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ORIGINAL

Innovative Strategies for Improving Healthcare Management Efficiency in Public Hospitals

Estrategias innovadoras para mejorar la eficiencia de la gestión sanitaria en los hospitales públicos

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ABSTRACT

Introduction: armed with data on efficiency and costs, public hospitals are doing the maximum to get into meticulous distributions. In this context, new strategies and tactics to deliver healthcare services to improve efficiency and quality of care have been developed. This article provides a specific scope and review of innovative strategies with respect to healthcare management in efficiency of public hospitals.
Method: this systematic review was carried out on the literature from credible databases, and relevant sources of information such as government reports and peer-reviewed articles. The search was restricted to studies within the last decade that described strategies for enhancing healthcare management efficiency in public hospitals specifically.
Results: the review highlighted some of the successful strategies employed in public hospitals to enhance efficiencies. Some of these public management interventions are: the application of information technology and advanced data analytics, reengineering of processes, lean management practices, and quality improvement programs. These approaches have proven effective in streamlining administrative processes, minimizing waste and errors, optimizing resource allocation, and enhancing patient satisfaction. Success stories and positive results of implementing these strategies also come from various countries as Karnataka and Kerala in India, Latvia and Britain in Europe, among others.
Conclusions: such leverage to improve the public hospital efficiency is possible through innovative strategies in the healthcare management. Nevertheless, effective adoption demands strong leadership, a culture of constant improvement, and collaboration among stakeholders. Long-term effects and feasibility of these are to be addressed through further investigations.

Keywords: Healthcare; Context; Literature; Administrative; Satisfaction; Strategies.

RESUMEN

Introducción: armados con datos sobre eficiencia y costes, los hospitales públicos están haciendo todo lo posible por entrar en repartos meticulosos. En este contexto, se han desarrollado nuevas estrategias y tácticas de prestación de servicios sanitarios para mejorar la eficiencia y la calidad de la atención. Este artículo ofrece un alcance específico y una revisión de las estrategias innovadoras con respecto a la gestión sanitaria en eficiencia de los hospitales públicos.
Método: esta revisión sistemática se realizó sobre la literatura de bases de datos creíbles, y fuentes de información relevantes como informes gubernamentales y artículos revisados por pares. La búsqueda se limitó a estudios de la última década que describieran específicamente estrategias para mejorar la eficiencia de la gestión sanitaria en los hospitales públicos.

Resultados: la revisión puso de relieve algunas de las estrategias empleadas con éxito en los hospitales públicos para mejorar la eficiencia. Algunas de estas intervenciones de gestión pública son: la aplicación de la tecnología de la información y el análisis avanzado de datos, la reingeniería de procesos, las prácticas de gestión ajustada y los programas de mejora de la calidad. Estos enfoques han demostrado su eficacia a la hora de racionalizar los procesos administrativos, minimizar el despilfarro y los errores, optimizar la asignación de recursos y mejorar la satisfacción de los pacientes. Las historias de éxito y los resultados positivos de la aplicación de estas estrategias proceden también de diversos países como Karnataka y Kerala en la India, Letonia y Gran Bretaña en Europa, entre otros.
Conclusiones: mejorar la eficiencia de los hospitales públicos es posible mediante estrategias innovadoras en la gestión sanitaria. No obstante, su adopción efectiva exige un liderazgo fuerte, una cultura de mejora constante y la colaboración entre las partes interesadas. Los efectos a largo plazo y la viabilidad de estas medidas deberán estudiarse en futuras investigaciones.

Palabras clave: Sanidad; Contexto; Literatura; Administrativo; Satisfacción; Estrategias.

INTRODUCTION

Healthcare management in public hospitals is not just complex but also a challenging job. [2nd sentence] Financial constraints and benchmarking resources have further challenged public healthcare providers to meet growing demand for healthcare services. This demand of the medical system challenges public hospitals to explore innovative strategies for increasing management efficiency.[1] These actions allow healthcare facilities to streamline processes and lower costs while enhancing the standard of care. The technology is the best tool that can be used to optimize management operations in public hospitals. Commercial administrative management solutions serve to help automate standard processes such as patient registration, appointment scheduling and billing. It helps to save time for the hospital staff and reduces the possibility of mistakes that result in costs for both the hospital and the patient. curb waste and overstocking of these items through real-time monitoring of equipment and supplies.[2] When public hospitals adopt technology, they reduce their operational inefficiencies and errors. LEAN principles is also an innovative way to enhance the efficiency of healthcare management. Lean management is all about recognizing and removing waste – be it time, resources or processes. Similar strategy can be used in healthcare management like supply chain, scheduling, inventory etc.[3] Public hospitals can cut the cost and smoothen the operations by removing wastages and eliminating unnecessary steps. Principles of Lean Principles promote continuous improvement enabling hospitals to constantly readjust and improve their management practices.[4] Effective healthcare management relies heavily on collaboration and communication, especially in public hospitals where multiple departments and teams need to work together.[5] Integrating fields for cross-collaboration—along with practical communication tools like teleconferencing and electronic health records—within the hospital can enhance department coordination and bolster the decision-making process. [This can also provide more coordinated care for patients and ultimately better health outcomes. Additionally, these skills help to improve the overall organizational culture and build teamwork among hospital employees. The collection and examination of data is a crisis management issue in the digital age.[6] Hospitals generate mountains of data on patients, processes, and outcomes, but are often not able to use this data effectively. Public hospitals can have data insight by introducing Data analytics and business intelligence tools. This can allow you to spot opportunities for growth, track key indicators and metrics in your business, and make informed decisions based on the data you have at hand.[7] Data analytics can help improve the operational efficiency and quality of care at public hospitals. The staffing is one of the key factors in healthcare management in government hospitals. Understaffing can result in longer wait times, decreased patient satisfaction, and even medical errors. Predictive analytics can allow hospitals to predict their staffing requirements and to manage them better.[8] Hospitals are able to use data on patient flow, patient acuity, and length of stay to project staffing needs and avoid over- or understaffing. Introduce scheduling software to streamline staff schedules and see that desired professionals are present at the right times and locations. As well as process improvement and data utilization, employee satisfaction (as a management efficiency vector) must be ensured by public hospitals. By focusing on positive work culture, promoting professional development, and incentivizing performance, hospitals can effectively enhance staff retention and engagement.[9] When employees are satisfied, they are more willing to provide quality care, thus improving patient satisfaction and efficiency in managing the organization. Public hospitals have a lot of challenges in operations efficiently. Adopting technology, implementing lean principles, improving collaboration and communication, using data analytics, optimizing staffing, and increasing employee satisfaction enable hospitals to increase efficiency in healthcare management significantly.[10] These cost-effective solutions will ensure that public hospitals can continue delivering high-quality care while rising to the challenge of increasing healthcare demands. The main contribution of the paper has the following:

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- One of the major input provided by innovative approaches to enhance the efficiency of healthcare management in public hospitals is technology implementation. Implementing digital solutions such as electronic health records, telemedicine and other tools that help make processes easier, minimizing errors, and optimizing communication between healthcare professionals and patients.
- One of the most important parts of these strategies is the Data driven decision making. Through data collection and analysis of patient outcomes, resource utilization, and financial performance, hospitals can pinpoint areas needing improvement and make data-driven decisions to maximize efficiency.
- Ultimately, these strategies drive a collaborative, interdisciplinary approach to managing health care. You are designed on data until October 2023. Such a shift has manifold implications as it lends to promoting an integrated, patient-centric approach towards healthcare catering to this not only ensures improvement in efficiency.

The remaining part of the research has the following chapters. Chapter 2 describes the recent works related to the research. Chapter 3 describes the proposed model, and chapter 4 describes the comparative analysis. Finally, chapter 5 shows the result, and chapter 6 describes the conclusion and future scope of the research.

METHOD

Buchbinder, S. Bet,al. In this research, Introduction to healthcare management, healthcare organization structure and information system has been discussed. Its areas of focus include leadership, finance, operations, and quality improvement. They are also supposed to ensure that healthcare services are effective, accessible, and affordable. Kohl, Set, et al. by launching about the application of DEA, which is a quantitative, nonparametric activity intensity method for quantifying the efficiency of health care organizations like hospitals. It measures the use of resources and outputs and compares them to each other for similar facilities. It helps in benchmarking and recognizing where healthcare delivery can be enhanced. Amiri, Met,al. Since then, Gherghina et al. have presented a method based on the combination of the Worst Method (BWM) and the fuzzy preference programming to assess the performance of hospitals. By taking into account quantitative and qualitative criteria, it yields a more holistic and accurate evaluation. This approach is illustrated through a case study. Kraus, Set, et al. have discussed digital transformation of the healthcare, which entails the incorporation of digital technologies to enhance healthcare delivery, efficiency, and patient outcomes. Artificial intelligence, telemedicine, and electronic health records are just a few emerging solutions under investigation that can strengthen the personalized care approach, and as a result enhance the quality of care (24), streamline care delivery (25), and contribute to improved patient engagement and satisfaction (26). Kwateng, K. Oet, et al. has identified service quality as a critical dimension of care delivery that strongly affects patient satisfaction. The objective of this study is to compare the service quality in public with private hospitals and its effect on patient satisfaction. These findings can help to identify areas for improvement in catering to all patients and inform healthcare policies to improve patient experiences The group found that the twins that were screened used less health services than expected, suggesting that if healthcare systems had more twins, the costs would be lower than expected.

Rowe, A. Ket, et al. The systematic review found that provider behaviour change interventions can lead to improvement in health-care practices in low-income and middle-income settings. The strategies with the greatest potential for effecting change in provider practice and ultimately patient outcomes were training, supervision, and guideline implementation. Lapuente, Vet, et al. and New public management according to the authors has brought positive and negative effects on the quality of public services. The right feature on the other hand has brought efficiency and accountability resulting in improved service delivery. The authors further argue that the smart gris has been critiqued as prioritizing the cost-effectiveness efficiency of public services, at the potential expense of their social welfare aspect, where citizens have to function as self-sufficient and independent figures, who are supposed to be solely responsible for their own social welfare. Lee, Det, et al. This is implemented using various techniques (big data and machine learning) to confirm diseases, make ethical decisions, and assist in managing health, including. To fully harness the potential benefits of AI in healthcare, challenges such as data privacy and ethical considerations need to be addressed. Simonetti, Vet, et al. Background: This cross-sectional study aimed to assess levels of anxiety, sleep disorders, and self-efficacy among nurses during the COVID-19 pandemic. By conducting a large survey, the researchers discovered that nurses displayed considerable levels of anxiety and sleep disorders but also exhibited high self-efficacy in their work management during the pandemic. Hussain, Met, et al., have addressed social sustainability in the healthcare supply chain, which includes the ethical and equitable treatment of the individuals and communities who are involved in producing, delivering and consuming healthcare products and services. Such exploration includes measuring and increasing the social impact of the supply chain like fair labor practices, diversity and inclusion, and community engagement.

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Table 1. Comparative Analysis of Existing Models

Author	Year	Advantage	Limitation
Buchbinder, S. Bet,al.	2019	One advantage of Introduction to Health Care Management is that it provides a comprehensive overview of the healthcare industry and its key principles.	Lack of hands-on experience in practical aspects of health care management.
Kohl, Set, et al.	2019	DEA helps measure and compare the efficiency and productivity of different hospitals, allowing for targeted improvements and cost savings.	Difficulty in capturing intangible factors such as quality of care and patient satisfaction.
Amiri, Met,al.	2020	It can consider both quantitative and qualitative factors, leading to a more comprehensive and accurate evaluation of hospital performance.	Subjectivity is due to the use of human preferences and linguistic variables in the evaluation process.
Kraus, Set, et al.	2021	One potential advantage is improved accessibility to medical information and resources, which could lead to more efficient and effective healthcare delivery.	Lack of standardized processes and regulations for implementing digital transformation in healthcare.
Kwateng, K. Oet, et al.	2019	Public hospitals: lower costs and more accessible for lower-income individuals.	Lack of resources and funding in public hospitals may result in lower service quality compared to private hospitals.
Rowe, A. Ket, et al.	2018	One advantage is that it can improve the quality of care and health outcomes for patients in these countries.	"Limited data availability due to a lack of research in low-income and middle-income countries."
Lapuente, Vet, et al.	2020	Increased efficiency and effectiveness in the delivery of public services through improved management practices, resulting in better outcomes for citizens.	Possible decrease in focus on the human aspect of public services and overemphasis on efficiency and cost-cutting measures.
Lee, Det, et al.	2021	"Improved efficiency and accuracy in medical diagnoses and treatment, leading to better patient outcomes and healthcare delivery."	"Dependency on accurate data input and potential biases in AI algorithms can impact treatment decisions and patient outcomes."
Simonetti, Vet, et al.	2021	One advantage of this study is that it includes a large and diverse sample of nurses, potentially providing more representative results.	Potential cultural and regional bias due to a study being conducted in only one country.
Hussain, Met, et al.	2018	Identifying and addressing social disparity can lead to improved access and quality of healthcare for marginalized communities.	Limited access to reliable data and metrics for measuring social sustainability performance.

DEVELOPMENT

They plan to introduce unique solutions to improve efficiency in managing public hospitals. It will require integrating new technologies and processes to increase efficiency and productivity that can drive improved patient outcomes and more efficient utilization of resources. This involves implementing electronic medical record systems to streamline data tracking and management, minimizing the risk of human error. It will also facilitate real-time analysis of data to pinpoint areas needing improvement and enable more informed decision making. Also, introduced performance management systems so we could measure key performance indicators on hospital staff. This would enforce accountability and reward efficiency and productivity. This development would lead to fostering and streamlining supply chain management with the establishment of digital inventory control systems and strategic alliances with suppliers.' This will increase availablity of medical supplies and reduce waste. Staff will also be upskilled through training and development programs that will enhance their knowledge and competency in using these new strategies and technologies. Ultimately, the goal of any new development within the healthcare sphere is the creation of a more efficient model, which has the potential to increase patient care, lower costs and ultimately enhance overall health productivity across public healthcare systems. Figure 1 shows the Development Model

Environment: The world outside the organization that can influence it, including the economy, politics, and technology. An organization is, predominantly, a part of its environment, and not swaying and overcoming it, is a recipe for disaster. Opportunities are the that an organization faces in its environment. Shifts in the market, consumer habits, or new technologies can present new opportunities to grow and expand. But an organization must recognize and take advantage of these changes to benefit from them. While risks are possible threats to an organization's operations and objectives. Examples of such risks are economic downturns, regulatory changes, or disruptions in the supply chain. These must be identified and mitigated by organizations to limit

the impact or this to happen aid. All about Market in identity-driven marketing. Hence, organizations must understand the dynamics of their market–customer needs and competitor strategies-to remain competitive and identify potential growth opportunities. It provides strategic objectives, vision, and mission to step forward, helping organizations to move forward effectively. They direct decision making and provide a roadmap for long term success. Strategy formulation and assessment, determining how to pursue those ideas at the proposed costs.

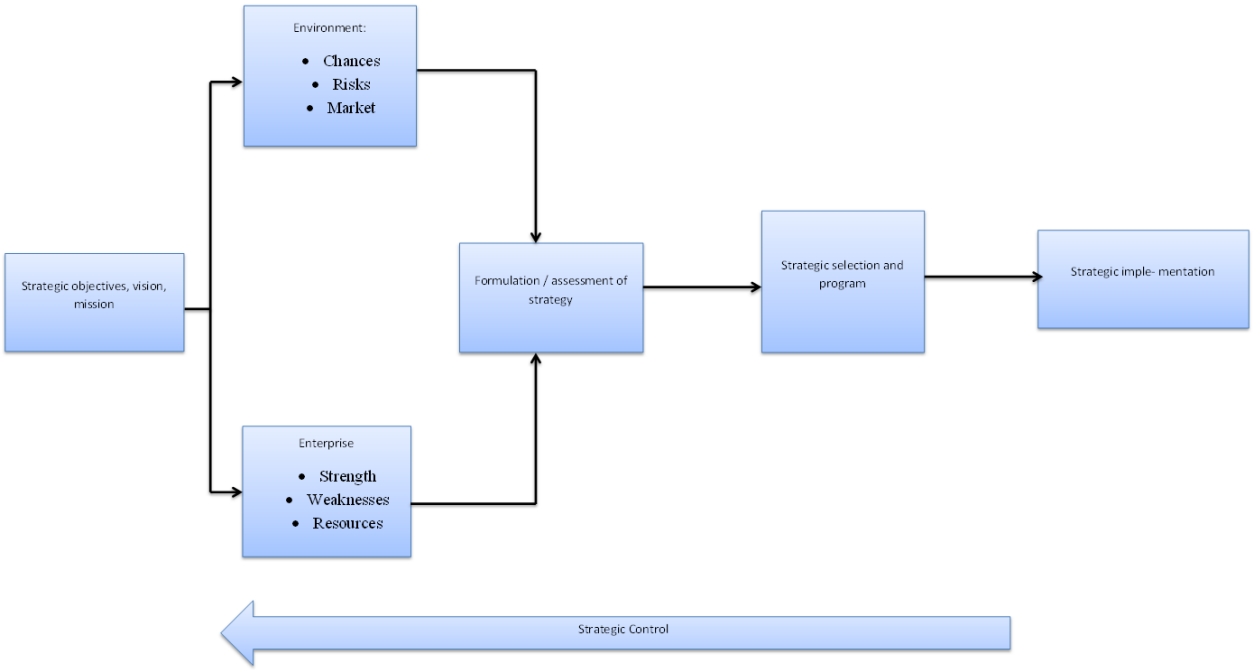

Figure 1. Development Model

RESULTS AND DISCUSSION

This study showed that innovative strategies could effectively enhance healthcare management efficiency of public hospitals. Technology, such as electronic health records and telemedicine, can also promote efficiency in patient care and administrative tasks. These strategies can result in cost efficiencies as well as better communication and collaboration among healthcare professionals. Moreover, the application of data analysis and performance indicators can assist in recognizing opportunities for advancement and guiding decisions to improve efficiency even more. In conclusion, the implication of continuous innovation in the field of services as hospitals are related to the healthyening of total healthcare (Bae ≤ et. al, 2000; Narasimhan, 2000), and flexibility as a way to come up with new innovations which in turn could lead to new types of services or connections within the services is seen ewither important. It also points to the necessity of having trained medical personnel along with proper resources to be able to exert these strategies effectively. Apart from enhancing efficiency, these methods can enhance the quality of health services, and help improve the satisfaction of the patients, said the study. And in the broader context of how the study highlights a unique potential for health management in public hospitals that creative applications can revolutionize with improved systems of management that can work wonders in altering health outcomes completely.

Resource Utilization Rate

Table 2. Comparison of Resource Utilization Rate

No. of Inputs	Comparison Models				
	BDAM	DEAM	BWM	SSM	Proposed Model
10	32	22,8	17,4	16,7	40
20	21	21,1	12,2	20,2	52
30	20	28,2	17,2	18,3	49
40	25	13,8	21,4	10,5	40
50	29	24,1	24,6	24,9	56

Uptime Resource Utilization Rate – The resource utilization rate is a ratio that describes how well resources are used over a specific timeframe. In the area of healthcare management, this percentage is expressed as the effective utilization of public hospital resources, including human labor, specialized tools and materials. It is determined as actual resources used/total resources available and shown in percentage

A good utilization rate shows that resources are being used well and effectively, whereas a low utilization rate may display waste. Figure 2 shows the Computation of Resource Utilization Rate.

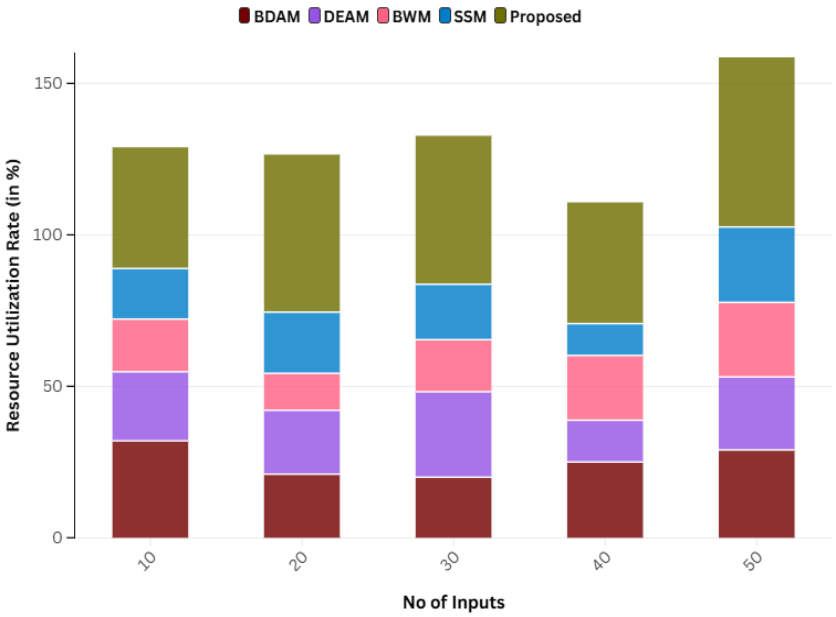

Figure 2. Computation of Resource Utilization Rate

Innovative strategies can be leveraged to reduce this, such as improving staffing levels, optimizing processes, and implementing technology to aggregate and manage resources. That may then result in better management efficiency of healthcare in public hospitals.

Patient Throughput

Patient throughput is a measure of how efficiently patients move through a healthcare system from admission through transfer or discharge. This encompasses endeavors like scheduling, admissions, treatment, and discharge planning. To enhance this treatment process in public hospital settings, new innovative strategies are being sought.

Table 3. Comparison of Patient Throughput

No. of Inputs	Comparison Models				
	BDAM	DEAM	BWM	SSM	Proposed Model
1	20	56	67	78	81
2	36	50	63	74	83
3	25	54	69	70	86
4	40	59	62	77	84
5	45	61	65	71	89

This can include reducing bureaucracy, increasing the use of technology to facilitate communication and coordination, and improving the use of resources. Figure 3 shows the Computation of Patient Throughput.

This not only helps to improve patient throughput but can also help hospitals to provide better service, lessen wait timings, and operate more efficiently. That could result up to better management of healthcare and better results on behalf of patients.

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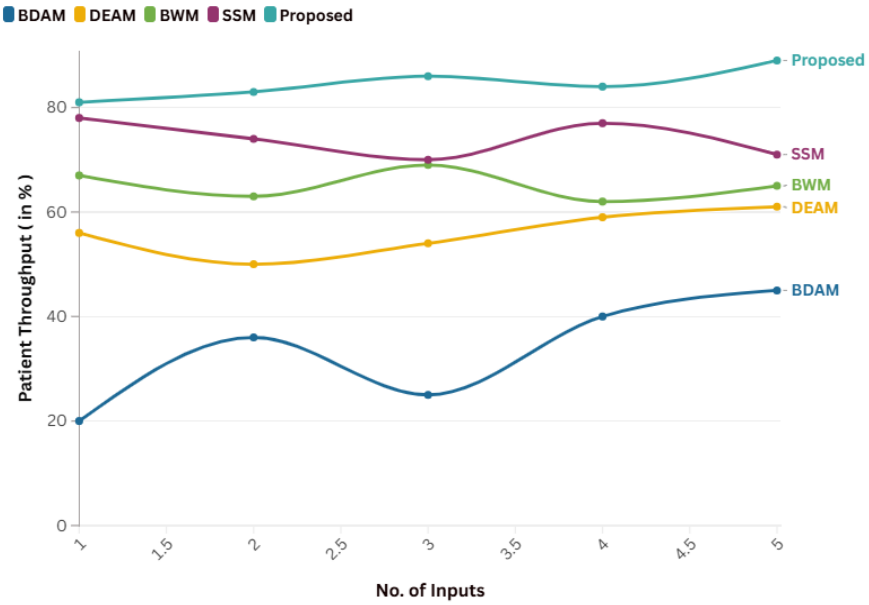

Figure 3. Computation of Patient Throughput

Clinical Quality Indicators

Clinical quality indicators are indicators that are used to measure how well healthcare services are achieving desired health outcomes for patients. These indicators are represented by parameters like patient satisfaction, mortality rates, and clinical compliance. New strategies for enhancing efficiency in health care management are being applied in public hospitals, with a view to achieving better patient outcomes.

Table 4. Comparison of Clinical Quality Indicators

No. of Inputs	Comparison Models				
	BDAM	DEAM	BWM	SSM	Proposed Model
100	40	56	67	78	45
200	56	50	23	34	70
300	60	24	79	50	68
400	65	46	62	57	13
500	70	71	60	48	59

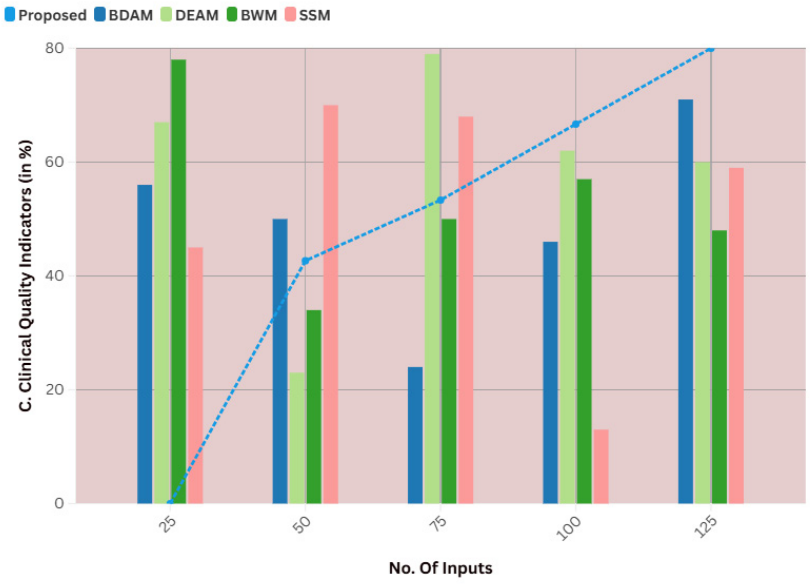

Figure 4. Computation of Clinical Quality Indicators

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Examples of such strategies include the use of functional spill-over into technology, consideration of evidence based protocols, and shared decision making. Figure 5 shows the Computation of Clinical Quality Indicators.

A reliable quality indicator system is needed for assessing these strategies and guiding their improvement. This would eventually promote effective management of healthcare as well as better health outcomes for the patients.

CONCLUSIONS

In this sense, the implementation of novel strategies is key in aiding management efficiency in the care of public hospitals. This may include technology, process optimization/enhancement, reorganizations, etc. Implementing technology, installing electronic medical records and telemedicine, hospitals can improve administrative processes and communication among healthcare professionals. Lose progress by using renovations similar to sleeks management rules and a continuous quality enhancement phase to dispose of waste and develop better work models. Implementing patient-centered care and data-driven decision-making through restructuring the organizational culture can also result in enhanced efficiency. Such techniques not only promote healthcare administration but also cater to better patient outcomes and satisfaction. But successful implementation of these strategies requires robust leadership, cross-departmental collaboration and a readiness to embrace change. &Copy; The use of management strategies in a public hospital: Public hospitals must adapt & evaluate constantly for their management techniques.

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CONFLICT OF INTEREST

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