



**Health economic evaluation  
of gravity-based intravenous  
infusions in Finland:  
Digital remote monitoring  
frees capacity and  
saves materials**

Presentation B11.4 – Tuesday 18<sup>th</sup> Oct 2022



**Advantages in Management and Remote Monitoring of Intravenous Therapy:  
Exploratory Survey and Economic Evaluation of Gravity-Based Infusions in Finland.**  
*Adv Ther* 2022;39:2096–108. <https://link.springer.com/article/10.1007/s12325-022-02093-6>

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## Credits

Sponsorship for this study, and the journal's Rapid Service and Open Access Fees, were funded by Monidor Oy, Oulu, Finland.

Language review was performed by Dr. Sandra Hänninen.

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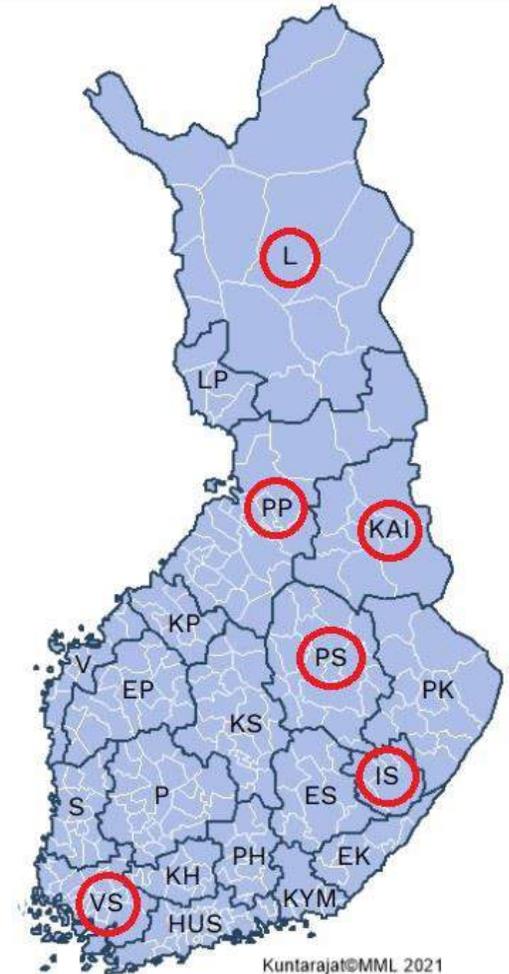
# Introduction and Objectives

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- Intravenous infusion (IVI) is common, with 65–68% of IVIs being gravity-based.
- IVIs are prone to serious administration mistakes with potentially life-threatening consequences.
- The Monidor solution (compliant with EU Medical Devices Regulation MDR; FDA clearance pending) consists of remote monitoring and a bedside meter.  
<https://monidor.com/>
- **Hypothesis:** Material savings are gained through events avoided and nurse time freed for other care activities when using the Monidor solution, compared to unassisted gravity-based IVI.
- **Objective:** *Estimate potential economic capacity freed (PECF) and net return on investment (NROI) for the healthcare provider.*

# Methods

- Counterfactual setting, questionnaire study.
- Responses were collected from nurses delivering IVIs using the Monidor solution in 15 wards (6 hospitals) around Finland 2020/2021.
- Effects included frequencies of IVI-related events and nurse time use.
  - Linear regression analysis was used.
- NROI was estimated for a typical ward with 3 nurses per shift (morning, evening, and night).
  - Sensitivity of NROI was illustrated in a tornado diagram.



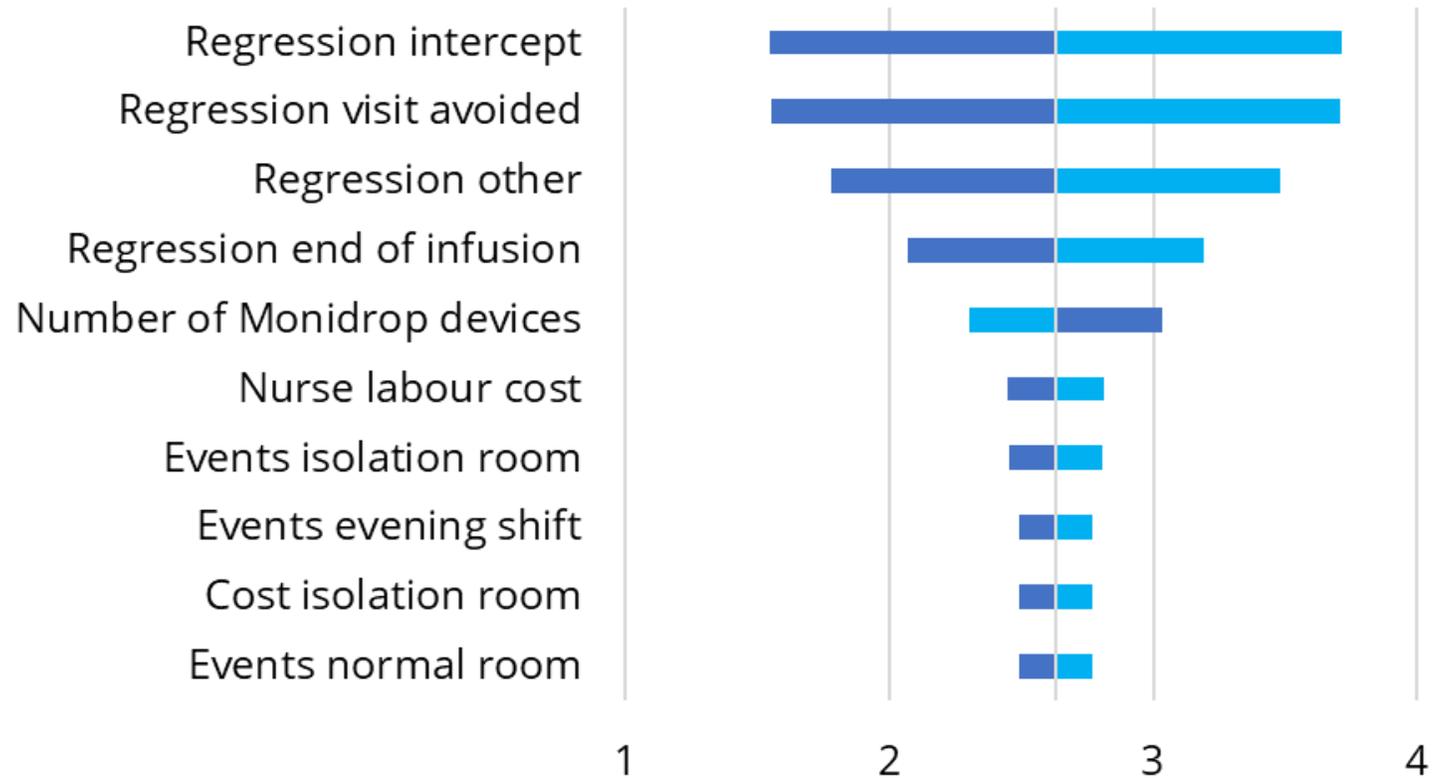
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# Results

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- 216 survey responses were obtained.
- 56% of nurses reported time savings due to the Monidor solution, and less than 4% experienced additional time requirements.
- On average, for each nurse per shift, the Monidor solution:
  - helped to avoid 2.06 routine patient room visits,
  - helped detect end of infusion earlier 1.34 times, and
  - freed 5.05 minutes of time.
- In the regression, one avoided routine room visit was associated with 2.45 minutes of freed time.
- The ward-based PECF was €1,270 per month (50% related to material savings).
  - Assuming the Monidor solution costs €350 per month for 10 devices, this yields an NROI of 2.6.

# One-way sensitivity analyses for the Monidor solution



Net return on investment (NROI) for the Monidor solution

# Conclusions

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- The remote monitoring of IVIs with the Monidor solution potentially saved materials, improved sustainability, and freed nurse time and economic capacity.
- A robustly positive NROI in Finland justifies investment in the Monidor solution.
- Processes and costs between settings can vary; therefore, the results should be confirmed in other countries.
- Monidor solution is looking for European reference hospitals. Please visit them at booth 10. Contact: Mikko Savola, Monidor Oy, [mikko.savola@monidor.com](mailto:mikko.savola@monidor.com).
- Thank you! We at ESiOR Oy are happy to help you with health economics, effectiveness, and MDR consultancy. We also provide the first private secure processing environment SPESiOR®.
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