



**KNOWLEDGE GAINED**

Direct benefits from the contract research not only cover the cost of investments in research, but also yield substantial cost and health benefits.

**KEY MESSAGE**

Contract research could be a viable solution to sustaining needed health care services and the quality of care.

# Should Hospitals Do Contract Research? Costs, Net Monetary Benefit, and Return on Public Sector Investments in Research at Kuopio University Hospital

Saku Väättäinen <sup>1</sup>, Erkki Soini <sup>1</sup>, Juha Töyräs <sup>2</sup>

1) ESIOR Ltd, Kuopio, Finland. 2) Kuopio University Hospital, Wellbeing Services County of North Savo, Kuopio, Finland. Department of Technical Physics, Faculty of Science, Forestry and Technology, University of Eastern Finland, Kuopio, Finland.

Contact person and presenter: Mr. Erkki Soini, ESIOR Oy, Tulliportinkatu 2 LT4, 70100 Kuopio, Finland, www.esior.fi, erkki.soini@esior.fi, +358 40 053 3971

**BACKGROUND**

Like many internationally ranked hospitals, Kuopio University Hospital (KUH), the primary specialised care provider for almost 800,000 Finns living in the Wellbeing Services County of North Savo, does contract research with the private sector.

Most health technology innovations, such as pharmaceuticals and medical devices, require clinical research evidence and health technology assessments (HTA) for market authorisation, labelling, market access, and product lifecycle management. However, research itself is rarely subjected to HTA.

**OBJECTIVES**

Evaluate how the public sector, here the Wellbeing Services County of North Savo, may benefit from contract research.

**METHODS**

Assessment was carried out within the PICOSTEPS analysis and reporting framework for the evidence-based health economic evaluations<sup>[1-2]</sup>, based on data from public sources<sup>[3-10]</sup>, KUH and hospital district internal statistics and reports, employee surveys, benchmarking, and stakeholder estimates.

COMPONENT	CONTENT
Population	Wellbeing Services County of North Savo
Intervention	Annual investments in research are changed as follows: 1) Increase investment level by approximately 50 % over the next 5 years 2) Discontinue investments completely over the next 3 years
Comparator	Research investments remain at the current level
Outcomes	Net monetary benefit (NMB) and return on investment (ROI)
Setting	Retrospective and predictive modelled cost-benefit analysis
Time	The analysis examines the 7 years before (2015-21; retrospective) and the 10 years after (2023-32; predictive) the modelled change in research investments in 2022.  Health benefits were modelled to increase/diminish over 10 years. No discounting or half-cycle corrections were applied.
Effects	<u>Costs:</u> Research appropriations, employment (work time used to conduct research), support, facilities, and personnel recruitment.  <u>Benefits:</u> Pharmaceutical treatments and other health care service benefits from the studies, other outside research funding, and health benefits (in QALYs, valued realistically).
Perspective	Perspective of the Wellbeing Services County of North Savo.
Sensitivity analyses	Valuation of health benefits: willingness to pay (WTP) for QALYs gained from innovative pharmaceuticals (€0 or €24,970, vs. €49,940 in the base case) and from other health care services (€0 or €15,368, vs. €30,736 in the base case).

**CONCLUSIONS**

Investments in research had a substantial, positive net return of almost four euros per euro invested. Additional investments were estimated to increase the total net benefit gained.

Maintaining and improving functioning research infrastructure to facilitate contract research is very beneficial.

Further studies are warranted as our assessment likely under-estimates the total and especially the indirect effects of research.

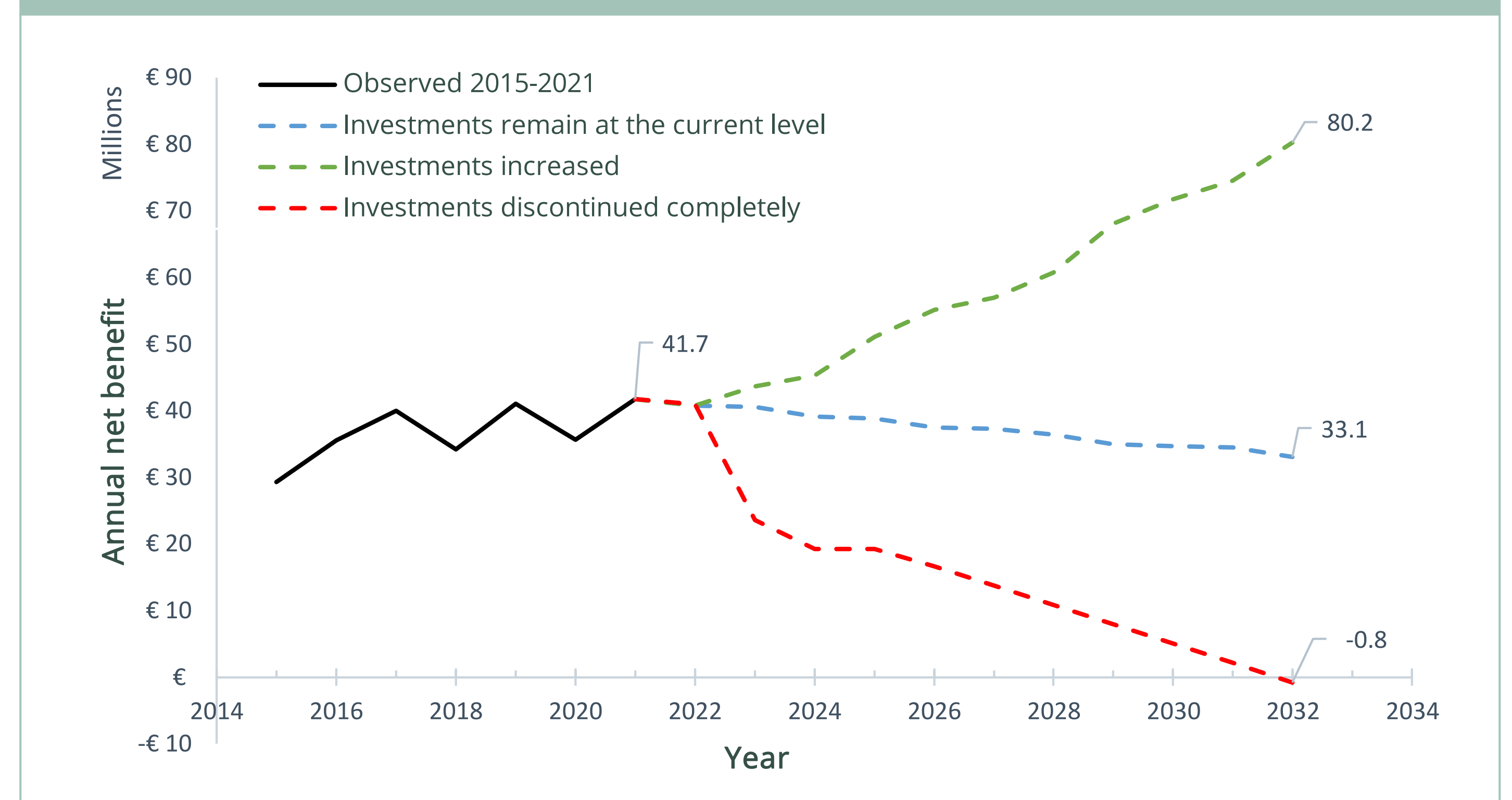
**RESULTS**

Net benefit and return on investment (ROI) were positive in 2015-2021, and more so when the value of health benefits were considered.

Value of health benefits	None (WTP = 0 € / QALY)	Conservative (€24,970 <sup>1</sup> & €15,368 <sup>2</sup> / QALY)	Realistic (€49,940 <sup>1</sup> & €30,736 <sup>2</sup> / QALY)
Net benefit & average ROI	Total: 33.0 M€ Average: 4.7 M€ / year ROI: 37 %	Total: 145.2 M€ Average: 20.7 M€ / year ROI: 164 %	Total: 257.5 M€ Average: 36.8 M€ / year ROI: 292 %
Benefit gained per euro invested	1.37 euros	2.64 euros	3.92 euros

WTP = Willingness-to-pay threshold, € / QALY gained: 1) from innovative medications, 2) from other health care services.

With additional investments, the total additional cumulative net monetary benefit was predicted at €241 million in 2023-32. Discontinuing investments completely would lead to a cumulative loss of €249 million.



In sensitivity analyses where health benefits were valued at zero or conservatively, the estimated annual NMB were €9.5 and €25.6 million in 2021, respectively. If the investments were to remain at the current level, the annual NMB would decrease to €4.0 and €18.5 million in 2032, respectively.

If the investments were increased, the respective estimated annual NMB were €22.7 and €51.5 million in 2032, with the additional cumulative NMB estimated at €82.8 and €161.7 million. In contrast, the estimated cumulative NMB losses were estimated at €80.5 and €164.9 million, if the investments were discontinued.

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