

# ***A decision support system for scheduling carers in domiciliary care settings: What are the key factors, weightings, and constraints?***

## **Abstract**

*The purpose of this research was to identify the key factors, including the weightings and constraints associated with those factors that play a vital role when scheduling of carers in domiciliary care settings. A scoring model was designed and developed to evaluate the results. The aim of the study was to:*

- Identify the key factors, weightings, and constraints*
- Design a scoring model based on the decision matrix algorithm*
- Evaluate the scoring model output by implementing it in a computer-based program*

*The researcher used a mixture of both qualitative and quantitative research methods for this study. A literature review was performed to identify the key factors, weightings, and constraints. To gain an Irish perspective, semi-structured interviews were scheduled with 14 participants from five different domiciliary care providers, two clients in receipt of domiciliary care and one HSE commissioner of Home Care Package (HCP) funding. The outcome was analysed and discussed to establish a final scorecard that was used as a basis for the scoring model. A scoring model decision support system was designed and implemented in a computer program to evaluate the model.*

*The study established that, there are 22 key factors that should be considered when scheduling the carers for domiciliary care. The weighting of each of these factors was also identified. The study also established that there are three hard constraints that need to be satisfied before scheduling a carer. During the design of the scoring model, the original 22 factors amalgamated into 20 factors. Implementation of the program was carried out in MS Visual Basic Application scripting and MS Access. For the evaluation five carers, five clients, and 40 tasks were added in the database. Evaluation of the scoring model established that the system was automatically allocating the best-suited carer based on the client and carer preferences and the key factors, weightings and constraints.*

**Keywords:** *Domiciliary Care, Carer Scheduling, Key Factors, Weightings, Constraints, Scoring Model*