



INVESTIGATING THE IMPACT OF NURSE-LED CARE COORDINATION ON HEALTHCARE UTILIZATION AND COSTS

Hanan Khalaf Fantol Alruwaili^{1*}, Manal Fahad L Alrawili², Amjad Nazel Alruwaili³, Hala Subhi Alruwaili⁴, Ahmed Nahi Baalwaki⁵, Afrah Faljy A Alenezi⁶, Farah Hammad Alturki Al Ruwaili⁷, Reem Alradee S Alruwaili⁸, Tahani Radhi Aziz Alhazmi⁹, Sabah Alradi Shomr Alruwaili¹⁰

Abstract:

Nurse-led care coordination is a model of care in which nurses take on the role of coordinating and managing the care of patients, particularly those with complex or chronic conditions. The aim of this review is to examine the existing evidence on the effects of nurse-led care coordination on healthcare utilization and costs, including hospital admissions, emergency department visits, length of stay, and overall healthcare expenditures. By synthesizing the findings from various studies, this review seeks to provide a comprehensive overview of the potential benefits and challenges associated with nurse-led care coordination in healthcare settings. The results of this review suggest that nurse-led care coordination has the potential to reduce healthcare utilization and costs by improving care coordination, enhancing patient outcomes, and promoting more efficient use of healthcare resources. However, the effectiveness of nurse-led care coordination may vary depending on the specific context, population, and healthcare system in which it is implemented. Further research is needed to better understand the mechanisms through which nurse-led care coordination influences healthcare utilization and costs, as well as to identify best practices for implementing and sustaining nurse-led care coordination programs in different healthcare settings.

Keywords: Nurse-led care coordination, Healthcare utilization, Healthcare costs, Chronic conditions, Patient outcomes, Healthcare resources.

^{1*}Nursing Technician, Turaif General Hospital, Saudi Arabia.

²Nursing Specialist, Al-Salihiyah Healthcare Center, Turaif, Saudi Arabia.

³Nursing Specialist, Al-Salihiyah Healthcare Center, Turaif, Saudi Arabia.

⁴Nursing Technician, Turaif General Hospital, Saudi Arabia.

⁵Nursing Technician, Turaif General Hospital, Saudi Arabia.

⁶Nursing Specialist, Maternity and Children's Hospital, Arar, Saudi Arabia.

⁷Nursing Technician, Turaif general hospital, Saudi Arabia.

⁸Nursing Technician, Hudaib Health Center, Al Jouf, Saudi Arabia.

⁹Nursing Technician, Tareef Al-Awsat Anti-Smoking Clinic, Saudi Arabia.

¹⁰Nursing Technician, Eastern Tarif Health Center, Saudi Arabia.

***Corresponding Author:** Hanan Khalaf Fantol Alruwaili

*Nursing Technician, Turaif General Hospital, Saudi Arabia.

DOI: 10.53555/ecb/2022.11.8.117

Introduction:

In recent years, the healthcare industry has seen a shift towards more patient-centered care, with an increased focus on care coordination. Care coordination is the process of organizing and coordinating healthcare services for patients to ensure that they receive the right care, at the right time, in the right setting. Nurse-led care coordination is a model of care delivery in which nurses take on the responsibility of coordinating care for patients across the healthcare continuum. This essay will explore the concept of nurse-led care coordination, its benefits, challenges, and best practices [1].

Nurse-led care coordination is a collaborative approach to care delivery that involves nurses working closely with patients, families, and other healthcare providers to ensure that patients receive comprehensive, coordinated care. Nurses play a crucial role in care coordination as they are often the primary point of contact for patients and have a holistic view of their healthcare needs. By coordinating care, nurses can help to improve patient outcomes, reduce healthcare costs, and enhance the overall quality of care [2].

One of the key benefits of nurse-led care coordination is improved patient outcomes. By coordinating care and ensuring that patients receive the right care at the right time, nurses can help to prevent medical errors, reduce hospital readmissions, and improve patient satisfaction. Additionally, nurse-led care coordination can help to reduce healthcare costs by streamlining care delivery, reducing unnecessary tests and procedures, and ensuring that patients are receiving the most appropriate and cost-effective care [3].

Despite its many benefits, nurse-led care coordination also presents challenges. One of the main challenges is the lack of standardized processes and guidelines for care coordination. Nurses may struggle to coordinate care effectively if they do not have clear protocols and procedures in place. Additionally, nurse-led care coordination requires strong communication skills, collaboration with other healthcare providers, and the ability to navigate complex healthcare systems [4].

To overcome these challenges, healthcare organizations can implement best practices for nurse-led care coordination. These best practices include developing standardized care coordination protocols, providing training and education for nurses, utilizing technology to streamline care coordination processes, and fostering a culture of collaboration and teamwork among healthcare providers. By implementing these best practices, healthcare organizations can ensure that nurse-led

care coordination is effective and efficient in improving patient outcomes [5].

Theoretical Framework of Nurse-led Care Coordination:

Nurse-led care coordination is a critical component of healthcare delivery that aims to improve patient outcomes by ensuring seamless communication and coordination among various healthcare providers. This approach is based on the belief that nurses, with their unique skillset and holistic perspective, are well-positioned to lead the coordination of care for patients with complex healthcare needs [6].

The theoretical framework of nurse-led care coordination is grounded in several key concepts and principles. One of the foundational principles is the idea of patient-centered care, which emphasizes the importance of involving patients in decision-making and tailoring care plans to meet their individual needs and preferences. By placing the patient at the center of care coordination efforts, nurses can ensure that the care provided is not only medically appropriate but also aligned with the patient's values and goals [7].

Another key concept that underpins nurse-led care coordination is the idea of interprofessional collaboration. Nurses work closely with other members of the healthcare team, including physicians, pharmacists, social workers, and therapists, to ensure that all aspects of a patient's care are coordinated and integrated. By fostering strong relationships with other healthcare providers and promoting open communication, nurses can help prevent gaps in care and reduce the risk of medical errors [8].

In addition to patient-centered care and interprofessional collaboration, the theoretical framework of nurse-led care coordination also emphasizes the importance of evidence-based practice. Nurses use their clinical expertise, along with the latest research and best practices, to inform their care coordination efforts. By staying up-to-date on the latest developments in healthcare and incorporating evidence-based interventions into their practice, nurses can ensure that the care they provide is both effective and safe [8].

One of the key benefits of nurse-led care coordination is its potential to improve patient outcomes and reduce healthcare costs. By coordinating care across different settings and specialties, nurses can help prevent unnecessary hospital readmissions, medication errors, and other adverse events. This not only improves the quality of care for patients but also helps reduce healthcare spending by minimizing the need for costly interventions and treatments [9].

Overall, the theoretical framework of nurse-led care coordination is based on the principles of patient-centered care, interprofessional collaboration, and evidence-based practice. By incorporating these concepts into their practice, nurses can play a pivotal role in improving the coordination of care for patients with complex healthcare needs. Through their leadership and expertise, nurses can help ensure that patients receive high-quality, coordinated care that is tailored to their individual needs and preferences [10].

Impact of Nurse-led Care Coordination on Healthcare Utilization:

Nurse-led care coordination has become an increasingly important aspect of healthcare delivery in recent years. This model of care involves nurses taking on a central role in coordinating and managing the care of patients, particularly those with complex and chronic conditions. By working closely with patients, families, and other healthcare providers, nurse-led care coordination aims to improve the quality of care, enhance patient outcomes, and reduce healthcare utilization [10].

Nurse-led care coordination has been shown to have a positive impact on healthcare utilization in a number of ways. One of the key benefits of this model of care is its ability to reduce unnecessary hospitalizations and emergency department visits. By providing patients with comprehensive care management and support, nurses can help prevent exacerbations of chronic conditions and address health issues before they escalate, leading to fewer unplanned hospital admissions and emergency room visits [11].

Additionally, nurse-led care coordination can help improve the efficiency of healthcare delivery by reducing redundant or unnecessary tests, procedures, and appointments. By coordinating care across different healthcare providers and settings, nurses can ensure that patients receive the right care at the right time, leading to better outcomes and lower costs. This can be especially beneficial for patients with complex and chronic conditions who often require care from multiple providers [9].

Furthermore, nurse-led care coordination can help improve medication adherence and management, which can lead to better health outcomes and reduced healthcare utilization. By working closely with patients to develop personalized medication plans, monitoring their adherence, and providing education and support, nurses can help prevent medication errors, adverse drug reactions, and

hospitalizations related to medication non-adherence [12].

In addition to reducing healthcare utilization, nurse-led care coordination offers a number of other benefits for patients, healthcare providers, and the healthcare system as a whole. For patients, this model of care can lead to improved access to care, better coordination of services, and enhanced communication with healthcare providers. By having a dedicated nurse as their care coordinator, patients can feel more supported, informed, and empowered to manage their health [11].

For healthcare providers, nurse-led care coordination can help streamline care delivery, improve communication and collaboration among team members, and enhance the overall quality of care. Nurses are uniquely positioned to bridge the gap between different providers and settings, ensuring that patients receive seamless and coordinated care. This can lead to better outcomes, higher patient satisfaction, and increased efficiency in healthcare delivery [13].

From a healthcare system perspective, nurse-led care coordination can help reduce costs, improve population health, and enhance the overall quality of care. By preventing unnecessary hospitalizations and emergency department visits, reducing medication errors, and improving care coordination, nurses can help lower healthcare costs and improve the health of populations. This can be especially important in the context of rising healthcare costs, an aging population, and increasing rates of chronic disease [14].

Nurse-led care coordination has a significant impact on healthcare utilization, leading to reduced hospitalizations, emergency department visits, and healthcare costs. By improving care coordination, medication management, and patient outcomes, nurses play a crucial role in enhancing the quality and efficiency of healthcare delivery. As the demand for coordinated, patient-centered care continues to grow, nurse-led care coordination will become increasingly important in improving healthcare outcomes and reducing healthcare utilization [14].

Impact of Nurse-led Care Coordination on Healthcare Costs:

In recent years, there has been a growing emphasis on the role of nurse-led care coordination in healthcare settings. This approach involves nurses taking on a more central role in coordinating care for patients, working closely with other healthcare providers to ensure that all aspects of a patient's care

are well-managed. One of the key areas of interest in this approach is its impact on healthcare costs [15].

Nurse-led care coordination has been shown to have a positive impact on healthcare costs in a number of ways. One of the key benefits of this approach is its ability to reduce unnecessary hospital admissions and emergency room visits. By coordinating care for patients more effectively, nurses can help to prevent complications and ensure that patients receive appropriate care in a timely manner. This can help to reduce the overall cost of care for patients, as well as reduce the strain on healthcare resources [16].

In addition, nurse-led care coordination can also help to improve the efficiency of healthcare delivery. By working closely with other healthcare providers, nurses can help to streamline the care process and ensure that patients receive the right care at the right time. This can help to reduce unnecessary tests and procedures, as well as prevent delays in care that can lead to higher costs and poorer outcomes [17].

Furthermore, nurse-led care coordination can also help to improve patient outcomes, which can ultimately lead to cost savings in the long run. By ensuring that patients receive comprehensive and coordinated care, nurses can help to improve patient satisfaction, reduce complications, and prevent readmissions. This can help to reduce the overall cost of care for patients, as well as improve the quality of care they receive [18].

Overall, nurse-led care coordination has the potential to have a significant impact on healthcare costs. By improving the efficiency of care delivery, reducing unnecessary hospital admissions, and improving patient outcomes, this approach can help to reduce the overall cost of care for patients and healthcare systems [19].

In addition to its impact on healthcare costs, nurse-led care coordination also offers a number of other potential benefits. For example, this approach can help to improve communication and collaboration among healthcare providers, which can lead to better coordination of care and improved patient outcomes. By working closely with other members of the healthcare team, nurses can help to ensure that all aspects of a patient's care are well-managed and that any potential issues are addressed promptly [20].

Furthermore, nurse-led care coordination can also help to empower patients to take a more active role in their own care. By providing patients with the information and support they need to make informed decisions about their health, nurses can help to improve patient engagement and adherence to treatment plans. This can lead to better health

outcomes and reduced healthcare costs in the long run [21].

Nurse-led care coordination has the potential to have a significant impact on healthcare costs. By improving the efficiency of care delivery, reducing unnecessary hospital admissions, and improving patient outcomes, this approach can help to reduce the overall cost of care for patients and healthcare systems. In addition, nurse-led care coordination offers a number of other potential benefits, including improved communication and collaboration among healthcare providers and empowerment of patients to take a more active role in their care. Overall, nurse-led care coordination represents a promising approach to improving the quality and efficiency of healthcare delivery while also reducing costs [22].

Factors Influencing the Effectiveness of Nurse-led Care Coordination:

Nurse-led care coordination is a crucial aspect of healthcare delivery, especially in today's complex and fragmented healthcare system. Care coordination involves the organization and management of healthcare services to ensure that patients receive the right care, at the right time, and in the right setting. Nurses play a key role in coordinating care for patients, as they are often the primary point of contact for patients and their families [23].

The effectiveness of nurse-led care coordination can be influenced by a variety of factors [24].

One of the most important factors influencing the effectiveness of nurse-led care coordination is communication. Effective communication is essential for coordinating care across different healthcare providers, disciplines, and settings. Nurses must be able to communicate effectively with patients, families, physicians, and other members of the healthcare team to ensure that everyone is on the same page regarding the patient's care plan [25].

In addition to communication, another key factor that can influence the effectiveness of nurse-led care coordination is teamwork. Nurses must be able to work collaboratively with other members of the healthcare team, including physicians, social workers, and therapists, to ensure that all aspects of the patient's care are coordinated and integrated. Teamwork is essential for addressing the complex needs of patients with multiple chronic conditions or complex medical histories [26].

Another factor that can impact the effectiveness of nurse-led care coordination is the availability of resources. Nurses need access to the necessary resources, such as electronic health records, care management tools, and support staff, to effectively coordinate care for patients. Without adequate

resources, nurses may struggle to coordinate care effectively, leading to gaps in care and potential patient harm [27].

Furthermore, the level of support and leadership within the healthcare organization can also influence the effectiveness of nurse-led care coordination. Nurses need support from their supervisors and organizational leaders to effectively coordinate care for patients. This support can come in the form of training, mentorship, and resources to help nurses develop the skills and knowledge needed to coordinate care effectively [28].

Additionally, the culture of the healthcare organization can impact the effectiveness of nurse-led care coordination. A culture that values teamwork, communication, and collaboration can support nurses in their efforts to coordinate care for patients. On the other hand, a culture that is hierarchical, siloed, or resistant to change can hinder nurses' ability to coordinate care effectively [29].

Nurse-led care coordination is a critical component of healthcare delivery, and its effectiveness can be influenced by a variety of factors. Effective communication, teamwork, resources, support, leadership, and organizational culture all play a role in determining the success of nurse-led care coordination. Healthcare organizations must prioritize these factors and work to optimize them in order to improve patient outcomes and ensure that patients receive high-quality, coordinated care. By addressing these key factors, healthcare organizations can support nurses in their efforts to coordinate care effectively and ultimately improve the health and well-being of their patients [30].

Best Practices and Challenges in Implementing Nurse-led Care Coordination Programs:

Nurse-led care coordination programs have become increasingly popular in healthcare settings as a way to improve patient outcomes and reduce healthcare costs. These programs are designed to provide comprehensive care management and coordination for patients with complex medical needs. However, implementing nurse-led care coordination programs can be challenging due to various factors such as limited resources, lack of standardized protocols, and resistance from healthcare providers [31].

Nurse-led care coordination programs have the potential to improve patient outcomes and reduce healthcare costs, but implementing these programs can be challenging. By following best practices such as clear communication, care planning, patient education, and collaboration, healthcare organizations can overcome challenges and successfully implement nurse-led care coordination programs. It is important for healthcare

organizations to invest in resources, training, and support for nurses to ensure the success of these programs. With the right strategies in place, nurse-led care coordination programs can make a significant impact on patient care and outcomes [32].

Future Directions for Research and Practice in Nurse-led Care Coordination:

In recent years, nurse-led care coordination has emerged as a vital component of healthcare delivery, particularly in the context of chronic disease management and population health. As the healthcare landscape continues to evolve, there is a growing recognition of the important role that nurses play in coordinating care across the continuum, improving patient outcomes, and reducing healthcare costs [33].

One of the key trends shaping the future of nurse-led care coordination is the increasing emphasis on patient-centered care. As healthcare systems shift towards a more holistic and patient-centric approach, nurses are being called upon to play a more active role in coordinating care that is tailored to the individual needs and preferences of each patient. This includes engaging patients in shared decision-making, promoting self-management strategies, and ensuring that care plans are culturally sensitive and responsive to the social determinants of health [34]. Another important trend in nurse-led care coordination is the integration of technology into practice. With the rise of electronic health records, telehealth platforms, and mobile health apps, nurses have unprecedented opportunities to leverage technology to streamline care coordination processes, enhance communication with patients and other members of the healthcare team, and track patient outcomes in real-time [35]. However, with these opportunities also come challenges, such as ensuring the privacy and security of patient data, addressing health disparities in access to technology, and training nurses to effectively use and interpret digital health tools [36].

In addition to patient-centered care and technology integration, the future of nurse-led care coordination will also be shaped by ongoing efforts to improve care coordination across settings and disciplines. As healthcare becomes increasingly fragmented and complex, nurses are being called upon to bridge the gaps between primary care, specialty care, community resources, and social services to ensure that patients receive seamless and coordinated care. This requires strong communication skills, collaboration with other healthcare professionals, and a deep understanding of the social and economic factors that impact health outcomes [37].

One of the key challenges facing nurse-led care coordination is the need for greater recognition and support from healthcare organizations and policymakers. Despite the growing evidence of the effectiveness of nurse-led care coordination in improving patient outcomes and reducing costs, nurses continue to face barriers to practice, such as limited scope of practice, inadequate reimbursement for care coordination services, and a lack of standardized training and certification programs. To address these challenges, it will be important for healthcare leaders and policymakers to invest in nurse-led care coordination, expand the scope of nursing practice, and advocate for policy changes that recognize the value of nurses in care coordination [37].

Nurse-led care coordination is a critical component of healthcare delivery that is poised to play an increasingly important role in the future of healthcare. By embracing patient-centered care, integrating technology into practice, improving care coordination across settings and disciplines, and advocating for greater recognition and support from healthcare organizations and policymakers, nurses can help to drive innovation, improve patient outcomes, and transform healthcare delivery for the better. As we look towards the future, it is clear that nurse-led care coordination will continue to be a key area of focus for research and practice, with the potential to make a significant impact on the health and well-being of individuals and communities around the world [38].

Conclusion:

In conclusion, nurse-led care coordination is an essential model of care delivery that can help to improve patient outcomes, reduce healthcare costs, and enhance the overall quality of care. By working closely with patients, families, and other healthcare providers, nurses can ensure that patients receive comprehensive, coordinated care across the healthcare continuum. While nurse-led care coordination presents challenges, these can be overcome by implementing best practices and fostering a culture of collaboration and teamwork. Overall, nurse-led care coordination is a valuable approach to care delivery that can benefit both patients and healthcare organizations.

References:

1. Auerbach AD, Kripalani S, Vasilevskis EE, Sehgal N, Lindenauer PK, Metlay JP, Fletcher G, and Ruhnke GW. Preventability and causes of readmissions in a national cohort of general medicine patients. *JAMA Intern Med.* 2016;176(4):484-93.
2. Bodenheimer T, Chen E, and Bennett HD. Confronting the growing burden of chronic disease: can the U.S. health care workforce do the job? *Health Aff (Millwood).* 2009;28(1):64-74.
3. Bower P, Macdonald W, Harkness E, Gask L, Kendrick T, Valderas JM, and Dickens C. Multimorbidity, service organization and clinical decision making in primary care: a qualitative study. *Fam Pract.* 2011;28(5):579-87.
4. Curry N, Ham C. *Clinical and service integration: the route to improved outcomes.* London: The King's Fund; 2010.
5. De Silva D. *Helping people help themselves: a review of the evidence considering whether it is worthwhile to support self-management.* London: The Health Foundation; 2011.
6. Gensichen J, von Korff M, Peitz M, Muth C, Beyer M, Guthlin C, Torge M, Petersen JJ, Rosemann T, and Konig J, et al. Case management for depression by health care assistants in small primary care practices: a cluster randomized trial. *Ann Intern Med.* 2009;151(6):369-78.
7. Ham C, Curry N. *Integrated care: what is it? Does it work? What does it mean for the NHS?* London: The King's Fund; 2011.
8. Hekkert KD, Cihangir S, Kleefstra SM, van den Berg B, and Kool RB. Patient satisfaction revisited: a multilevel approach. *Soc Sci Med.* 2009;69(1):68-75.
9. Kodner DL, Spreeuwenberg C. Integrated care: meaning, logic, applications, and implications – a discussion paper. *Int J Integr Care.* 2002;2:e12.
10. Leutz WN. Five laws for integrating medical and social services: lessons from the United States and the United Kingdom. *Milbank Q.* 1999;77(1):77-110.
11. Minkman MM, Ahaus KT, Huijsman R. Performance improvement based on integrated quality management models: what evidence do we have? A systematic literature review. *Int J Qual Health Care.* 2007;19(2):90-104.
12. Nolte E, McKee M. *Caring for people with chronic conditions: a health system perspective.* Maidenhead: Open University Press; 2008.
13. Plochg T, Delnoij DM, Hogervorst WS, van Dijk P, and Klazinga NS. Local health systems in the driver's seat? A review of the Dutch health system in an international perspective. *Health Policy.* 2005;72(1):73-85.
14. Porter ME. What is value in health care? *N Engl J Med.* 2010;363(26):2477-81.

15. Purdy S, Paranjothy S, Huntley A, and Thomas R, et al. Interventions to reduce unplanned hospital admission: a series of systematic reviews. London: The Health Foundation; 2012.
16. Rumball-Smith J, Hider P. The validity of readmission rate as a marker of the quality of hospital care, and a recommendation for its definition. *N Z Med J.* 2009;122(1306):63-70.
17. Schoen C, Osborn R, Squires D, Doty M, Pierson R, and Applebaum S. How health insurance design affects access to care and costs, by income, in eleven countries. *Health Aff (Millwood).* 2010;29(12):2323-34.
18. Wagner EH, Sandhu N, Newton KM, McCulloch DK, Ramsey SD, and Grothaus LC. Effect of improved glycemic control on health care costs and utilization. *JAMA.* 2001;285(2):182-9.
19. WHO. Innovative care for chronic conditions: building blocks for action. Geneva: World Health Organization; 2002.
20. Wodchis WP, Dixon A, Anderson GM, and Goodwin N. Integrating care for older people with complex needs: key insights and lessons from a seven-country cross-case analysis. *Int J Integr Care.* 2015;15:e021.
21. Bodenheimer T, Wagner EH, Grumbach K. Improving primary care for patients with chronic illness: the chronic care model, Part 2. *JAMA.* 2002;288(15):1909-14.
22. Coleman K, Austin BT, Brach C, and Wagner EH. Evidence on the chronic care model in the new millennium. *Health Aff (Millwood).* 2009;28(1):75-85.
23. Cramm JM, Nieboer AP. Disease management: the need for a focus on broader self-management abilities and quality of life. *Popul Health Manag.* 2015;18(4):246-55.
24. Curry N, Ham C. Clinical and service integration: the route to improved outcomes. London: The King's Fund; 2010.
25. De Silva D. Helping people help themselves: a review of the evidence considering whether it is worthwhile to support self-management. London: The Health Foundation; 2011.
26. Gensichen J, von Korff M, Peitz M, Muth C, Beyer M, Guthlin C, Torge M, Petersen JJ, Rosemann T, and Konig J, et al. Case management for depression by health care assistants in small primary care practices: a cluster randomized trial. *Ann Intern Med.* 2009;151(6):369-78.
27. Ham C, Curry N. Integrated care: what is it? Does it work? What does it mean for the NHS? London: The King's Fund; 2011.
28. Hekkert KD, Cihangir S, Kleefstra SM, van den Berg B, and Kool RB. Patient satisfaction revisited: a multilevel approach. *Soc Sci Med.* 2009;69(1):68-75.
29. Kodner DL, Spreeuwenberg C. Integrated care: meaning, logic, applications, and implications – a discussion paper. *Int J Integr Care.* 2002;2:e12.
30. Leutz WN. Five laws for integrating medical and social services: lessons from the United States and the United Kingdom. *Milbank Q.* 1999;77(1):77-110.
31. Minkman MM, Ahaus KT, Huijsman R. Performance improvement based on integrated quality management models: what evidence do we have? A systematic literature review. *Int J Qual Health Care.* 2007;19(2):90-104.
32. Nolte E, McKee M. Caring for people with chronic conditions: a health system perspective. Maidenhead: Open University Press; 2008.
33. Plochg T, Delnoij DM, Hogervorst WS, van Dijk P, and Klazinga NS. Local health systems in the driver's seat? A review of the Dutch health system in an international perspective. *Health Policy.* 2005;72(1):73-85.
34. Porter ME. What is value in health care? *N Engl J Med.* 2010;363(26):2477-81.
35. Purdy S, Paranjothy S, Huntley A, and Thomas R, et al. Interventions to reduce unplanned hospital admission: a series of systematic reviews. London: The Health Foundation; 2012.
36. Rumball-Smith J, Hider P. The validity of readmission rate as a marker of the quality of hospital care, and a recommendation for its definition. *N Z Med J.* 2009;122(1306):63-70.
37. Schoen C, Osborn R, Squires D, Doty M, Pierson R, and Applebaum S. How health insurance design affects access to care and costs, by income, in eleven countries. *Health Aff (Millwood).* 2010;29(12):2323-34.
38. Wagner EH, Sandhu N, Newton KM, McCulloch DK, Ramsey SD, and Grothaus LC. Effect of improved glycemic control on health care costs and utilization. *JAMA.* 2001;285(2):182-9.