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A Review on Strategic Decisions on Home Care Operations Management

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Keywords: Home Care; Operations Management; Strategic Decisions

1 Introduction

Home care has been over the past years a topic of growing interest in the operations management field due to the increase of patients across many countries and the need for home care providers to optimize costs while maintaining service quality. Underlying this surge there are socioeconomic, technological and budgetary causes. Among the first, population aging, changes in classical family structures and increasing urbanization entail a higher demand for home care. As for the second, the ready availability of commercial software that allows to manage routing and scheduling of caregivers is the main driver. From a budgetary perspective, home care could represent a cheaper substitute to hospitalization or nursing homes and bring about shorter and cheaper hospitalization periods.

The operations management literature on home care has been mainly focused on static routing and scheduling problems with time windows and no uncertainty, that is, on variants of the well-known vehicle routing problem with time windows (VRPTW). Little attention has been paid to other critical operations management decisions. Our goal is to explore strategic, long-term operations management decisions in home care, and to suggest future research directions.

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2 Strategic Operations Management Decisions in Home Care

We have reviewed articles and conference papers explicitly aimed at identifying home care operations management decisions. This paper follows Matta et al. (2014), whose classification comprises the following types of decisions: strategic (1-5 years basis), tactical (6-12 months), operational (weeks to months) and detailed operational (hours to days).

In this paper, for every strategic decision identified in any analysed article a definition is provided, literature on every specific topic is further reviewed (that is, we extend our review from decision-identifying papers to topic-specific articles) and, finally, future research directions are outlined.

3 Summary

We have identified 8 possible research directions, which are summarized in table 1. We are currently working on (1), (2), (5), (6) and (8) and expect to conduct research on the rest in the mid term.

Table 1 Suggested research directions on operations management strategic decisions for home care. Source: own elaboration.

Decision	Suggested research directions
Global Demand Forecasting	(1) Patient location forecasting: Individual-based / Region-based
Capacity Planning	(2) Heuristic methods that provide the number of caregivers, type of contract, skills, outsourced services, etc. Forecasting models are used as input
Facility Location	(3) Apply facility location models from other contexts to home care
Districting	(4) Definition of basic units' boundaries
	(5) Apply solving procedures for different number of districts
	(6) Calculate the "right" district size
Fleet selection and sizing and fleet assignment	(7) Develop models that suggest the appropriate number and type of owned transportation means
	(8) Include, in routing and scheduling models, the use of MaaS as a decision variable

4 References

Matta, A., Chahed, S., Sahin, E., & Dallery, Y. (2014). Modelling home care organisations from an operations management perspective. Flexible Services and Manufacturing Journal, 26(3), 295–319.