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Understanding Healthcare Process: The case of pneumonia care at Skaraborg Hospital Group

Pneumonia is one of the most common infections in today's society as well as the fourth largest cause of death worldwide. At Skaraborg Hospital Group (SHG) it has been noted that the pneumonia patient group is a complex one, where patient characteristics vary, and a large part of patients have complex care needs. In the creation of a future pneumonia care process at SHG it is of interest to get an overview and understand the aspects concerning the current pneumonia care at the hospital. Therefore, the aim of this thesis is to explore and understand the care process for pneumonia patients at SHG with an additional focus on patients with complex care needs.

The work has an iterative approach involving hypothesizing using qualitative data, quantitative data and literature to gain understanding of the current pneumonia care process and reveal areas of improvement in the current care. Qualitative data was collected through semi-structured interviews with care personnel from SHG. The qualitative data was then analyzed using open coding to compare answers and reveal common concepts in the data. Quantitative data was retrieved from SHGs data system and used for process mining and statistical analysis, using JMP.

The work introduces an approach to process mining, where it has been used as a stepping stone for qualitative data gathering in determining which areas in the care process are most important to gain information and understanding of. Process mining and qualitative data gathering, as well as statistical analysis, has contributed to one another to enrich understanding of the pneumonia care process. This way of working has allowed the authors to gain understanding of what the care process looks like in a short amount of time and with little resources. Furthermore, the literature review was performed giving rigour to recommendations.

From the empirical findings and analysis five areas of improvement have been identified which would benefit the quality of care for pneumonia patients as well as care practice at SHG. These recommendations are presented in the order of execution. i) Reorganize the hospital to conform to a more value network-based logic, connecting wards with one another and improving communication. ii) Standardize the manner of information transfer in terms of creating a uniform way to write medical records and transfer notes. iii) Integrate and connect support functions i.e., physiotherapy, more strongly to the pneumonia care process. iv) Introduce a guideline in pneumonia care, which would consist of a clinical pathway and work towards a value chain-based way of working. v) Measure the process, which includes collecting data on the pneumonia care process and use it to continuously keep track and improve the process.

The results provide a basis for future improvement work and process development for the pneumonia care process at SHG. At large, healthcare exists to improve quality of life for a nation's citizens. Through giving an understanding of the current process as well as identifying improvements in the current pneumonia care, this thesis strives to be useful for an upcoming pneumonia care process at SHG, as well as to improve the quality of care and patient outcomes. Further, organizational benefits, in the form of reduced care stays and more efficient use of resources is believed to be of societal benefit.

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Today hospitals in Sweden, including SHG, collect immense amounts of data in their databases regarding the patients, the treatments, and the care flows. It is beneficial to use this already collected data in process mining to understand care flows and improve the healthcare system. This thesis has shown a way that the hospitals could utilize this data to better understand their current care processes. By investing in the ability to do process improvement work in healthcare through process mining it would not only be beneficial for operation improvement work where process mining makes the work less strenuous, but it would also lead to increasing the quality of care. In turn this could contribute to better care for patients, more efficient use of resources which lead to reduced costs in healthcare, meaning increased value for taxpayer money.

This thesis contributes to showing an image of the pneumonia care at SHG and understanding the flows of pneumonia patients throughout the hospital. Improvement areas for the pneumonia care process are identified making it useful in the following development of a pneumonia care process at SHG. Lastly, the work introduces a new approach in combining process mining and qualitative data gathering, allowing for understanding processes in a more resource efficient and multifaceted way.