

## Applications of lean in human resources management in healthcare

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### Abstract

Recent challenges brought by the coronavirus disease-2019 pandemic have underscored the importance of coping with pressures on the workforce in healthcare around the world and have emphasised the continuing need to improve quality and operation efficiency of healthcare services even in such dire circumstances. Over the years, lean thinking has gained recognition in the healthcare industry, where lean has been associated with benefits, such as improved healthcare delivery quality, reduced costs and increased effectiveness of the healthcare delivery processes. Lean thinking has also been analysed in human resources with benefits, such as increased job satisfaction and perceived job autonomy. The current narrative review was planned to analyse and discuss the application and implementation of lean strategies with a particular focus on human resource management in healthcare. The review is complemented by a case study in a private healthcare group in Turkey, aiming to demonstrate in practice the effect of lean strategies on the satisfaction of patients and relatives, the job satisfaction of the employees, and the level of turnover rates within healthcare enterprises.

**Keywords:** Lean management, Healthcare, Human resources.

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### Introduction

Recent challenges in the wake of the coronavirus disease-2019 (COVID-19) pandemic have exposed the weaknesses of healthcare supply chains across the world, resulting in a significant pressure on the delivery of health services and on its workforce.<sup>1</sup> The turbulent atmosphere once again demonstrated the importance of resilience in the healthcare industry. Going forward, lean thinking will continue to be a tool for healthcare managers in putting in place processes and procedures to improve the quality and operational efficiency of healthcare services and productivity of its workforce from a human resources (HR) management perspective.<sup>1</sup>

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The rapid developments in technology and the expansion of globalisation created a fiercely competitive commercial environment, leading to novel approaches in management, production systems, and HR.<sup>2</sup> Historically, the concept of lean was first developed and applied in the production industry by Toyota in Japan.<sup>3</sup> The underpinning idea of lean thinking is the transformation of waste into value into the eyes of the customers through focussing on practices and processes.<sup>3</sup>

Studies demonstrated that the application of lean thinking in the healthcare industry had been a successful process in quality improvement in the delivery of healthcare services.<sup>4-6</sup> The lean approach aligns with the industry's objectives of ensuring a higher level of performance, and further facilitates improvement in quality, safety, efficiency and appropriateness of healthcare delivery.<sup>2,3</sup> Studies also showed the benefits of lean in HR management on job satisfaction and perceived job autonomy.<sup>7,8</sup> Lean serves as a tool for the creation of a valuable platform where workers can identify the essential skills, capabilities and competencies to improve their ability to assist the organisations eliminate the waste and to ensure continuous improvement in order to achieve productivity and efficiency.<sup>9</sup> Yet, the application of lean to the healthcare sector, with a particular focus on HR management, is not as straightforward as, and certainly not similar to, the lean approach in manufacturing and production sectors.<sup>10</sup> This fact can partly be attributed to the complex organisational structure that distinguishes the fast-paced nature of a healthcare environment.<sup>11</sup>

The current narrative review was planned to discuss the implementation of lean in healthcare from a HR perspective. Academic literature revealed considerable variability in the implementation of lean in healthcare with differences in approach. We take as a starting point Radnor's observation that when lean is applied solely as a broader system-wide improvement philosophy, as opposed to a narrow range of specific tools, techniques, procedures and processes employed in specified departments or units, it will be less likely to result in sustained improvements.<sup>11</sup> Accordingly, the current review focussed on the implementation of lean approaches in healthcare to HR management practices. The first section defined lean thinking and lean in healthcare. The other

**Table:** Types of waste.

Types of waste	Description	Example
<b>Correction</b>	Time spent reworking to correct errors in work previously done	Giving the patient the wrong dose of the medication
<b>Overproduction</b>	Excess and unnecessary work for patients	Applying unnecessary assay procedures
<b>Material movement</b>	Unnecessary transporting, rearranging, storing/moving materials in the hospital	Locating the eyesight measuring room too far from policlinics
<b>Waiting</b>	Waiting for equipment to finish running before the next phase can be initiated; or waiting for people, information, or materials before meetings	Patients waiting for their appointments
<b>Inventory</b>	Excess supply that has no intended use in immediate future	Expired medical products
<b>Motion of people</b>	Unnecessary movement of employees, staff	Lab workers who need to walk long distances due to inadequate arrangements
<b>Processing</b>	Doing tasks which customers do not perceive as adding value	Additional seals of date and signatures on forms
<b>Human potential</b>	Waste and harm caused by not integrating employees sufficiently to the organizational process	Employees stopping to share their recommendations and observations for improvement

section was about lean in HR management and to introduce the case study of a private healthcare group in Turkey, with the aim of demonstrating in practice the impact of lean strategies on the satisfaction of patients and relatives, job satisfaction of the employees, and the level of turnover rates within healthcare enterprises.

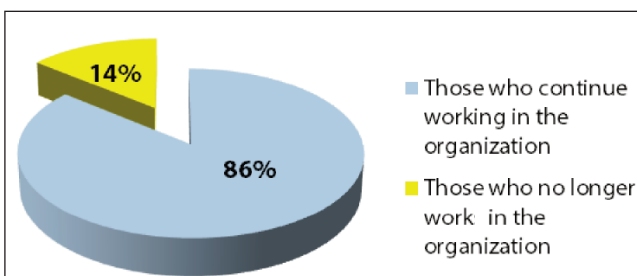
**Underpinning theories**

**Lean Thinking:** Lean manufacturing practices were first developed in Japan by Ohno, Toyota’s top executive, in response to the scarcity of Japanese resources and economic constraints in the 1950s and is often seen as the key to Toyota’s becoming of the industry leader in terms of product quality and profitability.<sup>5</sup> Lean thinking aimed at constantly transforming ‘wastes’ in the production systems into ‘values’ in the eyes of the customers, thereby ultimately achieving continuous improvement in the product quality.<sup>5,12</sup> Waste have been defined as anything that does not add value to the final product or service, whereas value is the capacity and ability to provide the desired result or service on time at an appropriate price.<sup>13</sup> Overall, lean has been developed as a production-oriented concept and tool that provides managers with a broad understanding of the organisation, allows for in-depth analysis of possible problems, and thereby assists managers to find more efficient and cost-effective ways to improve quality and safety in production.<sup>5,14</sup>

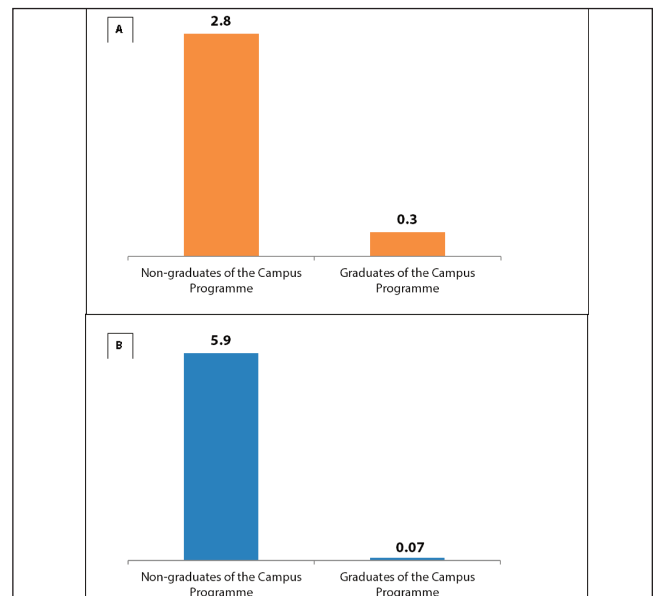
With the increased awareness of the practices and principles of lean production, the lean approach, also known as lean thinking, was derived from lean production and began to emerge across industries. The underpinning notion of the lean approach or lean thinking is the concept of continuous improvement in performance and productivity based on quality products and services and in the elimination of waste.<sup>2,4,15</sup> Companies across sectors have transformed their production systems over time by adopting the lean strategy.<sup>16</sup> Based on this idea, lean transformation provides for eliminating all kinds of activities that do not create value in the organisation.

**Lean in Healthcare**

The lean philosophy was adopted in healthcare first in the United Kingdom as part of the National Health Service (NHS) in 2001, and in the United States in 2002.<sup>17</sup> Since



**Figure-1:** The retention rates of graduates of the campus programme in 2015.



**Figure-2:** Patient complaint rates for non-Graduates and Graduates of the campus programme in the two branches of the organisation (A and B).

then, its application has increasingly expanded to the developing countries.<sup>1</sup> Lean management in healthcare operates as 'a set of operation philosophies and methods that help create a maximum value for patients by reducing waste and waits' by putting to front 'the customer's needs, employee involvement and continuous improvement'.<sup>18</sup> The types of waste arising in the healthcare industry are any (Table). In the context of healthcare, the customers do not only comprise patients but also refer to other internal and external partners of the system, collaborating with the system to provide both clinical and nonclinical healthcare services to the patients, including employees, support staff and other healthcare providers.

Studies on lean in healthcare have reported tangible benefits, such as improved delivery of healthcare, and increased patient safety, patient satisfaction and motivation as well as reduction in procedural errors, waiting time and costs.<sup>3,6,18,19</sup> Some approaches underscore the importance of considering the role and satisfaction of these internal customers to maximise the organisation's overall performance, productivity and profitability.<sup>2,5</sup> Some others highlighted the need to develop holistic management of the organisation, ensuring effective teamwork between different segments of the healthcare process,<sup>12</sup> while some others argued that more value in the form of continuous improvements can be achieved if organisations prioritise employing department-specific procedures and processes in the place of viewing lean as a broad strategy.<sup>11</sup> Thus, recent reviews demonstrated that while there was convergence on the benefits from lean implementation in healthcare, there was a considerable variety when it came to the process of implementation, extent of implementation and the resulting barriers to lean healthcare implementation.<sup>20-22</sup>

### **Lean in healthcare HR**

The lean in healthcare and HR management have overlapping objectives, such as process improvement, value creation and workforce development.<sup>23,24</sup>

Lean has benefits both in product and human resources (22). In the context of HR management, studies reported that lean positively affected job satisfaction and perceived job autonomy.<sup>8,23</sup> Lean and HR management further links through the function of HR management as a platform that assists organisations to ensure their workers are equipped with necessary skills, competencies and capabilities to help organisations eliminate the waste and to ensure continuous improvement with a view to achieving organisational productivity.<sup>9</sup> This involves recruiting the right people, creating a strong organisational culture, providing job instruction training, making training plans

and tracking performance, and building teams for the long term and into leadership roles to secure the workers' sustainable commitment.<sup>9</sup>

Lean also has positive influences on the roles and responsibilities of the employees, with practical implications on teamwork, value flow, working environment, organisational performance and staff development.<sup>25</sup> To the contrary, the implementation of lean in healthcare risks a negative impact on the workforce, taking the form of anxiety, resistance and work stress, where the creation of streamlined processes results in jobs or tasks that are more repetitive and straightforward.<sup>18,26,27</sup> Similarly, when linked with other strategies involving high technological content, lean may require additional effort from the workers, thereby increasing the complexity of the existing tasks.<sup>23</sup>

The effective teamwork between employees working at different segments of the healthcare delivery process plays a crucial role in the productivity of the institution. Some studies even assert that the most valuable asset that organisations have in order to achieve their goals is the employees in that organisation.<sup>28</sup> The more effective and productive the employees are, the easier it will be for enterprises to survive in a competitive environment. Various studies demonstrate that employees with high organisational commitment yield to high performances, and that greater job satisfaction increases organisational productivity and reduces staff turnover rates.<sup>25</sup>

HR units and managers are the first port of call for problems arising in teams out of enjoyment of one's role and work, organisational commitment or job satisfaction, and they are responsible to make efforts to keep employees in the organisation.<sup>29</sup> The cost of the disruptions in human resources, personnel training, training of new personnel instead of personnel may leave, and a low performance due to job dissatisfaction among the existing personnel may together yield significant waste and loss of resources in enterprises. Organisational commitment and job satisfaction of employees can directly affect the quality of patient care and job performance, especially in healthcare organisations.<sup>25</sup> Therefore, for the success and sustainability of organisations in lean applications, it is of utmost importance that healthcare enterprises benefit from human resources at the optimum level.

Strong leadership plays a critical part in the successful implementation of lean.<sup>30</sup> The implementation of lean is affected by changing leaders' practices and behaviours and, consequently, their mindset.<sup>31</sup> A study concluded that leadership is the most crucial factor for lean implementation success, and the availability of adequate

training acts as a catalyst.<sup>32</sup> The lean implementation can be facilitated through strategic leadership activities, such as developing cross-divisional governance arrangements, supporting a comprehensive long-range vision of the organisation's value-producing processes, and promoting accountability over meeting prescribed lean commitments.<sup>32</sup> Through these implementation efforts, managers would obtain a conducive environment allowing for easy assimilation of lean practices in healthcare.<sup>32</sup>

The case study mentioned above relates to the HR department of one of the largest private healthcare groups in Turkey to see how its recruitment and orientation programmes are aimed at applying lean principles to HR in healthcare. In this healthcare institution, the HR department may directly hire patient services employees and can subject the employees to specific training programmes before the start of their positions. In 2015, there were 434 people recruited for patient services and underwent orientation training called 'the campus programme', which is a training programme designed to supplement technical and personal competence of members of the patient services team who are in direct communication with the patients; the customers of the healthcare industry. Candidates who meet the criteria sought upon by their respective job descriptions and are successful at the interviews are informed about the campus programme.<sup>29</sup>

It starts with an institutional orientation training and necessary patient services information sessions, and continues with essential communication and behavioural training. The successful completion of the training programme requires the candidates to sit for daily exams on the material of the training session discussed on the preceding day. Thus, a minimum of 25 exams is carried out throughout the programme, effectively measuring the retention rates of the information provided in each training session. In addition to the in-class training that is held four days a week, field orientation takes place two days a week. Candidates are evaluated under the headings of the score they have received in the assessments, field orientation observation notes, and manager's feedback. At the end of the programme, candidates who are successful in every criterion receive job offers. According to the information obtained, out of the 434 people who were recruited as patient services staff and received training in the campus programme in 2015, 86% graduated from the programme and were still working in the healthcare group by the end of 2015.<sup>29</sup>

The examination of patient complaints from two branches of the healthcare institution showed that per capita

complaint rate of the employees who were not graduates of the campus programme in the first branch was higher than those against graduate employees. The rate of complaint of employees who were not graduates of the programme was 2.83 per person, while that of the graduates was 0.30. In the second branch, the per capita complaint rate of the employees who were not graduates of the programme was 5.89 compared to 0.07 of the programme graduates.

According to end-2015 data, the turnover rate of the campus programme graduates was 18%, while the turnover rate of the patient services staff was 22%. In 2014, the turnover of the same group was 26% and it was 24% in 2013. The case study illustrates that the employees who attended orientation training within a standardised programme become more permanent workforce members in the organisation, with lower rates of layoffs during the trial periods and fewer complaints from patients.

## Conclusion

In the wake of the COVID-19 pandemic, implementation of lean in healthcare has become a fundamental need against rapidly changing internal and external conditions to improve healthcare quality and efficiency, and work force productivity. In the aftermath of the pandemic, healthcare organisations will find it helpful to turn to lean to restructure their delivery of health services. Organisations that implement lean processes and procedures are more likely to increase productivity and efficiency in the delivery in health services, and, when combined with HR management, increased job satisfaction and job autonomy.

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