EURO abstract 2024 (Copenhagen, Denmark)

Title: Integrating location and inventory decisions in healthcare supply chains: review and first model

Abstract (max. 1500 characters):

Healthcare institutions, including hospitals and retirement homes, face various challenges. They struggle with tight budgets due to government savings and rising costs. Moreover, they deal with a shortage of care staff due to high workloads, forcing them to make an effort to relieve non-care tasks (i.e., logistics tasks). These challenges put significant pressure on healthcare institutions. To address these challenges, hospitals aim to reduce costs and improve healthcare logistics while ensuring high-quality care.

One key opportunity to improve healthcare logistics is consolidating inventory across healthcare institutions. This entails healthcare institutions within a network pooling their inventory from individual warehouses into one or a few central care hubs. Decision support for inventory pooling is facilitated by integrated decision-making on location and inventory**.** Adopting this integrated decision-making can cut costs and enhance healthcare logistics while at least maintaining quality of service.

This research aims to develop innovative models and solution algorithms, providing decision support to improve healthcare logistics by integrating location and inventory decisions. This talk will discuss key findings from a new literature review on integrating these decisions, covering 44 papers across contexts like manufacturing, healthcare, spare parts, etc. Moreover, a first mathematical model focusing on integrating these decisions in a healthcare context will be proposed.