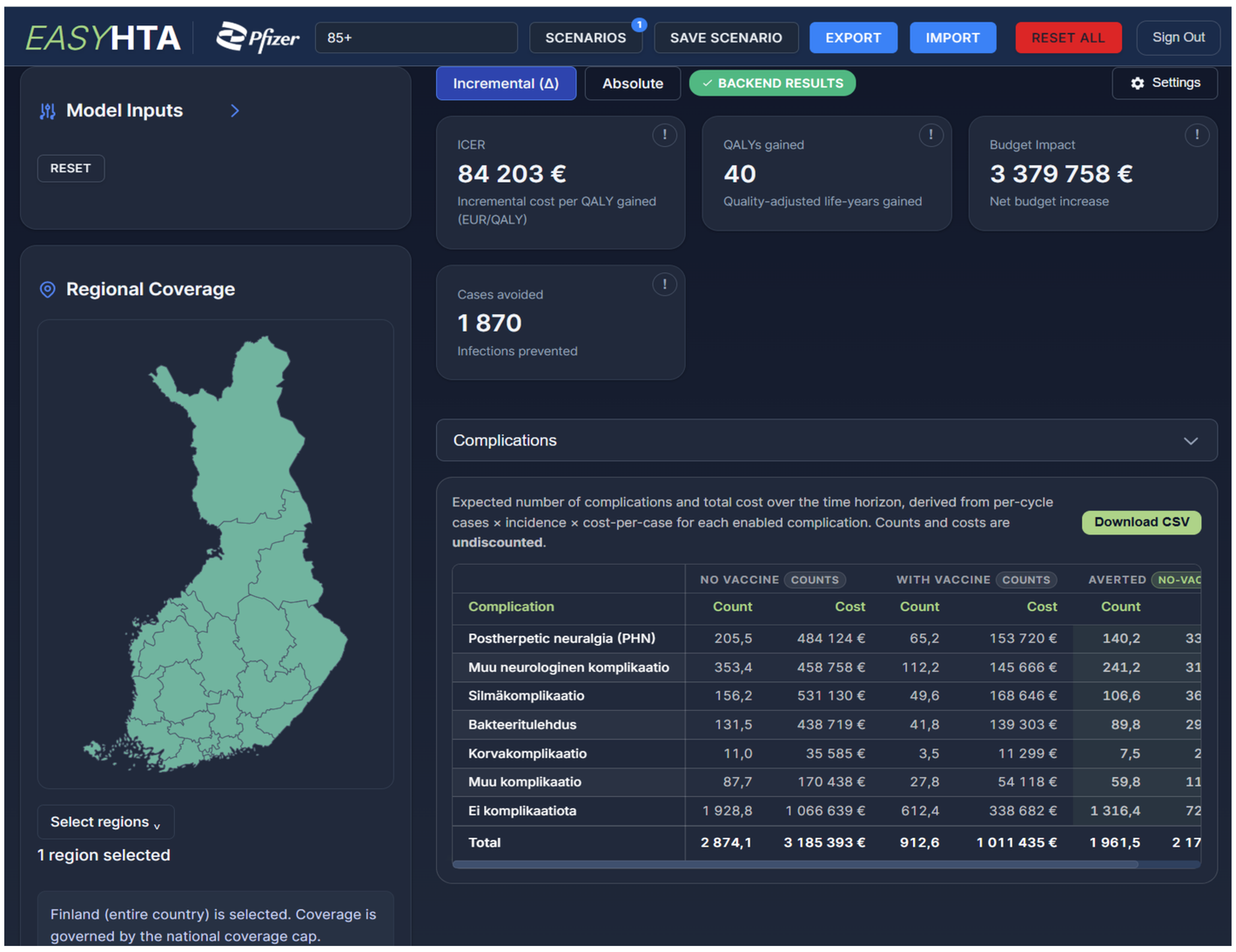
While THL recognizes the importance of transparency[1], the evaluation informing a national decision and price recommendation was only partly reproducible. More complete reporting of inputs, intermediate calculations and parameter derivations would improve auditability, confidence and reuse.

New tools can speed up evaluation and keep it current.

The web-based application rebuilt the evaluation from scratch within 3 months and matched the published ICER within 5%. Such tools can accelerate and strengthen evaluations and improve traceability, but cannot overcome incomplete reporting. They also make updating routine, as THL refreshes its analyses at every tender (every 2-3 years) and runs pre-assessments without the procurement price.[1]

KEY POINTS

1. **Transparency is essential.** A national evaluation guiding vaccine and price decisions was only partly reproducible.
2. **The process is slow.** A full assessment alone can take 1-2 years, and no fixed timeline governs when it starts or what follows. Almost 9 years separated EU authorization from first programme use of this vaccine in Finland.
3. **New tools can help.** A web-based tool rebuilt the evaluation within 3 months and matched the published ICER within 5%. Such tools speed up evaluation, improve traceability and make updating routine, but cannot overcome incomplete reporting.
4. **Parallel assessments save time and costs.** Shorter queues and faster decisions spare patients preventable disease and health systems avoidable treatment costs.



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