Addressing Lean and Safety Readiness Assessment in Territorial Ambulatory Healthcare

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Abstract: Within the international healthcare landscape, it is incumbent upon all organisations to proactively address individual patient needs by offering a wide range of services. In this context, Territorial Ambulatory Healthcare (TAH) is critical to promote equal access to care as the primary point of contact between National Healthcare Systems and individuals. To achieve this goal, the adoption of Lean and Safety Management (L&SM), a managerial approach to proactively reduce clinical risk and process inefficiencies, can support organisations in pursuing high quality care objectives. Despite the positive benefits associated with the adoption of this approach, the feasibility of guaranteeing a sustainable care quality over time may encounter several challenges. Among these, key contributors to failure include the lack of tailored tools and practices suitable for the healthcare environment, insufficient readiness of the context for implementation, and the absence of a comprehensive system-wide performance strategy. Recent studies in literature address these issues presenting theoretical and practical models to assess readiness levels, highlighting opportunities for future developments of these topics. The current empirical study contributes to the existing knowledge by creating a framework to assess the level of readiness for L&SM implementations within TAH. While this context is essential for ensuring high-quality care and equitable access to care services, successfully implementing L&SM initiatives within TAH is challenging due to the organizational complexity and the involvement of multiple, fragmented stakeholders and care providers. Addressing weak Critical Readiness Factors (CRFs) before starting a project can significantly contribute to successfully implement L&SM and sustain improvement over time. This study will be conducted within the TAH setting of a healthcare organisation in Northern Italy and aims 1) to evaluate the specific care setting readiness for L&SM implementations and 2) to develop practical guidelines to support the organisation in increasing its actual readiness level. The theoretical framework will be grasped integrating prior research on Lean readiness assessment, along with specific literature on L&SM sustainability implementation factors within TAH. Once refined and tested with the purpose of developing a practical assessment tool, the framework will be applied within the selected setting, leading to the identification of practical guidelines to facilitate project success and improvements sustainability. Overall, this research will contribute to enrich the knowledge about L&SM implementation within TAH, supporting health organisations, managers, and clinical leadership to sustainably improve care quality, enhancing the role of territorial care to foster social well-being.

Keywords: Lean and Safety Management, Care Sustainability, Ambulatory Care, Outpatient Care, Readiness

1. Introduction and Theoretical Background

In recent decades, the healthcare sector has encountered multiple crisis and challenges, including demographic changes and a shortage of resources. As a result, it has become essential to enhance organisations by empowering community care services. This shift directs the focus from inpatient to outpatient care, emphasising health prevention as a core strategy (World Health Organization, 2016). In this scenario, it is important to proactively address individual patient needs by offering a wide range of services. Among these, Territorial Ambulatory Healthcare (TAH) promotes equal access to care and patient safety, serving as the primary point of contact between National Healthcare Systems and individuals, and addresses care needs without relying on inpatient facilities (OECD, 2020; World Health Organization, 2021).

To achieve these objectives and efficiently manage patient care at a territorial level, the adoption of a structured managerial approach to improve both care pathway performance and patient safety can support organisations in pursuing care quality objectives (Tiso et al., 2022). This managerial approach, known as Lean and Safety Management (L&SM), combines Clinical Risk Management (CRM) and Lean Healthcare Management (HLM) to proactively reduce risks and waste. Although its relevance is acknowledged, there is still little evidence of its implementation at a territorial level (Crema & Verbano, 2015; Radnor et al., 2012; Tiso et al., 2022).

Despite the positive benefits associated with the adoption of this approach, guaranteeing the sustainability of care quality over time may encounter several challenges. Among these, a key factor contributing to failure is the insufficient readiness of the context for implementation (Narayanamurthy et al., 2018). The recent literature has addressed these issues by developing theoretical and practical models to assess readiness levels, thus presenting opportunities for future investigation of these topics. Territorial care services have only been partially

explored by Narayanamurthy et al. (2018) in their study conducted within a primary care centre. Nevertheless, safety aspects are often absent in HLM readiness level assessments, warranting further investigation (Alnajem et al., 2019; Costa et al., 2024; Narayanamurthy et al., 2018; Vaishnavi & Suresh, 2020). Furthermore, the literature suggests that future research should validate readiness assessment models by considering the entire improvement implementation process and determining whether it effectively prevents project failure. Despite this, there is a scarcity of studies that specifically evaluate the readiness level in organisations that have never implemented HLM or L&SM, or have only partially implemented it to an extent that is not widely known within the setting (Alnajem et al., 2019; Costa et al., 2024; Narayanamurthy et al., 2018; Vaishnavi & Suresh, 2020).

For these reasons, the purpose of this study is to develop a L&SM readiness assessment model. This model, based on the existing literature and integrating sustainability and safety aspects, will be developed to outline the Critical Readiness Factors (CRFs) needed to support project success and sustain improvements over time. Additionally, the study aims to implement this model by evaluating the readiness level through the administration of a questionnaire to the personnel within a healthcare organization in Northern Italy. The questionnaire will enable the assessment of the L&SM readiness level for each CRF, identifying those that are weaker and need to be addressed to support the healthcare organization in successfully implementing L&SM. Subsequently, by drawing on existing literature and brainstorming with involved healthcare personnel and L&SM experts, practical guidelines will be developed to enhance the L&SM readiness level in the target setting. The evaluation will be focused on settings where L&SM has not been previously widely adopted. In the following of this paper the methodology adopted and some preliminary results on the L&SM theoretical readiness model development will be presented.

2. Methodology

To address the purpose of this study, a theoretical model was developed by analysing the literature on HLM readiness assessment. The search performed on scientific literature databases using the keywords “Lean” and “Readiness” identified only a few papers, as this is a emerging area of study. In particular, the two theoretical frameworks proposed by Costa et al. (2024) and Narayanamurthy et al. (2018) were integrated with other specific studies on L&SM. This integration led to the identification of a comprehensive framework of 39 CRFs to support the L&SM initiatives and to maintain the improvements achieved over time.

The two over-mentioned studies were selected due to their extensiveness and rigour in the identification of CRFs through comprehensive literature reviews, providing an overview of the current state of the art. Furthermore, the work produced by Narayanamurthy et al. (2018), although preliminary to that of Costa et al. (2024), was deemed particularly relevant to this study, as it is focused on a primary care centre.

The CRFs of both studies were combined after several stages of in-depth analysis of the two papers and the available literature. The results of this process were independently validated by the four authors. The resulting CRFs were organised into six different categories, each corresponding to specific stakeholder groups: top management; frontline employees and the L&SM project team; L&SM experts/leaders; patients and other customer groups; suppliers: and health organisations. The categorization of the CRFs based on the stakeholders involved, was defined through brainstorming sessions with L&SM experts. An in-depth description of each CRF was provided, drawing on previous literature. A final validation was conducted by comparing all CRFs to ensure that each CRF feature is unique and not duplicated in other CRFs.

3. Preliminary Results

The resulting theoretical framework encompasses 39 CRFs, organised into six different categories, based on the specific stakeholders they involve, as identified in the literature (Table 1). CRFs related to top management emphasise the need for high personal commitment and involvement, along with a deep understanding of L&SM culture and principles. For frontline employees and the project team, significant knowledge of L&SM is also required, with an emphasis on providing appropriate training on tools and practices. It is crucial that employees are empowered and encouraged to proactively participate in L&SM projects. Regarding L&SM experts and leaders, the primary focus is on their fundamental role in guiding and facilitating L&SM improvement projects, aligning stakeholders' expectations, and tailoring L&SM tools and practices to the specific context. Patients and their caregivers are recognised as an important customer group, considering their perception of value to be of the utmost importance. On the contrary, suppliers receive attention primarily in terms of understanding their alignment with the needs and objectives of the organisation. Finally, the healthcare organisation category encompasses several CRFs addressing various aspects, focusing on communication and the promotion of a

supportive environment. In the coming months, the theoretical framework will be refined to highlight aspects closely related to sustainability and safety. A specific literature review is currently underway.

Table 1: CRFs stakeholders' categories

Stakeholder Category	N. of CRFs
Top management	8
Frontline employees and the L&SM project team	12
L&SM experts/leaders	5
Patients and other customer groups	3
Suppliers	2
Health organisation	9

Considering the future steps of this research, they will include the assessment of the readiness level within a TAH setting in Northern Italy, involving employees with little to no prior knowledge of L&SM. In this regard, a questionnaire was developed to evaluate the presence of each CRF within the selected setting. It was designed to be administered to health personnel and management. A pilot test of this questionnaire was conducted, allowing the refinement and development of the final version. Concurrently, a second questionnaire has been developed to be administered to L&SM experts, to assess the level of importance of each factor in supporting the success of L&SM projects. This dual evaluation approach will allow to rank CRFs by processing the linguistic variables with fuzzy numbers (Narayanamurthy et al., 2018; Wang & Chang, 2007; Zavadskas et al., 2010). The weakest factors in terms of presence but considered very important for the success of a L&SM implementation will be prioritised for improvement actions. To this end, practical guidelines will be grasped to support the organisation in increasing its actual readiness level.

Overall, this research will contribute to enrich the knowledge about L&SM implementation within TAH by providing valuable insights into L&SM readiness aspects, thus contributing to the expansion of the current literature on these topics, characterized by few empirical and theoretical papers. Furthermore, this research will support health organisations, managers, and clinical leadership to sustainably improve care quality, enhancing the role of territorial care to foster social well-being.

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