# Comprehensive Review of Healthcare Policy Reforms and Lessons from Global Systems

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#### **Abstract**

The issues of cost containment, financing, accessibility of health services and the general quality of health services remain global concerns for all healthcare organizations. With these challenges rising, most countries have adopted various healthcare policy reforms to increase efficiency and availability and lower the cost of healthcare policies. This paper brings together a physician's perspective on what has already been learned regarding healthcare policy reform in the US and other industrialized countries, such as the UK and Scandinavian countries, to draw from the experiences of these countries to inform similar countries. In the USA, the ACA brought new changes in coverage and healthcare access, but it brought a lot of political controversy. In this context, the case of the United Kingdom with NHS still provides lessons regarding government-funded systems for UHC. Halsted, a city in Sweden, along with Denmark and Norway, has integrated care systems, which put stress on the primary care settings and preventive care. In addition, this paper evaluates the trends in low- and middle-income countries' healthcare reforms with an emphasis on improving access for these underserved populations through collaborations with international facilities. The study implies that hallmark characteristics of healthcare reforms are political commitment, digitized health sectors, and the engagement of different stakeholders. This paper discusses recommendations for further reforms concerning technology, primary care, and global health collaboration to improve equity and efficiency in health care.

**Keywords:** Healthcare policy; healthcare reforms; global healthcare systems; Universal Health Coverage; Affordable Care Act; integrated care; healthcare equity; global health; digital health.

#### Introduction

A reflection on healthcare policies is an important consideration for governments since they consider overhauling health systems to make them efficient, more accessible, and of better quality. Due to this, healthcare systems have developed depending on the growing demand, technological improvement, and the population's growing needs. Traditionally, healthcare organizations have been described as being slow, disjointed, and heavily expensive care organizations. In the last few decades, policymakers have concentrated on overhauls meant to address some of these challenges while delivering health services sustainably and fairly.

Healthcare policy reforms are of even greater significance given global health concerns, including aging populations, increasing prevalence of chronic diseases, and increasing health disparities. Particularly, the ACA in the USA, NHS in the UK, and integrated models of care in the Scandinavian countries are some of the best examples of reform initiatives to expand people's access to healthcare services. All of these national reforms have their specificities; however, combined, they reveal important themes and lessons that can be relevant to further changes in other countries in the future.

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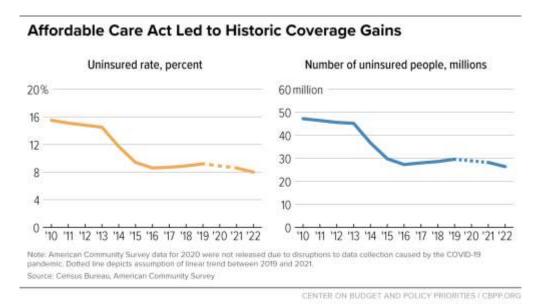
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This paper analyzes healthcare reforms in developed and developing nations, reviewing success stories and identifying what may go wrong during implementation. This paper also discusses the aspects of innovation in the targeted digital health and integrated care systems to address systems' effectiveness and patient success. Thus, this paper seeks to discuss the healthcare systems globally to make recommendations that will be helpful to any country that wants to change healthcare systems in their country.

## Literature Review

United States Healthcare Reforms: The Affordable Care Act (ACA)

The United States has witnessed drastic changes in healthcare systems, given the increased attempts at modifying them, most recently with the enactment of the ACA in 2010. Obamacare promised to solve problems related to the cost, availability, and quality of health care in the uncoordinated and intricate system. Some of its leading provisions were a consequent enlargement of Medicaid, the introduction of health insurance exchanges, and each citizen's purchase of health insurance. As observed above, enthusiasm for the ACA was massively cut short, and the policy has been at the center of much political debate and fierce opposition, especially from the right wing, who deemed it as having taken an intrusive, biggovernment approach to the health sector and having placed an unnecessary burden on the entrepreneurial sector.



Impact on Access and Costs:

ACA was mostly effective in the goal of decreasing the number of uninsured individuals, especially those with low-income levels. The group without health insurance has reduced by more than 40% between 2010 and 2016, as estimated by the US Census Bureau. Specifically, an increase in Medicaid coverage provided health care to millions of poorer populations in society. Due to the establishment of the health insurance marketplaces, Americans who before could not qualify for Medicaid or access insurance through their employer engage in buying cheap insurance policies. That said, some potential challenges include costs, which may still be an issue even with the improvement of some of the expenses. Healthcare costs keep increasing on average, mainly due to the high cost of procedures, medicines, and administrative charges. Attempting to repeal and replace the ACA has drawn attention to those basic questions, such as the role of public systems for healthcare and the viability of private insurance systems.

Furthermore, although the ACA made significant strides in expanding America's insurance coverage, it failed to comprehensively tackle the main cause of high care costs. Although its coverage has improved over the past few years, most Americans continue to experience high out-of-pocket expenses, significantly

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hindering access to healthcare services. Another challenge has been the inability to properly rein costs, especially on insurance premiums and drug prices. This has met political resistance, making it very hard to contain costs across the system.

United Kingdom: The NHS Model of Universal Health Coverage (UHC)

The oldest and probably one of the most developed countries that is implementing UHC is the United Kingdom through its NHS. Established in 1948, it is largely financed by general taxation, and all its inhabitants have the right to access its services—without having to pay when they are treated. The NHS was set up to entrench the principle that good health care is a matter of the right, not the privilege, and it has been, for decades, a beacon for health justice.

## Key Reforms and Outcomes:

The NHS has seen many changes in the past several decades and cycled through various reforms. Such reforms involve partial privatization of certain service delivery, adoption of market tests for efficiency enhancement, and reorganization of healthcare managers. However, these reforms have retained the NHS as one of the best-respected systems for the delivery of affordable care all over the world.

An important element of the NHS is providing healthcare services to special needs groups, including the elderly, disabled, and low-income. This has been coupled with considerable achievements in reversing the waiting list for operative procedures and raising standards in primary physician services. However, as it is operating at the forefront, its social mandate to deliver qualitative education has been hampered by difficulties such as funding depletion, shortage of staff, and ongoing shifts to privatization. There has been tremendous pressure in the EU due to population concerns, the up surging of health care exigencies, and services in the NHS (Hossain et al., 2020). Nevertheless, the policy problem in providing the NHS is still a major challenge worldwide due to its commitment to health equity and quality care.

## Lessons and Challenges:

From this instance, other countries that wish to reform their health structures have the following lessons to learn from the NHS. Besides, politicians' guarantees regarding the commitment to developing healthcare as a public good are the key to sustainable UHC systems. In addition, there is a need to invest heavily in primary care to meet the populace's health needs and give everybody an equal chance to access health services. However, the readers need to understand some of the problems facing the NHS in delivering healthcare services within this new and complex environment of a healthcare system solely funded by the state. The issues of cost controls with quality services and access have always been a core challenge for policymakers.

Scandinavian Models: Integrated Care and Universal Health Coverage

Many ideas and opinions related to healthcare reform may be best understood through the observation of Scandinavian states such as Sweden, Denmark, and Norway. The following countries have integrated a strategic approach to healthcare: universal healthcare, primary healthcare, and the integrated healthcare model. Integrated care is a way of paying more attention to effective cooperation between the main healthcare organizations and different patient treatment levels. This model is intended for the continuity of care for the ambulatory population, such as those with chronic illnesses or multiple medical complaints.

# Impact of Integrated Care:

The work focuses on the case of Sweden and shows that such an approach has lowered the rates of hospitalization and emergency admission. Research demonstrates that integrated care models are more effective and cost-beneficial when delivered to patients. The mentioned approach is invaluable for chronic diseases like diabetes, essential hypertension, ischemic heart disease, and others that are typical of aging

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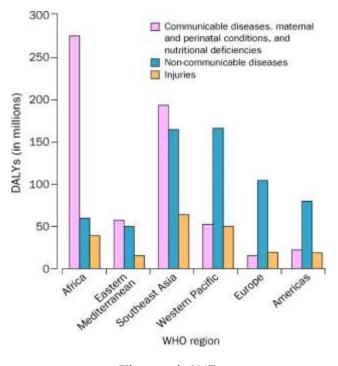
individuals. Moreover, all Scandinavian nations have embarked on adopting digital health, making it easier for health professionals to coordinate and engage patients.

# Outcomes and Benefits:

The integrated care model has greatly improved control of chronic diseases and reduced hospitalization and costs in Scandinavian nations. Research in these nations shows that it is possible to attain a great focus on increased standards of primary health care, hence decreasing the dependence on and demand for sophisticated secondary and tertiary health facilities. In addition, the focus on preventive measures, as well as the promotion of early interventions in these countries, has contributed to the improvement of the population's total health.

## Healthcare Reforms in Developing Countries

In LMICs especially, healthcare reforms are mainly directed towards actualizing health services that are scarce in the community. These countries have other challenges because they are most deprived of health infrastructure, health personnel, and infectious diseases or related to maternal health. International organizations like the World Health Organization (WHO) and the Global Fund supported many of these reforms to help these countries develop health infrastructures and human resources to manage those infrastructures.



(Zhong et al., 2017).

# Examples of Reforms:

The study revealed that there has been an improvement in the delivery of health services to the populace in countries such as India and South Africa. However, there are still some hindrances to the quality and consecutive delivery of the services. For instance, India has initiated the health insurance program Ayushman Bharat, which targets millions of health-vulnerable persons. This has ensured access to healthcare has improved, but it has come with imperatives like low public health understanding and inconsistent physical health center equity in rural regions. In contrast, South Africa has concentrated on the quality of maternal and child health through reproductive health and rights, and this has reduced maternal mortality in the country.

# Innovations and Partnerships:

Two innovations have emerged as important in LMICs: mobile health technologies and the scaling-up of CHWs. These have facilitated the enhancement of the uptake of healthcare in future and rural regions. Telemedicine and mobile health apps, or mHealth, have enabled patients in remote areas to seek medical consults and orders for medication without necessarily trekking to seek a doctor's attention. The members of these communities, through the CHWs, have been useful in availing basic healthcare services, including immunizations and ante-natal care, to communities that access structured healthcare systems only sparingly.

# Public-Private Partnerships:

Healthcare service delivery in many developing nations has been enhanced by the use of public-private partnerships (PPPs). Bilateral and multilateral relationships may include governments and international organizations, philanthropic organizations, and private partners in financing health interventions, construction of health facilities, and education of human resources in health. PPPs have bridged financing gaps regarding healthcare and have made it possible to extend aggressive accessibility to viable healthcare services in areas that otherwise would not get the services.

Healthcare reforms implemented in various countries offer useful experience and lessons in studying the prospects for the availability, cost, and quality of healthcare services. The American ACA, the English and other Scandinavian integrated care models, and healthcare reforms carried out in developing countries also show different approaches to challenge-solving exist. Despite the diversity in healthcare systems, common themes emerge: the conclusion stresses the commitment, funding in primary care, an integrated approach, and the international support of reducing health inequalities. These lessons offer policy prescriptions for nations desirous of building effective healthcare systems since they are both realistic and pragmatic in the context of modern health systems' inexorable globalization.

# Methods

This paper employs a qualitative, comparative analysis of healthcare policy reforms in various countries. Data were gathered from peer-reviewed articles, government reports, and case studies from international health organizations such as the World Health Organization (WHO) and the World Bank. The selected countries—the United States, the United Kingdom, Scandinavian nations, and select developing countries—were chosen for their distinct approaches to healthcare reform.

Data Collection: Sources included peer-reviewed journal articles, government publications, and reports from international health organizations. Data were extracted focusing on key reforms, outcomes, challenges, and lessons learned from each country's experience with healthcare policy changes.

#### Inclusion Criteria:

- Focus on countries with notable healthcare reforms over the past two decades.
- Inclusion of both developed and developing countries.
- Emphasis on universal health coverage, integrated care models, and the use of technology.

Analytical Approach: A comparative analysis method helped establish the pattern and the trend concerning the various nations. Indicators of reform measures were the key outcomes that have been measured to gauge the impacts of the new health care system and include the following:

# Results and Findings

Four major trends and effects resulting from the literature review are identified as important to understanding the healthcare reforms in different countries. It can be involved if one examines the available

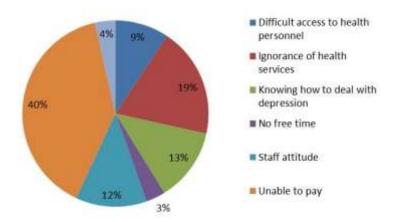
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evidence on healthcare systems, as the cases presented here reveal a mix of accomplishment and difficulty (McLean, 2016).. The next sections present the main findings according to the reforms in the USA, Great Britain, Scandinavian countries, and developing ones.

## Impact on Healthcare Access

For instance, UHC in countries like the United Kingdom and Scandinavia has better access to health care and fewer health inequalities than in the United States. A good example of changing the environment from the perspective of healthcare consumption is the UK's National Health Service (NHS), where care is free. Since health care is funded through general taxation, the NHS guarantees everyone will have to pay for the necessary medical treatment. Likewise, countries in the Scandinavian region, including Sweden, Denmark, and Norway, have implemented UHC for all citizens and have achieved many gains in reducing health disparities. These countries have brought it to pass that their people receive proper and undecided treatments in cases of health ailments and achieve better results.

While Canada and some Western European countries achieved universal access much earlier, the United States has only recently faced significant barriers to the implementation of universal access up until the ACA. Although the research established that the ACA helped reduce the rates of uninsured people, there are still disparities. The Affordable Care Act, or the ACA, allowed many states to expand Medicaid, extending affordable healthcare coverage to millions of the financially needy. However, states opting not to expand Medicaid in the future resulted in a low-earning populace that did not get proper, affordable health insurance. Therefore, people still have limited access to healthcare services throughout the United States, especially in rural regions and communities that are vulnerable.



# Cost Control and Efficiency

This paper shows how Scandinavian countries have embraced integrated care models that promote healthcare cost control and efficiency. These models focus on the first-level treatment and urge integration at the different levels of care, GPs, and specialists. Integrated care models also achieve overall system cost containment by emphasizing early intervention and chronic disease management, resulting in reduced hospital admissions and fewer visits to emergency cases (World Health Organization. (2017). These have also ensured value-based care that has decreased preventable hospitalization and reliance on costly, risky, and ineffective acute health care.

For instance, Sweden has integrated many reforms to cater to the coordinated aspect in that a patient receives services from different caregivers. Some of these changes have assisted in promoting the continuity of patients' overall health since they moved from hospital-centered to community-centered care. Patients in these systems report less readmission to the hospital and better control of illnesses such as diabetes and heart diseases. Thus, such countries as Scandinavian ones can provide high-quality care for relatively low

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costs in contrast to those systems that cannot be efficient in providing high-quality care, for instance, the US health care system, which took more money for health care spending due to the lack of proper organization of care.

Cost control is cited to be a massive problem in the United States. High and rising healthcare costs remain a feature of the US HC system even after the ACA's adoption, through administrative costs, medical procedures and medication costs, and a lack of integrated care. At the same time, the overall healthcare expenditures of the United States are much larger than the GDP ratio of countries with UHC, such as the United Kingdom and Scandinavian countries. ACA ensured that health insurance access for more people was achieved, but it failed to control costs.

# Quality of Care

The standard of care in nations with a UHC framework, such as the UK and Scandinavian countries, is superior to most other nations. They perform well in preventive care, which is important in maintaining people's health and preventing chronic illnesses. In the UK, the New Labor has strived towards reforms within the health sector for increased investment in primary care facilities and decreased waiting times for treatments in the NHS. However, the NHS, which operates in the United Kingdom, has continued facing more and more challenges, such as funding problems and staff shortages, and this has culminated in its inability to provide consistent quality services. Thus, some patients wait long hours for their treatments or operations, and service delivery has been limited.

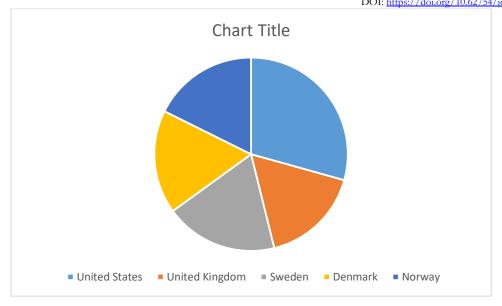
Scandinavian countries have excellent cross-organizational integration while providing high-quality care. The integrated care models assist in ascertaining that needy patients get the appropriate care in due time, improving their health status. Amalgamating primary care, preventative service, and good management of chronic diseases assist in preventing hospitalization episodes, in addition to easing the burden on great health institutions but not quality (Khan & Yairi 2018). Besides, these countries also spend a lot on digital health technologies, making the services more efficient and effective.

The American healthcare system is considered to provide good care, particularly in terms of the service provision for specialized healthcare services and technological interventions, except that there are significant differences in utilization and effectiveness. It wanted to eliminate some of these disparities by extending health insurance to millions of Americans at a cheaper cost. Nonetheless, the system is not integrated and has weaknesses such as high OOP expenses and variations in the rate of provision between regions, which is a controlling factor in the health system's quality.

Table 1: Healthcare Expenditure as a Percentage of GDP

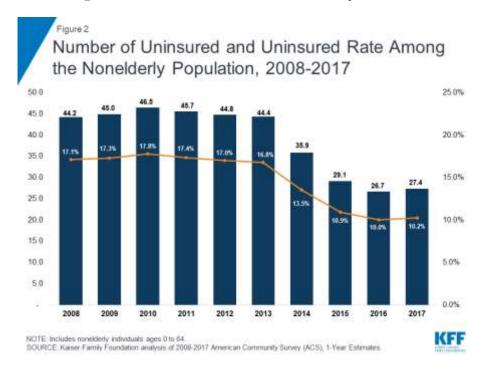
The following table shows the share of healthcare costs in the GDP of the US, the UK, and some Scandinavian countries. The United States of America spends much more of its gross domestic product on health than countries that embrace universal health systems.

Country	Healthcare Expenditure (% of GDP)
United States	17.1%
United Kingdom	9.8%
Sweden	11.0%
Denmark	10.1%
Norway	10.3%



(Mozaffarian, 2016).

Figure 1: Decrease in Uninsured Rates Post-ACA Implementation



This graph shows the decrease in the percentage of uninsured Americans after the implementation of the Affordable Care Act in 2010, with a marked reduction between 2010 and 2016, especially following the Medicaid expansion (Tricco et al., 2017).

# Discussion

The findings suggest that successful healthcare reforms have several common characteristics: levers that include political will, stakeholders' participation, and the extent of investment in primary care services. UHC has worked for countries that have provided access to prerequisite healthcare services, diminished inequalities, and uplifted life progress. However, UHC systems need to be well maintained and managed to maintain their sustainable financial position. Here are examples of the difficulties faced by the NHS in the

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UK. As glimpsed in models implemented in the Scandinavian countries, the integrated models deliver on the promise of enhancing healthcare delivery efficiency and value. These models underscore increased focus on preventive care and working together between general practitioners and specialists, lowering hospital admissions and longer-term patient outcomes(D'Andreamatteo et al., 2015). New means of digitalizing healthcare work and patient-clinician relationships, like telemedicine and electronic records, have augmented these models, spearheading advances in healthcare systems.

#### **Conclusions**

These service delivery changes, if well-deployed, enhance health equity, lower the overall costs of services, and advance population health. Important lessons on policy reform can be learned from a comparative study of the US, UK, and Scandinavian health systems. Some key strategies include universal health coverage, integrated care, and the application of digital health technologies. Inequalities persist regarding access to the services, in particular for low-income and middle-income earners and in LMICs. Political commitment, assured funding for the long term, and sound healthcare systems are some of the requisites for healthcare reforms. Possible reforms and predictions for future global health care systems derive their foundation from knowledge and experiences of the existing existence of the global health care systems, stressing the need for participation of government, international organizations, and the private sector in the increasing challenges in health care systems worldwide.

#### Recommendations

Based on the analysis, the following recommendations are proposed for countries seeking to reform their healthcare systems:

- 1. Leverage Technology: Employees of Australian hospitals have stated that information technology should be incorporated into the delivery of healthcare services to increase effectiveness, decrease costs, and benefit the patient.
- 2. Expand Primary Care: Primary care is paramount to cutting hospitalization, managing chronic conditions, and providing service where no formal healthcare facility exists.
- 3. Enhance Stakeholder Engagement: Today's successful reforms are built on the idea that all care stakeholders, ranging from healthcare professionals' policymakers, and patients, should be involved. Cohesion is the most important element that defines the public attitudes toward the changes, and partnerships can be useful in scaling.
- 4. International Cooperation: The nations, especially those from low- and mid-representation, should find cooperative ways to manage global health issues and expand healthcare provisions.

#### References

- D'Andreamatteo, A., Ianni, L., Lega, F., & Sargiacomo, M. (2015). Lean in healthcare: A comprehensive review. Health policy, 119(9), 1197-1209. https://www.sciencedirect.com/science/article/pii/S0168851015000366
- Tricco, A. C., Langlois, E., Straus, S. E., & World Health Organization. (2017). Rapid reviews to strengthen health policy and systems: a practical guide. World Health Organization. https://apps.who.int/iris/bitstream/handle/10665/258698/9789241512763-eng.pdf
- Atun, R., De Andrade, L. O. M., Almeida, G., Cotlear, D., Dmytraczenko, T., Frenz, P., ... & Wagstaff, A. (2015). Health-system reform and universal health coverage in Latin America. The Lancet, 385(9974), 1230-1247. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)61646-9/fulltext?rss%25253Dyes=&code=lancet-site
- World Health Organization. (2017). Global learning laboratory for quality universal health coverage: fourth global symposium on health systems research, 14 November 2016, Vancouver, Canada (No. WHO/HIS/SDS/2017.4).
  World Health Organization. https://apps.who.int/iris/bitstream/handle/10665/254740/WHO-HIS-SDS-2017.4-eng.pdf
- Mozaffarian, D. (2016). Dietary and policy priorities for cardiovascular disease, diabetes, and obesity: a comprehensive review. Circulation, 133(2), 187-225. https://www.ahajournals.org/doi/abs/10.1161/circulationaha.115.018585
- Khan, S., & Yairi, T. (2018). A review on the application of deep learning in system health management. Mechanical Systems and Signal Processing, 107, 241-265. https://www.sciencedirect.com/science/article/pii/S0888327017306064
- Tuballa, M. L., & Abundo, M. L. (2016). A review of the development of Smart Grid technologies. Renewable and Sustainable Energy Reviews, 59, 710-725. https://www.sciencedirect.com/science/article/pii/S1364032116000393

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DOI: https://doi.org/10.62754/joe.v3i8.5448

- Owusu, P. A., & Asumadu-Sarkodie, S. (2016). A review of renewable energy sources, sustainability issues and climate change mitigation. Cogent Engineering, 3(1), 1167990. https://www.tandfonline.com/doi/abs/10.1080/23311916.2016.1167990
- McLean, S. F. (2016). Case-based learning and its application in medical and health-care fields: a review of worldwide literature. Journal of medical education and curricular development, 3, JMECD-S20377. https://journals.sagepub.com/doi/abs/10.4137/JMECD.S20377
- Aini, Q., Budiarto, M., Putra, P. O. H., & Rahardja, U. (2020). Exploring e-learning challenges during the global COVID-19 pandemic: A review. Jurnal Sistem Informasi, 16(2), 57-65. https://pdfs.semanticscholar.org/c521/1457b330451d59e40cfa28ee4fe649dcbd30.pdf
- Zhong, R. Y., Xu, X., Klotz, E., & Newman, S. T. (2017). Intelligent manufacturing in the context of industry 4.0: a review. Engineering, 3(5), 616-630. https://www.sciencedirect.com/science/article/pii/S2095809917307130
- Hossain, M. M., Tasnim, S., Sultana, A., Faizah, F., Mazumder, H., Zou, L., ... & Ma, P. (2020). Epidemiology of mental health problems in COVID-19: a review. F1000Research, 9. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7549174/
- Khezr, S., Moniruzzaman, M., Yassine, A., & Benlamri, R. (2019). Blockchain technology in healthcare: A comprehensive review and directions for future research. Applied sciences, 9(9), 1736. https://www.mdpi.com/2076-3417/9/9/1736
- Hilbert, M. (2016). Big data for development: A review of promises and challenges. Development Policy Review, 34(1), 135–174. https://onlinelibrary.wiley.com/doi/abs/10.1111/dpr.12142
- Béné, C. (2020). Resilience of local food systems and links to food security—A review of some important concepts in the context of COVID-19 and other shocks. Food security, 12(4), 805-822. https://link.springer.com/article/10.1007/s12571-020-01076-1
- Manisalidis, I., Stavropoulou, E., Stavropoulou, A., & Bezirtzoglou, E. (2020). Environmental and health impacts of air pollution: a review. Frontiers in public health, 8, 14. https://www.frontiersin.org/articles/10.3389/fpubh.2020.00014/full
- Dueñas, M., Ojeda, B., Salazar, A., Mico, J. A., & Failde, I. (2016). A review of chronic pain impact on patients, their social environment and the health care system. Journal of pain research, 457-467. https://www.tandfonline.com/doi/abs/10.2147/JPR.S105892
- Kontoangelos, K., Economou, M., & Papageorgiou, C. (2020). Mental health effects of COVID-19 pandemia: a review of clinical and psychological traits. Psychiatry investigation, 17(6), 491. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7324731/
- Lalmuanawma, S., Hussain, J., & Chhakchhuak, L. (2020). Applications of machine learning and artificial intelligence for Covid-19 (SARS-CoV-2) pandemic: A review. Chaos, Solitons & Fractals, 139, 110059. https://www.sciencedirect.com/science/article/pii/S0960077920304562
- Keenan, R. J. (2015). Climate change impacts and adaptation in forest management: a review. Annals of forest science, 72, 145-167. https://link.springer.com/article/10.1007/s13595-014-0446-5
- Fawzy, S., Osman, A. I., Doran, J., & Rooney, D. W. (2020). Strategies for mitigation of climate change: a review. Environmental Chemistry Letters, 18, 2069-2094. https://link.springer.com/article/10.1007/s10311-020-01059-w