

# Digital Remote Monitoring of Intravenous Infusions Frees Capacity and Saves Materials: Economic Evaluation Study in Finland

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## Introduction and Objectives

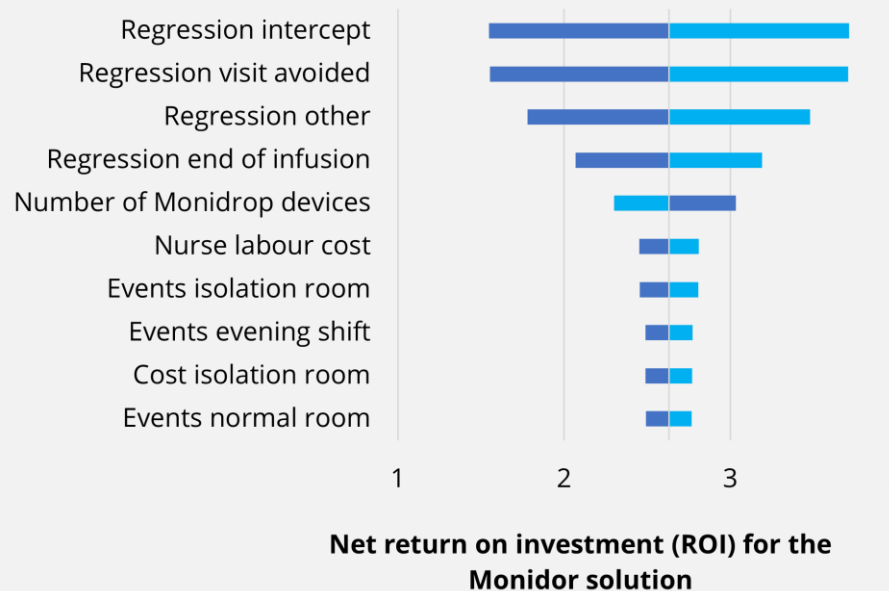
- Intravenous infusion (IVI) is common, with 70% of IVIs being gravity-based.
- IVIs are prone to serious administration mistakes with potentially life-threatening consequences.
- The Monidor solution (compliant with EU Medical Devices Regulation, FDA clearance pending) consists of remote monitoring and a bedside meter. <https://monidor.com/monidrop/>
- Hypothesis: Material savings are gained through events avoided and nurse time freed for other acute 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.

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## Methods

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



## Results

- 216 survey responses were obtained.
- 56% of nurses reported time savings due to the Monidor solution, and only less than 4% experienced additional time requirements.
- Per shift, each nurse estimated that, on average, the Monidor solution:
  - avoided 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 routine room visit avoided was associated with 2.45 minutes of freed time.
- The ward-based PECF was €1270 per month (50% related to material savings)
  - Assuming a cost of the Monidor solution of €350 per month for 10 devices, this yields an NROI of 2.6.

## Conclusions

- The remote monitoring of IVIs with the Monidor solution freed nurse time, saved materials, and potentially freed economic capacity.
- A robustly positive NROI in Finland justifies investment in the Monidor solution.
- However, processes and costs between settings can vary, and the results should be confirmed in other countries.