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# May sustainability of patient flows at hospitals be increased by adding a work environment module to Value Stream Mapping (VSM)? - A NOVO Multicenter study in Denmark, Iceland and Sweden

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## 1. Introduction

Development of production systems in healthcare is at present to an increasing extent based on Lean Production ideas. VSM is a common Lean tool used to identify and minimize waste. It is a participatory tool, i.e. those affected by this type of rationalization are performing the analyses and subsequently suggesting the interventions. However, scientific evidence indicates that the resulting proposals may imply physical work intensification and impaired psychosocial work environment (WE). On this background WE factors were integrated into the VSM tool, thus offering an ErgoVSM tool.

## 2. Aim

To investigate if ErgoVSM facilitates the process towards more sustainable patient flows at hospitals.

## 3. Material and Methods

Fourteen hospital wards in Denmark, Iceland and Sweden are investigated, 7 used VSM and 7 ErgoVSM. Action Plans were analysed based on different stakeholder assessments. Chronicle workshops were used to assess important changes/events at the wards during the investigated period.

## 4. Results

In general, neither the VSM nor the ErgoVSM wards developed proposals that had an immediate negative impact on WE. The ErgoVSM wards showed a tendency towards more realized proposals and these more often included WE considerations; ErgoVSM seemed not to reduce the emphasis on efficiency. However, the effects seemed to be modified by the way the VSM/ErgoVSM were organized and performed. When using ErgoVSM the resulting proposals with an estimated positive impact on WE most often focused the work situation, i.e. the general business of the ward, the coordination and/or management of the work that two or more occupational groups performed. This is in contrast to the task-focusing proposals generally suggested by ergonomists. The Chronicle Workshop data showed that negative impact on WE could be derived to e.g. cutbacks decided about above ward level and poor introduction of new technologies. Neither VSM nor ErgoVSM seem to cause WE

impairments.

## **5. Conclusions:**

The results suggest that ErgoVSM compared to VSM offers a number of effects on the change processes that may result in a higher level of organizational sustainability. But these gains may subsequently be threatened by saving demands decided about above ward level.

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