Chelonian Conservation And Biology

Vol. 18 No. 1 (2023) | https://www.acgpublishing.com/ | ISSN - 1071-8443

DOI: doi.org/10.18011/2023.06(2).191.204

A CRITICAL ANALYSIS ON INTEGRATING OPERATIONS IN MEDICAL CLINICS TO ENHANCE SERVICE QUALITY

Fayez Abdullah Al Haydar
Ministry of Health, Saudi Arabia

Mohammed Hamis Ahmed Al Sharif
Ministry of Health, Saudi Arabia

Mahdi Salem Mahdi AL ALshahi
Ministry of Health, Saudi Arabia

Tariq Salem Mahdi Al Alshahi
Ministry of Health, Saudi Arabia

Saleh Salem Mahdi Al Shahi
Ministry of Health, Saudi Arabia

Ali Saleh Al Saab
Ministry of Health, Saudi Arabia

Abstract

In an era where healthcare demands are escalating, medical clinics are under immense pressure to optimize patient care while navigating resource constraints. This critical analysis explores the integration of operations within medical clinics as a pivotal strategy to enhance service quality and patient satisfaction. Through a comprehensive examination of current operational challenges, including inefficiencies in patient flow, appointment scheduling, and data management, this article highlights the necessity for a cohesive operational framework. Drawing on theoretical models of operational management and real-world case studies, we propose actionable strategies for clinics to achieve operational integration. These include the adoption of advanced technology solutions like Electronic Health Records (EHR) and telemedicine, alongside organizational changes such as staff training and leadership commitment. The article also addresses potential barriers to integration, such as resistance to change and budget limitations, offering insights into overcoming

these obstacles. By evaluating the impact of integrated operations on patient care and clinic efficiency, we underscore the transformative potential of a well-orchestrated operational approach in the healthcare sector.

Keywords**:** Healthcare Operations**,** Patient Care Optimization**,** Operational Integration**,** Medical Clinics**,** Service Quality**,** Electronic Health Records (EHR)**,** Telemedicine**,** Operational Efficiency**,** Healthcare Management**,** Patient Satisfaction

1. Introduction

In the contemporary healthcare landscape, medical clinics are pivotal in delivering primary care, serving as the first point of contact for patients. The burgeoning demand for healthcare services, fueled by an aging population and increasing prevalence of chronic diseases, has placed unprecedented pressure on these clinics to deliver efficient, high-quality care. The integration of operations within medical clinics emerges as a critical strategy to meet these challenges head-on, optimizing patient care and enhancing overall service quality.

Operational efficiency in healthcare is not merely about cost reduction; it's about creating a seamless patient experience and improving health outcomes. The complexity of healthcare services, coupled with the diverse needs of patients, necessitates a multifaceted approach to operational management (Porter & Teisberg, 2006). Integrated operations within medical clinics involve the harmonization of various functions—ranging from appointment scheduling to patient flow management and the use of Electronic Health Records (EHRs)—to ensure that all aspects of patient care are coordinated and efficient (Bodenheimer & Sinsky, 2014).

However, the path to achieving operational integration is fraught with challenges. Many clinics grapple with legacy systems, siloed departments, and a resistance to change, which can stymie efforts to streamline operations (Kohn, Corrigan, & Donaldson, 2000). Additionally, the sensitive nature of healthcare information and the stringent regulations governing patient data add layers of complexity to the integration process (HIPAA, 1996).

Despite these hurdles, the imperative to integrate operations in medical clinics is clear. Research has consistently shown that integrated healthcare systems can lead to improved patient outcomes, reduced healthcare costs, and enhanced patient satisfaction (Shortell et al., 2000). For instance, the implementation of EHRs has been linked to better clinical decision-making, reduced medication errors, and more efficient care delivery (Chaudhry et al., 2006).

To navigate the complexities of operational integration, medical clinics must adopt a strategic approach that encompasses technological innovation, organizational change management, and a steadfast commitment to patient-centered care. This involves not only investing in the latest healthcare technologies but also fostering a culture of continuous improvement and collaboration among healthcare professionals.

The integration of operations in medical clinics is more than a logistical endeavor; it is a fundamental shift in how care is delivered, promising a future where healthcare is more accessible, efficient, and patient-focused. By critically analyzing the current state of operations in medical clinics and proposing actionable strategies for integration, this article aims to contribute to the ongoing discourse on enhancing service quality in the healthcare sector.

2. The Current State of Operations in Medical Clinics

The current operational landscape of medical clinics is characterized by a complex amalgam of processes, systems, and technologies, each pivotal to the delivery of patient care. Despite advancements in medical science and healthcare technology, many clinics continue to face operational challenges that can impede the quality of care and patient satisfaction. These issues range from inefficient patient flow and scheduling systems to outdated record-keeping methods and disjointed communication channels.

- Inefficiencies in Patient Flow and Scheduling

Patient flow and scheduling are fundamental to the smooth operation of medical clinics. However, inefficiencies in these areas are common, often leading to prolonged waiting times, patient dissatisfaction, and increased stress for both patients and healthcare providers. A study by O'Neill et al. (2015) highlights how inefficiencies in scheduling and patient flow can significantly impact clinic throughput and the overall patient experience. The integration of advanced scheduling systems and patient flow management tools can mitigate these issues, yet many clinics lag in adopting such technologies.

- Legacy Systems and Electronic Health Records (EHR)

The transition from paper-based records to Electronic Health Records (EHR) has been a significant step forward for many healthcare providers. However, the adoption and integration of EHR systems remain inconsistent. As Boonstra and Broekhuis (2010) discuss, barriers to EHR adoption include high initial costs, concerns about data security, and resistance to change among staff. Furthermore, when EHR systems are not fully integrated across all departments, the potential benefits for patient care coordination and data accessibility are not fully realized.

- Communication and Coordination Challenges

Effective communication and coordination among healthcare professionals are crucial for delivering high-quality patient care. Disjointed communication systems can lead to critical information being overlooked, delayed diagnoses, and unnecessary duplication of tests. According to O'Malley and Reschovsky (2011), many clinics struggle with coordinating care, especially for patients with complex needs who require services from multiple providers. The lack of integrated communication systems exacerbates these challenges.

- Resistance to Change and Organizational Culture

Adopting new processes and technologies often meets resistance within organizations, and medical clinics are no exception. The culture of an organization plays a significant role in its ability to adapt to change. Kotter (1996) emphasizes that successful change initiatives require strong leadership and a culture that supports continuous improvement and innovation. Many clinics struggle to cultivate such an environment, hindering their operational efficiency and adaptability.

The current state of operations in medical clinics presents a complex picture of challenges and opportunities. While some clinics have made significant strides in adopting new technologies and improving their operational efficiency, many continue to grapple with legacy systems, inefficient processes, and resistance to change. Addressing these issues requires a concerted effort to adopt integrated systems, foster a culture of continuous improvement, and prioritize patient-centered care.

3. Theoretical Framework for Operational Integration

Theoretical frameworks provide a structured approach to understanding and addressing the complexities of operational integration in medical clinics. By applying these frameworks, clinics can systematically improve their processes, enhance patient care, and achieve greater efficiency. Two prominent theories that are particularly relevant to operational integration in healthcare are Lean Management and the Donabedian Model.

- Lean Management in Healthcare

Lean Management, originating from the Toyota Production System, emphasizes waste reduction, value creation, and continuous improvement. In healthcare, Lean principles focus on optimizing patient flow, reducing wait times, and eliminating non-value-added activities, thereby enhancing the overall patient experience and operational efficiency. Graban (2011) illustrates how Lean principles have been successfully applied in various healthcare settings to streamline processes, increase patient satisfaction, and reduce costs. Lean tools such as Value Stream Mapping and 5S can help medical clinics identify inefficiencies and develop more streamlined processes.

- The Donabedian Model

The Donabedian Model, proposed by Avedis Donabedian in the 1960s, is a foundational framework for assessing healthcare quality. It categorizes healthcare quality into three domains: structure, process, and outcomes (Donabedian, 1988). In the context of operational integration, the 'structure' refers to the physical and organizational aspects of a clinic, such as the facilities, equipment, and the qualifications of healthcare providers. 'Process' involves the methods and procedures used in delivering care, including patient intake, diagnosis, treatment, and follow-up. 'Outcomes' measure the effects of healthcare on patient health, including improvements in symptoms, satisfaction, and overall health status. This model provides a comprehensive approach to evaluating and improving the quality of care in medical clinics through integrated operations.

- Systems Theory

Systems Theory, another valuable framework, views an organization as a complex system composed of interrelated parts. In healthcare, this perspective emphasizes the importance of understanding how different components of a clinic's operations interact with one another (von Bertalanffy, 1968). Applying Systems Theory to operational integration involves identifying how changes in one area, such as scheduling, can impact other areas, such as patient flow or staff workload. This holistic approach is crucial for achieving effective and sustainable operational improvements.

The integration of operations in medical clinics is a multifaceted challenge that requires a structured approach. Theoretical frameworks like Lean Management, the Donabedian Model, and Systems Theory offer valuable insights and methodologies for addressing this challenge. By applying these frameworks, clinics can systematically identify inefficiencies, implement improvements, and monitor the impact on patient care and operational efficiency.

4. Case Studies of Successful Integration

To illustrate the theoretical frameworks of operational integration in practice, several case studies from medical clinics around the world offer valuable insights into successful strategies and outcomes. These case studies highlight how different clinics have overcome challenges to improve efficiency, patient care, and overall service quality through operational integration.

Case Study 1: Mayo Clinic's Patient-Centered Approach

The Mayo Clinic is renowned for its patient-centered approach and operational excellence. By integrating its operations across various departments and specialties, the clinic has achieved remarkable efficiency and high patient satisfaction rates. Berry and Seltman (2008) detail how the Mayo Clinic's focus on collaboration and communication among healthcare professionals, along with its use of integrated electronic health records (EHR), has enhanced the quality of patient care. The clinic's model emphasizes the importance of a unified team working towards the common goal of meeting patient needs, showcasing the effectiveness of integrated operations in a large healthcare setting.

Case Study 2: Virginia Mason Medical Center and Lean Management

Virginia Mason Medical Center in Seattle adopted Lean principles to transform its operations, becoming one of the first healthcare institutions in the United States to do so. Kenney (2011) describes how Virginia Mason used Lean tools to streamline processes, from patient scheduling to clinical workflows, significantly reducing wait times and operational costs while improving patient care. The medical center's "Virginia Mason Production System" is a testament to how Lean management principles can be effectively applied in a healthcare context to achieve operational integration.

Case Study 3: ThedaCare's Clinical Team Integration

ThedaCare, a community health system in Wisconsin, implemented an innovative model of care that integrated clinical teams across its network. Toussaint and Berry (2013) explain how ThedaCare's focus on continuous improvement and team-based care led to significant enhancements in patient outcomes and efficiency. By adopting a value stream approach and ensuring that all team members worked cohesively, ThedaCare was able to reduce redundancies and enhance the patient experience, demonstrating the benefits of operational integration in a community healthcare setting.

Case Study 4: Singapore's National University Health System (NUHS) Regional Health System

Singapore's NUHS has been at the forefront of integrating healthcare services across primary, secondary, and tertiary care. Lai and Tan (2012) discuss how NUHS's Regional Health System model facilitates seamless patient transitions between different levels of care, supported by a centralized electronic health record system. This integrated approach has led to improved patient management, especially for chronic diseases, showcasing how operational integration can be achieved across a healthcare network.

5. Strategies for Integrating Operations

Integrating operations in medical clinics to enhance service quality and patient care involves a multi-faceted approach that encompasses technology, process improvement, and people management. The following strategies, supported by literature and case studies, offer a roadmap for clinics aiming to achieve operational integration and excellence.

- Implementing Advanced Health Information Technologies

The adoption and effective use of health information technologies (HIT), such as Electronic Health Records (EHR) and telehealth platforms, are pivotal for operational integration. These technologies facilitate seamless information sharing, improve patient data accessibility, and support clinical decision-making. Bates et al. (2003) underscore the importance of EHRs in improving care quality and efficiency, noting significant reductions in medication errors and enhanced coordination of care. Furthermore, the integration of telehealth services can extend the reach of clinics, offering patients convenient access to care and monitoring, as highlighted by Polinski et al. (2016).

- Lean Management and Process Improvement

Applying Lean management principles to healthcare operations can significantly enhance efficiency and patient satisfaction by eliminating waste and optimizing workflows. Radnor et al. (2012) demonstrate how Lean interventions in healthcare settings can lead to improved patient flow, reduced waiting times, and increased staff satisfaction. Tools such as Value Stream Mapping enable clinics to visualize and streamline patient care processes from appointment scheduling to discharge.

- **Interdisciplinary Collaboration and Team-Based Care**

Promoting interdisciplinary collaboration and team-based care is crucial for operational integration. Effective communication and collaboration among healthcare providers, including physicians, nurses, and administrative staff, ensure coordinated care delivery and improve patient outcomes. Mitchell et al. (2012) emphasize the positive impact of team-based care on chronic disease management, patient satisfaction, and healthcare utilization. Establishing interdisciplinary teams facilitates comprehensive care planning and leverages the diverse expertise of healthcare professionals.

- **Continuous Quality Improvement (CQI) Initiatives**

Continuous Quality Improvement (CQI) initiatives, grounded in the Plan-Do-Study-Act (PDSA) cycle, enable clinics to systematically evaluate and enhance their operations. Batalden and Davidoff (2007) advocate for a culture of continuous improvement in healthcare, where feedback loops and data-driven decision-making lead to incremental enhancements in care quality and operational efficiency. CQI projects can focus on various aspects of clinic operations, from patient intake processes to follow-up care coordination.

- **Patient-Centered Care and Engagement**

Integrating operations must also involve a focus on patient-centered care, ensuring that services are tailored to meet the needs and preferences of patients. Gerteis et al. (1993) highlight the principles of patient-centered care, including respect for patients' values, coordination of care, and access to information. Engaging patients in their care process and decision-making can lead to higher satisfaction and better health outcomes..

6. Technological Solutions for Operational Integration

Technological solutions play a crucial role in achieving operational integration in medical clinics, enhancing efficiency, improving patient care, and facilitating seamless communication among healthcare providers. The implementation of these technologies can significantly streamline clinic operations, reduce errors, and improve patient satisfaction.

Electronic Health Records (EHR)

Electronic Health Records (EHR) systems are central to operational integration, offering a unified platform for storing and accessing patient information. EHRs improve clinical decision-making, enhance patient safety, and facilitate better care coordination among healthcare providers. DesRoches et al. (2013) emphasize the importance of EHRs in improving access to patient information, reducing medication errors, and supporting quality improvement initiatives. The interoperability of EHR systems is crucial, allowing for the seamless exchange of health information across different healthcare settings.

Telehealth and Remote Monitoring Technologies

Telehealth technologies have revolutionized the way care is delivered, enabling remote consultations, monitoring, and management of patients. This is particularly beneficial for patients in remote areas or those with mobility issues. Polinski et al. (2016) highlight the positive impact of telehealth on patient satisfaction and access to care. Remote monitoring technologies, such as wearable devices and home monitoring systems, further extend the capabilities of telehealth, allowing clinicians to monitor patients' health status in real-time and make informed decisions about their care.

Patient Portal Systems

Patient portals are secure online platforms that provide patients with access to their health information, facilitate communication with healthcare providers, and allow for convenient functions like appointment scheduling, prescription refills, and viewing lab results. Kruse et al. (2015) discuss the benefits of patient portals in enhancing patient engagement, satisfaction, and healthcare outcomes. These platforms empower patients to take an active role in their healthcare, improving communication and collaboration between patients and providers.

Clinical Decision Support Systems (CDSS)

Clinical Decision Support Systems (CDSS) are computerized programs that analyze data within EHRs to provide healthcare professionals with evidence-based clinical recommendations. These systems enhance the quality of care by supporting diagnostic and therapeutic decisions, reducing errors, and standardizing care practices. Kawamoto et al. (2005) demonstrate the effectiveness of CDSS in improving clinical practice and patient outcomes, highlighting the potential of these systems to transform healthcare delivery.

Inventory and Resource Management Systems

Effective management of inventory and resources, including medications, medical supplies, and equipment, is essential for the smooth operation of medical clinics. Inventory and resource management systems can automate ordering processes, track inventory levels, and ensure the timely availability of necessary resources. Dzik-Jurasz (2002) illustrates how such systems can reduce waste, lower costs, and improve operational efficiency in healthcare settings.

7. Overcoming Barriers to Integration

Overcoming barriers to integration in medical clinics requires a multifaceted approach, addressing issues related to technology, culture, resources, and regulation. Successful integration not only improves efficiency and patient care but also fosters a more collaborative and patient-centered healthcare environment. The following strategies can help medical clinics overcome these barriers:

- **Addressing Technological Challenges**

The integration of advanced technologies, such as Electronic Health Records (EHRs) and telehealth, can be hindered by issues like interoperability, data security, and user resistance. To overcome these challenges, clinics should invest in interoperable systems that comply with health information exchange standards, ensuring secure and seamless data sharing across platforms. Training programs can enhance user competency and acceptance, as highlighted by Kruse et al. (2015), who emphasize the importance of comprehensive training and support for EHR users to mitigate resistance and improve adoption rates.

- **Cultivating an Organizational Culture of Change**

Resistance to change is a common barrier in healthcare settings, where traditional practices are deeply ingrained. Leaders in healthcare organizations must cultivate a culture that is open to change and innovation. Kotter's (1996) change management model provides a framework for leading change, emphasizing the importance of creating a sense of urgency, forming a powerful coalition, and generating short-term wins. Engaging staff in the change process and demonstrating the benefits of integration can facilitate a smoother transition.

- **Resource Allocation and Financial Investment**

Operational integration often requires significant financial investment in technology, training, and process redesign. Securing funding and allocating resources efficiently are crucial steps. Value-based care models and incentive programs, like those promoted by the Centers for Medicare & Medicaid Services (CMS), can provide financial support and motivation for clinics to invest in integration efforts that improve care quality and efficiency.

- **Navigating Regulatory and Compliance Issues**

Compliance with healthcare regulations, such as the Health Insurance Portability and Accountability Act (HIPAA) in the United States, can be a barrier to integration due to the complexities and costs associated with ensuring privacy and security. Clinics must stay informed about regulatory requirements and implement robust compliance programs. Consulting with legal and regulatory experts can help navigate these challenges, ensuring that integration efforts align with legal mandates.

- **Enhancing Interprofessional Collaboration**

Effective integration requires collaboration across various healthcare disciplines. Breaking down silos and fostering interprofessional teamwork can be challenging due to differing professional cultures and communication styles. Implementing team-based care models and promoting collaborative practice through training and team-building activities can enhance cooperation and mutual respect among healthcare professionals, as suggested by Reeves et al. (2010).

- **Measuring the Impact of Integration**

Measuring the impact of operational integration in medical clinics is essential for assessing improvements in efficiency, patient care, and overall healthcare delivery. A comprehensive evaluation involves analyzing various metrics related to clinical outcomes, operational efficiency, patient satisfaction, and financial performance. This section outlines key measures and methodologies for evaluating the impact of integration efforts.

- **Clinical Outcomes**

The primary goal of operational integration is to enhance patient care quality. Clinical outcome measures such as reduced hospital readmission rates, lower infection rates, and improved management of chronic conditions are direct indicators of integration effectiveness. A study by Bradley et al. (2013) highlights how integrated care models can lead to significant improvements in patient outcomes, emphasizing the importance of tracking specific health indicators related to the clinic's primary care focus.

- **Operational Efficiency**

Operational efficiency can be assessed by measuring changes in patient throughput, appointment wait times, and the utilization of healthcare resources. Reductions in patient wait times and increased throughput indicate a more efficient use of clinic resources. Furthermore, implementing technologies like Electronic Health Records (EHRs) should lead to a decrease in administrative burdens and paperwork, as reported by Menachemi and Collum (2011), enhancing overall operational efficiency.

- **Patient Satisfaction**

Patient satisfaction is a crucial metric for evaluating the success of integration efforts. Surveys and feedback mechanisms can gauge patients' perceptions of care quality, access to services, and communication with healthcare providers. High levels of patient satisfaction are often associated with better adherence to treatment plans and improved health outcomes. HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) surveys are commonly used to measure patient satisfaction in healthcare settings, providing valuable insights into the patient experience.

- **Financial Performance**

Financial metrics, such as cost savings, return on investment (ROI), and revenue changes, are vital for assessing the economic impact of integration. Effective integration should lead to cost efficiencies by reducing duplicate tests, unnecessary procedures, and hospital readmissions. Porter and Teisberg (2006) discuss the value of measuring economic outcomes in healthcare, advocating for value-based healthcare delivery that aligns with improved financial performance.

- **Use of Health Information Technology Metrics**

The adoption and effective use of health information technology (HIT) can be a measure of successful operational integration. Metrics such as EHR adoption rates, the extent of interoperability, and the usage of patient portals and telehealth services provide insight into the integration of technology into clinical workflows. Chaudhry et al. (2006) emphasize the role of HIT in improving healthcare quality, making it a critical area for evaluation.

Conclusion

In conclusion, the integration of operations within medical clinics stands as a pivotal strategy for enhancing service quality, operational efficiency, and patient care outcomes. This comprehensive analysis has traversed through the multifaceted dimensions of operational integration, from the initial assessment of the current state of medical clinic operations to the exploration of various strategies, technological solutions, and methodologies for overcoming integration barriers and measuring impact.

The journey through theoretical frameworks, successful case studies, and strategic implementations has illuminated the profound benefits that integrated operations can offer. These include improved clinical outcomes, elevated patient satisfaction, and significant advancements in operational efficiency. Moreover, the adoption of cutting-edge technological solutions has been identified as a cornerstone in achieving seamless integration, facilitating better communication, data management, and overall service delivery.

However, the path to achieving operational integration is fraught with challenges, including technological hurdles, cultural resistance, resource constraints, and regulatory complexities. Overcoming these obstacles necessitates a concerted effort from all stakeholders involved, underpinned by strong leadership, a commitment to change management, and a clear vision for the future of healthcare delivery.

The measurable impact of integration efforts, assessed through clinical outcomes, patient satisfaction, operational efficiency, and financial performance, serves as a testament to the value of integrated healthcare operations. These metrics not only underscore the tangible benefits of integration but also highlight areas for continuous improvement and innovation.

As the healthcare landscape continues to evolve, the integration of operations in medical clinics will remain a dynamic and ongoing process. It requires adaptability, continuous learning, and an unwavering commitment to enhancing the quality of patient care. By embracing the principles of operational integration, medical clinics can navigate the complexities of modern healthcare delivery, ensuring a patient-centered, efficient, and sustainable healthcare system for the future.

In essence, the integration of operations within medical clinics is not merely a strategic initiative but a fundamental shift towards a more collaborative, efficient, and patient-focused healthcare paradigm. The insights and strategies discussed herein provide a roadmap for clinics aspiring to

achieve excellence in healthcare delivery, marking a significant step forward in the quest for an integrated and holistic approach to patient care.

References:

1. Bates, D. W., Cohen, M., Leape, L. L., Overhage, J. M., Shabot, M. M., & Sheridan, T. (2003). Reducing the frequency of errors in medicine using information technology. Journal of the American Medical Informatics Association, 10(4), 299-308.
2. Batalden, P. B., & Davidoff, F. (2007). What is "quality improvement" and how can it transform healthcare? Quality and Safety in Health Care, 16(1), 2-3.
3. Bradley, E. H., Sipsma, H., Horwitz, L. I., Ndumele, C. D., Brewster, A. L., Curry, L., & Krumholz, H. M. (2013). Hospital strategies associated with 30-day readmission rates for patients with heart failure. Circulation: Cardiovascular Quality and Outcomes, 6(4), 444-450.
4. Bodenheimer, T., & Sinsky, C. (2014). From Triple to Quadruple Aim: Care of the Patient Requires Care of the Provider. Annals of Family Medicine, 12(6), 573-576.
5. Boonstra, A., & Broekhuis, M. (2010). Barriers to the acceptance of electronic medical records by physicians from systematic review to taxonomy and interventions. BMC Health Services Research, 10(1), 231.
6. Berry, L. L., & Seltman, K. D. (2008). Management Lessons from Mayo Clinic: Inside One of the World's Most Admired Service Organizations. McGraw-Hill.
7. Chaudhry, B., Wang, J., Wu, S., Maglione, M., Mojica, W., Roth, E., Morton, S. C., & Shekelle, P. G. (2006). Systematic review: Impact of health information technology on quality, efficiency, and costs of medical care. Annals of Internal Medicine, 144(10), 742-752.
8. Donabedian, A. (1988). The quality of care: How can it be assessed? JAMA, 260(12), 1743-1748.
9. DesRoches, C. M., Charles, D., Furukawa, M. F., Kralovec, P. D., Stalley, S., & Jha, A. K. (2013). Adoption of electronic health records grows rapidly, but fewer than half of US hospitals had at least a basic system in 2012. Health Affairs, 32(8), 1478-1485.
10. Dzik-Jurasz, A. (2002). Inventory management in pharmacy practice: a review of literature. Archives of Pharmacy Practice, 3(3), 151-156.
11. Gerteis, M., Edgman-Levitan, S., Daley, J., & Delbanco, T. L. (1993). Through the patient's eyes: Understanding and promoting patient-centered care. Jossey-Bass.
12. Graban, M. (2011). Lean Hospitals: Improving Quality, Patient Safety, and Employee Engagement. CRC Press.

13. Kenney, C. (2011). Transforming Health Care: Virginia Mason Medical Center's Pursuit of the Perfect Patient Experience. CRC Press.

14. Kotter, J. P. (1996). Leading change. Harvard Business Press.

15. Kruse, C. S., Kothman, K., Anerobi, K., & Abanaka, L. (2015). Adoption factors of the Electronic Health Record: A systematic review. JMIR Medical Informatics, 3(2), e19.

16. Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). (2000). To err is human: Building a safer health system (Vol. 6). National Academies Press.

17. Kawamoto, K., Houlihan, C. A., Balas, E. A., & Lobach, D. F. (2005). Improving clinical practice using clinical decision support systems: a systematic review of trials to identify features critical to success. BMJ, 330(7494), 765.

18. Kruse, C. S., Argueta, D. A., Lopez, L., & Nair, A. (2015). Patient and provider attitudes toward the use of patient portals for the management of chronic disease: a systematic review. Journal of Medical Internet Research, 17(2), e40.

19. Lai, A. Y., & Tan, T. B. (2012). Integrating healthcare: The National University Health System (NUHS) Regional Health System (RHS) experience, Singapore. International Journal of Integrated Care, 12.

20. Mitchell, P., Wynia, M., Golden, R., McNellis, B., Okun, S., Webb, C. E., Rohrbach, V., & Von Kohorn, I. (2012). Core principles & values of effective team-based health care. Discussion Paper, Institute of Medicine, Washington, DC.

21. Menachemi, N., & Collum, T. H. (2011). Benefits and drawbacks of electronic health record systems. Risk Management and Healthcare Policy, 4, 47-55.

22. O'Malley, A. S., & Reschovsky, J. D. (2011). Referral and consultation communication between primary care and specialist physicians: Finding common ground. Archives of Internal Medicine, 171(1), 56-65.

23. O'Neill, L., Dexter, F., & Wachtel, R. E. (2015). Should anesthesia groups advocate funding of clinics and scheduling systems to increase operating room workload? Anesthesiology, 123(2), 495-504.

24. Polinski, J. M., Barker, T., Gagliano, N., Sussman, A., Brennan, T. A., & Shrank, W. H. (2016). Patients' satisfaction with and preference for telehealth visits. Journal of General Internal Medicine, 31(3), 269-275.

25. Porter, M. E., & Teisberg, E. O. (2006). Redefining health care: Creating value-based competition on results. Harvard Business Press.

26. Radnor, Z. J., Holweg, M., & Waring, J. (2012). Lean in healthcare: The unfilled promise? Social Science & Medicine, 74(3), 364-371.

27. Reeves, S., Lewin, S., Espin, S., & Zwarenstein, M. (2010). Interprofessional Teamwork for Health and Social Care. Blackwell Publishing Ltd.

28. Shortell, S. M., Gillies, R. R., Anderson, D. A., Erickson, K. M., & Mitchell, J. B. (2000). Remaking health care in America: The evolution of organized delivery systems. Jossey-Bass.

29. Toussaint, J. S., & Berry, L. L. (2013). The promise of Lean in health care. Mayo Clinic Proceedings, 88(1), 74-82.

30. Von Bertalanffy, L. (1968). General System Theory: Foundations, Development, Applications. George Braziller.