(ISSN: 0973-7049(P))

The Bioscan AN INTERNATIONAL QUARTERLY JOURNAL OF LIFE SCIENCES 21(4): 397-404 2026 www.thebioscan.com

Contemporary Challenges and Pressures Facing Modern Healthcare Systems

Ahmed Hussain daghreri[1], Yasser Zayd Ahmed Zyad[2], Hussam Hamad Mohmad Hakami[3] Mohsen Shami Alielemi[4], Ahmed Abdullah Alwadani[5], Basim Mohammed Dighrir[6], Ali Ahmed Halawi[7], Ahmed Ali Tamah[8], Aisha Omar Ayashi[9], Ibrahim Mohammed Mashhour[10], Mohammed Ali Jaghdami[11], Yasir Ahmed Yaziji[12], Haidar Ghalip Almudeer[13], Saud Mansour Yahya Abu Hathaf[14]

Affiliate to Armed Forces Hospital in Jazan Mininstry of Defense Health Services,Jazan, Saudi Arabia, and Armed Forces Hospital in Al Kharj

DOI: https://doi.org/10.63001/tbs.2026.v21.i04.pp397-404

Article Info

Received:19.10.2026

Accepted: 06.11.2026

Published: 16.11.2026

Introduction

In today's healthcare landscape, there are many more factors that create complexity, such as evolving population needs, economic pressures, technological advances, disease patterns, and the expectation for better care, among others. Despite significant improvements in medical science, there remain challenges in accessible and affordable, safe and effective health services provisioning in many healthcare institutions. The issues are not unique to either developed or developing countries but have varying levels of severity and causes depending on the resources available, health infrastructure, government policy and socioeconomic conditions. Along with rising patient demands, hospitals and other healthcare centers must also navigate a variety of other challenges, including staffing, budget constraints, new technologies, and evolving public health issues. Thus, healthcare system performance is not just about medical knowledge, it's also about how well it is led, financed, staffed and adapted to new conditions.

One of the biggest challenges for healthcare systems is the growing demand for their services. Population growth, longer life expectancy, urbanization and the increased prevalence of chronic diseases have led to an increased demand for preventive, diagnostic, treatment and rehabilitation services. There are patients who need long-term support and care rather than a short-term solution, such as people with diabetes, cardiovascular diseases, cancer and other chronic diseases. This imposes a heavy burden on health care providers, facilities, medications, and finances. Access to healthcare services is also very unequal, with rural areas, low-income groups and other disadvantaged groups often having problems accessing the services they need. Although the world has made an effort to improve health systems, gaps in access to adequate health care persist, such as those identified by the World Health Organization (WHO) and World Bank (2025).

Staff shortages are also a challenge in services delivery, and the rising costs of operations. Caring for and effectively operating services depends on the work of nurses, physicians, pharmacists, laboratory staff and other healthcare workers. But, poor staffing ratios, heavy workloads, inadequate professional development and working conditions are likely to impact on employee wellbeing and organizational performance. Financial pressures also affect the healthcare institutions' capacity to recruit staff, provide vital medicines, keep their equipment operational and build facilities. Such challenges are especially strong in areas where public health care resources are inadequate, and individuals' families are burdened to pay significant personal expenses for care. Healthcare decision makers are tasked with juggling multiple priorities, ensuring resources are allocated efficiently, and patients are still receiving the care they need.

Resource Constraints, Healthcare Financing, and Workforce Challenges

A major challenge for any present-day health care system is the scarcity of funds and supplies. Hospitals need a lot of money for building, buying of medical equipment, hiring qualified staffs, buying medicines, supporting diagnostic services and emergency treatment. But the need for health services can outpace the money that is available, making it hard for governments and healthcare administrators. Treatment pressures are driven by rising treatment costs, population growth, high cost of medical technologies, and increasing rates of chronic diseases. Inadequate healthcare budgets can lead to a shortage of necessary supplies, delayed equipment replacements, adequately sized departments, and restricted access to services. All these challenges can have a negative impact on service efficiency and patient experiences.

In many countries, limited public funding and incomplete health insurance coverage make financing the health care system a particularly difficult task. Medical expenses for consultations, medicines, laboratory investigations, and hospital admissions can also deter persons from accessing timely medical care. Other patients are unable to pay up front for care and may postpone seeking treatment until their condition has worsened. Other people may face financial problems following service provision, especially in the case of ongoing illnesses that require ongoing consultations and medication. Financial burden due to utilization of health services continues to be a major challenge for UHC (WHO and World Bank, 2025). Therefore, effective public investment, insurance policy design, efficient purchasing systems and policies that insulate households from high health care costs are essential for sustainable financing.

Any other major financial burden is the rising price of medicines and medical technologies. Although many conditions have better modern treatments with better outcomes, some more sophisticated therapies, diagnosis and specialized medications are costly. Healthcare organizations are facing a challenge in dividing up their scarce budgets to provide clinically appropriate care to their patients. This implies the choice between buying new machinery, having necessary drugs and the extension of specialised services, creating difficult decisions. Unnecessary waste in procurement activities can add to costs and help drive up prices, while poor supply-chain management and low inventory levels also can be major factors in leading to shortages. To ensure effective resource management, the procurement process should be clear, supply forecasting should be reliable, supplies should be monitored regularly, and decisions on procurement should be based on evidence. It is also important to consider the cost effectiveness of interventions; that is, whether they offer substantial improvements in the outcome of health services.

A shortage of workers is also a major problem for the provision of healthcare. The clinical

assessment, treatment, patient education, monitoring, rehabilitation and public health activities are the responsibility of healthcare professionals. If staffing is inadequate, current staff may have to deal with the additional demands for staff and patients. This can limit time available for individual patients, create risk of communication breakdown and be more challenging in maintaining consistent levels of care. Lack of staff also impacts the healthcare units capacity to increase services, react to emergencies or offer ongoing care and support for patients who have complicated medical conditions. This is a major challenge in rural and underserved communities where having access to qualified professionals can be challenging.

Availability of healthcare workers may be as crucial as the number. While some urban hospitals might possess specialists, rural hospitals lack a number of staff, including doctors, nurses, lab staff and others. This imbalance results in disparities in access to services, and patients might need to travel long distances for specialized treatment. Healthcare workers can also migrate from public to private facilities, or to other countries, and in low-resource areas, they can leave or lose jobs. While mobility is driven by individual choices, widespread migration can put a strain on already under-resourced health systems that have trained professionals. To overcome this challenge, there is a need to strengthen workforce planning, provide suitable remuneration, create supportive working conditions and provide career development and job-sharing strategies to encourage equitable distribution of healthcare workers.

Inequalities in Healthcare Access, Quality, and Patient Safety

Although formally accessible to the population, unequal access to healthcare continues to be a big problem. Timely and appropriate care may be affected by income, education, disability, language, gender and geographical location. The facilities available in rural areas may be limited and the distance may be quite long, whereas hospital services in urban areas may be overloaded and have long waiting lists. Individuals with low incomes might not be able to pay for transportation, consultation, diagnostics or medicines. The barriers can result in delayed attendance and avoidable complications. The concept of universal health coverage goes beyond the presence of health care facilities to ensure that services are accessible, acceptable, adequately resourced and financially accessible.

Social determinants of health have an impact on the risk of getting sick and getting well. The quality of the housing environment, education, work, nutrition, sanitation, and environment affect exposure to health risks. Inadequate housing conditions, such as overcrowding, or poor hygiene can increase the risk of infectious diseases; and lack of access to a nutritious diet or to outdoor areas for physical activity can lead to chronic diseases. Not all these conditions can be treated clinically in the healthcare setting. There

is then a need for collaboration between the health and education, housing, labour, and agriculture, and environmental sectors by the governments. Public health planning should target the individuals or groups at the highest risk for adverse outcomes and focus prevention and services on these groups. If these other determinants are not taken into account, then health inequalities may still exist despite clinical service expansion.

Another issue is that of quality difference. Having access to a facility doesn't ensure timely, effective and respectful treatment. The following factors can impact on quality: lack of qualified personnel, equipment, communication, oversight, and adherence to clinical procedures. When departments do not coordinate, patients can be diagnosed late, treated incompletely, or inadequate discharge planning may occur. According to the authors of the study (Kruk et al., 2018), health systems need to take two steps: a step toward access and a step toward the quality of care that's received. To improve the quality, standards must be established, continuing professional education is needed, supplies must be available, clinical audit is necessary and patient outcomes must be evaluated meaningfully. It also needs leadership to ensure that quality improvement is an ongoing task not a short-term project.

Quality of service is highly connected with patient safety. Healthcare is a complex process and patients can be at risk of medication errors, healthcare-associated infections, diagnostic errors, falls and communication errors. Such events are not necessarily a fault of the individual but are often due to poor staffing, equipment, training, supervision and/or work practice levels. WHO (2023b) describes patient harm caused by unsafe care as an important global problem and stresses the need for a system-wide approach for improving safety. Safety systems for medication administration, patient identification, clinical handovers, infection prevention, and incident reporting should be in place in health facilities. Staff need to be able to report hazards and near misses without fear of unfair punishment, allowing the organisation to learn and prevent reoccurrence.

Healthcare-associated infections continue to be a significant threat, especially in healthcare environments that are overcrowded or have poor water, sanitation, cleaning practices and protective equipment. Healthcare-associated infections can extend length of stay, contribute to higher costs of treating patients and lead to more severe outcomes among vulnerable patients. Prevention relies on regular hand washing, cleaning up of the environment, safe injection practices, sterilization, proper use of protective equipment and surveillance. Policy is not effective without supplies or practical training and supervision of staff. Therefore, adequate infrastructure and organizational commitment are needed to support infection prevention. It should also be part of the normal quality monitoring and should not be a separate activity.

An extra challenge is that an infection may become more difficult to treat if the medicines used to treat it are no longer effective. Resistance can be caused by inappropriate prescribing, unnecessarily using antibiotics, poor infection control and by using antimicrobials in agriculture. This results in longer hospital stays, more complicated treatment, more expensive illnesses, and greater risks while having surgery and other medical care. Antimicrobial stewardship programmes are required that enables the right use of antibiotics, appropriate testing and review of antibiotic use, and raise awareness in the public. Surveillance is also required to learn about resistance patterns and make clinical decisions. Given that antimicrobial resistance is a problem that impacts on human, animal and environmental health, responses must be multi-sectoral, and not just hospital-based.

Communication and health literacy affect patients' ability to engage in their care effectively. Medical information may be hard to understand, including when health care workers use medical terminology or disregard the importance of language and cultural differences. Medication timings and warnings, and follow up appointments may be misunderstood. Healthcare workers should communicate information clearly, ask questions, utilize interpreters if needed and validate understanding. Listening to patients' concerns and including them in decisions, whenever possible, is also important in communicating with them in a respectful way. These practices can build a sense of trust and minimise unnecessary misunderstandings. Patient education must be seen as a component of treatment, not an additional service to be delivered when time allows.

Technological, Environmental, and Organizational Pressures

Digital technologies are transforming the organization of healthcare, and bringing these technologies into being can be challenging and costly. EHR can enhance documentation and exchange of information, and telemedicine can keep patients in touch with health care workers when a trip is inconvenient. Selected individuals with chronic conditions may benefit from remote monitoring and data analysis may help identify patterns of services. Digital systems, however, need to have assured power, network, maintenance, technical support and staff training. Unsatisfactory systems could result in excessive paperwork or incompatible records between facilities. When deciding on technologies, health organizations should consider the clinical value, ease of use and cost of the technology and how it fits into the existing services. Digital transformation shouldn't be done just because it's a new technology but because it will help with a problem that needs to be addressed.

Some groups might not be able to take advantage of these developments due to digital inequality. The services are not easy to use if they do not have information technology skills, access to a personal space, or a smartphone, and good cell phone reception. There may be further barriers

for older adults, people with disabilities and those who do not speak the languages that are available online. Changes in how availability of appointments and health information are made and made available may exacerbate inequalities. Healthcare systems need to keep the face-to-face options available, offer support for those that require it and create systems with accessibility in mind. Digital services should be integrated with the provision of critical face-to-face services, such as the need for physical examination, urgent assessment or diagnostic services.

AI offers opportunities to analyze information and aid selected clinical tasks but also calls into question accuracy, bias, transparency and accountability. Poorly represented populations can cause different performance in an algorithm. Errors can happen when the info is missing or when healthcare providers take the automated recommendations without taking into account the patient's scenario. Decision making and accountability for systems must be established prior to and following their use, patient data must be protected, and healthcare institutions must assess systems. AI should be used in a supportive manner for the professional judgment and not as a replacement of the patient-professional care-giver relationship. To ensure that innovation is enabling better care and doesn't bring new risks, ethical governance and appropriate regulation is critical.

The healthcare sector is a prime target for cyber-attacks due to the critical nature of their information and the reliance on digital technology for service coordination, making cybersecurity a patient safety issue. An appointment disruption, loss of data or cyber-attack can impact appointments, lab services, communication and clinical operations. This disruption could result in delayed treatment and loss of confidence in treatment. Access control, employee training, backups, incident response and information sharing policies are all needed in facilities. Securing cyber information should go beyond information technology departments and be shared by all employees using digital systems to affect data security. Information is a key to safe and reliable healthcare and therefore needs to be protected.

The impact of climate change and environmental threats add to the strains on health services. Populations' health can be impacted by extreme heat, flooding, drought, storms and shifts in disease patterns, which can also impact health care facilities. Power or water outages, road access may be cut off, and medicine supply chain may be disrupted. These events may help increase need for emergency care and make it difficult to provide routine care. Climate change is a significant health risk which directly and indirectly impacts our health via food systems, livelihoods, infrastructure, and other factors as described by WHO (2023a). There is a need for climate-informed planning, facilities, emergency stocking, monitoring, and coordination with disaster management agencies within the health system. Environmental sustainability is also a

factor due to the waste and energy consumption produced by the healthcare facilities, which needs to be managed in a safe manner. Health systems also should have surveillance and preparedness plans in place for outbreaks of new infectious diseases.

Conclusion

There are a number of interrelated pressures that are being experienced by modern healthcare systems, including limited resources and workforce shortages, unequal access to healthcare, quality and safety issues, technological transformations, environmental challenges and changing disease patterns. These challenges impact the effectiveness, efficiency and affordability of institutions to deliver timely, effective and low-cost care. Solving their problems cannot be done by simply spending more money or bringing in new technologies. Sustainable financing, well-supported professionals, reliable supply chains, and policies aimed at lowering financial and geographical barriers, as well as strong primary healthcare, are all vital to enable health systems. The focus on quality improvement and patient safety should not be forgotten in planning and delivering services, and digital innovation must be based on evidence, accessibility and ethical protection.

To ensure the resilience of healthcare, there is a need to take action in a coordinated manner, involving governments, healthcare organizations, professionals, communities, and other sectors that shape health. Prevention, surveillance, climate preparedness, staff training and leadership accountability investments can support institutions to address ongoing needs and prepare for future risks. Finally, a robust health care system is one that safeguards patients, enhances population health, learns from its challenges and provides the necessary services equitably. It will take ongoing assessment, stewardship of resources and flexibility to continue to commit to doing that without losing sight of the human needs at the heart of healthcare.

References

Kruk, M. E., Gage, A. D., Arsenault, C., Jordan, K., Leslie, H. H., Roder-DeWan, S., Adeyi, O., Barker, P., Daelmans, B., Doubova, S. V., English, M., García-Elorrio, E., Guanais, F., Gureje, O., Hirschhorn, L. R., Jiang, L., Kelley, E., Lemango, E. T., Liljestrand, J., ... Pate, M. (2018). High-quality health systems in the Sustainable Development Goals era: Time for a revolution. The Lancet Global Health, 6(11), e1196–e1252. https://doi.org/10.1016/S2214-109X(18)30386-3

World Health Organization. (2023a). Climate change. https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health

World Health Organization. (2023b). Patient safety. https://www.who.int/news-room/fact-sheets/detail/patient-safety

World Health Organization, & World Bank. (2025). Tracking universal health coverage: 2025

global monitoring report. https://www.who.int/publications/i/item/9789240117808

World Health Organization Regional Office for Africa. (2026). State of the health workforce in Africa 2026: Plan, train and retain. https://www.afro.who.int/publications/state-health-workforce-africa-2026-plan-train-retain