



From Knowledge to Achievement: The Role of Different Disciplines In Developing Healthcare Services

¹Masoud Ayed Mubarak Al-Qahtani, ²Farraj Mohammad Alshehri ³Fahad Ali Faleh Alharbi
⁴Mohammed Shaqi Qiyad Alruwaili ⁵Hulayyil Musallam Dhubayan Alsenani, ⁶Abdullah Dughaim
 O Alshammari ⁷Hamad Marshud Lafyan Alotaibi
⁸Abdulaziz Nasser Alotaibi ⁹Munahi Hussain Alotaibi ¹⁰Saleh Hamed Khatem Althubiani

Abstract

The evolution of modern healthcare systems from knowledge-centric institutions to achievement-oriented service networks represents one of the defining transitions of twenty-first-century medicine. This paper examines how diverse health disciplines — spanning medicine, nursing, pharmacy, allied health, health informatics, public health, and healthcare management — transform specialized knowledge into tangible service improvements, measurable health outcomes, and systemic capability. Drawing on the Saudi Vision 2030 Health Sector Transformation Program, SCFHS competency frameworks, and international models including the WHO Framework for Action on Interprofessional Education and Collaborative Practice, this study argues that discipline-specific knowledge gains its fullest value only when converted into coordinated, evidence informed action across the continuum of care. The paper maps knowledge-to-achievement pathways for each major discipline, identifies enabling and constraining factors, and proposes a strategic framework for healthcare institutions and policymakers seeking to accelerate the conversion of professional expertise into service excellence

Keywords: knowledge translation, healthcare disciplines, service development, Vision 2030, SCFHS, interprofessional practice, evidence-based care, Saudi health system, health workforce development

1. Introduction

Healthcare is, at its core, a knowledge enterprise. Every clinical decision, every therapeutic intervention, every administrative protocol is grounded — ideally — in a body of evidence accumulated through research, professional education, and practice experience. Yet knowledge alone does not improve healthcare. The gap between what is known and what is done has long been recognized as one of the most significant challenges in health systems worldwide.

The translation of disciplinary knowledge into healthcare achievement requires more than competent professionals working independently within their domains. It demands coordinated application — the deliberate alignment of what different disciplines know with what health systems and patients need. Achievement, in this sense, is not abstract. It is measured in reduced mortality rates, improved patient experiences, shorter lengths of stay, lower rates of preventable complications, enhanced workforce capacity, and the systematic strengthening of health service infrastructure.

Saudi Arabia's Vision 2030 Health Sector Transformation Program has placed this knowledge-to-achievement imperative at the center of national health policy. The program's emphasis on quality, safety, governance, and innovation reflects a recognition that the Kingdom's substantial investments in health infrastructure and professional education must yield measurable, sustainable improvements in service delivery. Achieving this requires every health discipline to fully realize its contribution — not in isolation, but in concert with the broader system.

This paper examines the distinctive knowledge base and achievement pathways of each major health discipline, explores the mechanisms by which disciplinary knowledge becomes systemic improvement, and proposes a framework for accelerating this conversion within the Saudi and broader regional healthcare context.

"Knowledge without application is potential unrealized. In healthcare, unrealized potential carries a cost measured in human lives and preventable suffering."

2. Conceptual framework: from knowledge to achievement

2.1 Defining the Knowledge-Achievement Gap

The knowledge-achievement gap in healthcare refers to the persistent discrepancy between the best available evidence and actual clinical and organizational practice. Seminal research by McGlynn et al. (2003) demonstrated that American adults received recommended care only approximately 55% of the time — a finding replicated across diverse health systems, including those in the Gulf Cooperation Council region. The gap is not primarily a product of ignorance; most health professionals are aware of evidence-

based guidelines. It is, instead, a product of structural, cultural, and systemic barriers to implementation. Knowledge translation — the process by which research findings are systematically applied to improve health practices and outcomes — provides the conceptual bridge between what disciplines know and what health services achieve. The Canadian Institutes of Health Research define knowledge translation as a dynamic and iterative process that includes the synthesis, dissemination, exchange, and ethically-sound application of knowledge to improve health, provide more effective health services and products, and strengthen the healthcare system.

2.2 Disciplines as Knowledge Systems

Each health discipline constitutes a distinct knowledge system: a structured body of evidence, a set of professional values and ethical commitments, a methodology for inquiry and practice, and a vocabulary for communication. These knowledge systems are not interchangeable — the pharmacist's expertise in drug interactions is not replicated by the physician's diagnostic reasoning, nor is the public health specialist's epidemiological analysis substituted by the nurse's clinical assessment skills.

The strength of a health system lies in the richness and diversity of these knowledge systems and — critically — in the mechanisms by which they are integrated. Fragmentation of disciplinary knowledge produces care that is technically expert in its parts but incoherent in its whole. Integration transforms disciplinary knowledge systems into a unified capability for health service achievement.

2.3 Achievement Dimensions in Healthcare

Healthcare achievement can be understood across four interconnected dimensions: clinical outcomes (the health status of individual patients), service quality (the consistency, safety, and responsiveness of care delivery), system capacity (the infrastructure, workforce, and governance structures that enable sustainable service), and population health (the aggregate health status and equity of communities served). Different disciplines contribute differentially across these dimensions, and it is the combination of their contributions that produces comprehensive achievement.

3. Discipline-by-discipline: knowledge bases and achievement pathways

3.1 Medicine: Diagnostic Mastery to Clinical Excellence

The physician's knowledge base — encompassing pathophysiology, diagnostic reasoning, pharmacotherapy, and procedural skills — is the traditional anchor of clinical care. Achievement in the medical discipline is realized through accurate diagnosis, evidence-based treatment selection, effective management of disease complexity, and the judicious application of technology in service of patient outcomes.

In the Saudi context, the SCFHS medical specialty boards and continuous professional development requirements represent the institutional mechanisms by which physician knowledge is maintained, updated, and translated into clinical practice standards. The Kingdom's investment in Centers of Excellence — particularly in oncology, cardiology, and organ transplantation at institutions such as King Faisal Specialist Hospital & Research Centre (KFSHRC) — exemplifies the conversion of world-class medical knowledge into service achievements that serve both national and regional populations.

The achievement pathway for medicine extends beyond individual clinical competence to include research productivity, teaching and mentorship, clinical protocol development, and quality improvement leadership. Physicians who limit their achievement role to direct patient care leave significant value on the table; those who engage in guideline development, institutional quality committees, and interprofessional education multiply their knowledge contribution exponentially.

3.2 Nursing: Presence, Continuity, and the Achievement of Safety

Nursing knowledge encompasses assessment science, therapeutic communication, pharmacological administration, wound and symptom management, patient education, and the critical synthesis of clinical data streams that enables early identification of patient deterioration. Nurses are the most continuously present members of the healthcare team, making their knowledge application the most frequent and most consequential in day-to-day patient safety.

Achievement in nursing is realized through the prevention of complications — pressure injuries, falls, healthcare-associated infections, and failure to rescue — and through the quality of patient experience, adherence support, and family education that nursing uniquely provides. Research consistently demonstrates that nurse staffing levels, educational preparation, and work environment quality are among the strongest predictors of hospital-level patient outcomes.

Saudi Arabia's nursing workforce development agenda, embedded within Vision 2030's Saudization objectives and the SCFHS nursing specialty frameworks, represents a strategic commitment to elevating nursing knowledge standards as a precondition for nursing achievement. The expansion of bachelor's and master's-prepared nursing roles, and the development of advanced practice nursing specialties including nurse practitioners and clinical nurse specialists, signals recognition that nursing's achievement potential is directly proportional to the depth and breadth of its knowledge base.

3.3 Pharmacy: Therapeutic Intelligence as a Service Driver

Clinical pharmacy knowledge — spanning pharmacokinetics, pharmacodynamics, drug-drug and drug-disease interactions,

medication safety systems, and therapeutic optimization — is among the most specialized and underutilized knowledge resources in many health systems. Achievement in pharmacy is realized when this knowledge is applied proactively at the point of prescribing, dispensing, and patient self-management, rather than reactively in response to adverse events.

The integration of clinical pharmacists into ward rounds, intensive care teams, and chronic disease management programs has been associated with substantial reductions in adverse drug events, inappropriate polypharmacy, and medication-related readmissions. These outcomes represent direct translations of pharmacy knowledge into service achievement — reductions in harm, improvements in therapeutic effectiveness, and significant cost savings for health systems.

Saudi Arabia's National Unified Procurement Company (NUPCO) and the pharmaceutical regulation frameworks of the Saudi Food and Drug Authority (SFDA) provide the systemic infrastructure within which pharmacy knowledge achieves its broadest impact. The development of medication management technology platforms — including automated dispensing systems and clinical decision support integrated into EHR environments — amplifies pharmacy knowledge by extending its application to every prescribing event within the system.

3.4 Allied Health: Restoring Capacity, Preventing Chronicity

Allied health disciplines — encompassing physiotherapy, occupational therapy, speech and language therapy, respiratory therapy, dietetics, medical imaging, clinical laboratory science, and prosthetics and orthotics — possess knowledge systems focused on functional restoration, rehabilitation, diagnostic precision, and the prevention of disability and chronic disease progression. Their achievement is realized in the capacity returned to patients after illness or injury, in the diagnostic accuracy that underlies all effective clinical decision-making, and in the nutritional and functional foundations without which recovery is incomplete.

The systematic underinvestment in allied health in many regional health systems — measured in staffing ratios, early discharge without adequate rehabilitation planning, and the absence of allied health representation in clinical governance structures — represents a significant source of preventable service failure. Patients discharged without physiotherapy assessment, nutritional optimization, or functional capacity evaluation frequently return with complications that appropriate allied health intervention would have prevented.

Vision 2030's primary care expansion agenda — including the development of comprehensive primary care centers capable of managing complex chronic disease — creates significant demand for allied health services, particularly dietetics, physiotherapy, and respiratory therapy. Realizing this demand represents both a workforce development challenge and an extraordinary opportunity for allied health disciplines to demonstrate their achievement contribution at population scale.

3.5 Public Health and Epidemiology: Knowledge at Population Scale

Public health knowledge — encompassing epidemiology, biostatistics, health behavior science, environmental health, infectious disease surveillance, and health systems analysis — operates at a scale of analysis and intervention that differs fundamentally from clinical disciplines. Its achievement is measured not in individual patient outcomes but in population-level reductions in disease incidence, improvements in health equity, and the effectiveness of preventive interventions.

The COVID-19 pandemic provided a stark demonstration of the achievement potential of public health knowledge when well-organized and appropriately resourced, and equally of the consequences when public health systems lack capacity or credibility. Saudi Arabia's General Authority for Statistics and the Centre for Disease Prevention and Control have invested substantially in epidemiological infrastructure, creating the data systems that enable evidence-informed public health decision-making at national scale.

The integration of public health perspectives into clinical and administrative governance — through the presence of public health specialists on hospital quality committees, the incorporation of epidemiological analysis into service planning, and the alignment of clinical protocols with population-level prevention evidence — represents a high-leverage pathway from public health knowledge to healthcare service achievement.

3.6 Health Informatics: The Architecture of Knowledge Integration

Health informatics knowledge — encompassing data architecture, clinical workflow analysis, electronic health record design, decision support systems, interoperability standards, and health data analytics — provides the technical foundation upon which all other disciplines' knowledge can be organized, shared, and applied at scale. Achievement in health informatics is realized when clinical information is available to the right professional at the right moment, when data patterns reveal opportunities for quality improvement, and when technology reduces rather than amplifies the cognitive burden on clinical teams.

Saudi Arabia's National Health Information Center (NHIC) and the Nphies health information exchange platform represent transformative investments in health informatics infrastructure. As these systems mature, their achievement potential extends to population health surveillance, real-time quality monitoring, predictive analytics for hospital capacity management, and the research data platforms that will drive the Kingdom's ambitions in health science and innovation.

3.7 Healthcare Management: Converting Knowledge into Organizational Capability

Healthcare management knowledge — spanning organizational behavior, health economics, operations management, human resources strategy, quality improvement science, regulatory compliance, and strategic planning — provides the organizational intelligence necessary to convert clinical and technical expertise into reliable, scalable, and sustainable service delivery. Managers who lack this knowledge produce organizations that are clinically capable but operationally fragile; those who possess and apply it create systems within which clinical achievement becomes the norm rather than the exception.

In the Saudi context, healthcare management education and development — supported by institutions including the Saudi Health Council, the Saudi Patient Safety Center, and university health management programs — is receiving increasing investment as recognition grows that clinical quality is ultimately an organizational product. The CBAHI accreditation framework, with its emphasis on governance, leadership, and continuous quality improvement, provides both a benchmark and an accountability mechanism for management knowledge application.

4. Enabling mechanisms: how knowledge becomes achievement

Understanding what each discipline knows is necessary but insufficient. The critical question for healthcare systems is: through what mechanisms does disciplinary knowledge become service achievement? Four primary mechanisms are identified in the literature and confirmed in practice.

4.1 Evidence-Based Practice and Clinical Guidelines

The formalization of evidence into clinical guidelines, care pathways, and standardized protocols represents the most direct mechanism by which research knowledge becomes practice achievement. When guidelines are developed with interprofessional input, disseminated through accessible platforms, embedded in electronic decision support systems, and monitored through quality indicators, they reliably close the knowledge achievement gap at clinical process level.

Saudi clinical practice guideline development — coordinated through the Saudi Clinical Practice Guidelines Project within the Ministry of Health and referenced by specialty societies affiliated with SCFHS — has expanded substantially in recent years. The challenge lies increasingly not in guideline development but in implementation fidelity: ensuring that guidelines are used, that deviations are detected and addressed, and that local adaptation does not compromise evidence integrity.

4.2 Continuing Professional Development and Lifelong Learning

Knowledge has a half-life. The accelerating pace of biomedical and health systems research means that professional knowledge acquired at the point of initial qualification becomes progressively outdated without systematic renewal. Continuing professional development (CPD) frameworks — mandated by the SCFHS through the Mumaris+ platform — provide the institutional mechanism for knowledge currency maintenance across all licensed health disciplines.

Achievement-oriented CPD goes beyond compliance with credit-hour requirements. It involves identifying practice-specific knowledge gaps, engaging with simulation and experiential learning modalities, participating in interprofessional education programs, and applying newly acquired knowledge through supervised practice change. Institutions that invest in structured CPD programs, including protected learning time and faculty development for clinical educators, demonstrate measurably stronger outcomes on quality indicators.

4.3 Quality Improvement Science

Quality improvement (QI) science provides the methodological toolkit for systematically translating knowledge into process and outcome improvements. Frameworks including Plan-Do-Study-Act (PDSA) cycles, Lean methodology, and Six Sigma have been applied successfully in Saudi hospital settings to reduce medication errors, decrease surgical site infections, improve patient flow, and enhance patient satisfaction scores.

The Saudi Patient Safety Center's national QI programs and the CBAHI quality improvement standards create both the incentive and the infrastructure for discipline-specific knowledge to be applied through structured improvement cycles. Critically, the most effective QI initiatives are interprofessional — they bring together the knowledge of multiple disciplines in diagnosing process failures and designing improvement interventions that account for the full complexity of clinical reality.

4.4 Research and Innovation

Original research — whether conducted in academic medical centers, community health settings, or applied health systems contexts — generates new knowledge that, when translated, drives healthcare achievement at its frontier. Saudi Arabia's research ambitions, articulated through Vision 2030's emphasis on innovation and supported by King Abdullah International Medical Research Center (KAIMRC) and the Health Cluster universities, position the Kingdom as an increasingly significant contributor to the global health knowledge base. The achievement of research is realized not at publication but at implementation: when findings from Saudi-based clinical trials, health services research, and translational science are adopted into clinical protocols, inform policy decisions, and shape educational curricula. The development of robust knowledge translation infrastructure — including implementation science capacity within health institutions, systematic review capabilities, and health technology assessment frameworks — is therefore as important as the research itself.

5. Barriers to knowledge-achievement conversion

Despite the enabling mechanisms described above, significant barriers impede the conversion of disciplinary knowledge into healthcare achievement. These barriers operate at individual, organizational, and systemic levels and must be understood — and addressed — if knowledge investment is to yield proportional achievement returns.

- ◆ Professional fragmentation: When disciplines lack shared platforms for knowledge exchange, insights from one professional domain fail to inform practice in adjacent domains. Pharmacist awareness of a new drug safety signal may not reach the prescribing physician; physiotherapist assessment of functional decline may not influence discharge planning decisions made by the medical team.
- ◆ Implementation inertia: Established clinical habits and organizational routines resist change even in the presence of compelling evidence. The introduction of new guidelines, technologies, or care models requires deliberate change management strategies that most health institutions are not equipped to deploy systematically.
- ◆ Inadequate data infrastructure: Knowledge translation requires robust information systems capable of capturing, analyzing, and feeding back performance data to clinical teams. Where EHR systems are fragmented, data quality is poor, or analytics capabilities are limited, the feedback loops necessary for evidence-informed improvement are absent.
- ◆ Resource and workforce constraints: Knowledge-intensive practice — including the time required for evidence review, guideline adherence, documentation, and team communication — is resource-intensive. In environments characterized by workforce shortages, high patient-to-staff ratios, or inadequate support staff, the practical conditions for knowledge application are compromised.
- ◆ Educational-practice disconnect: When health professional education emphasizes theoretical knowledge without adequate emphasis on knowledge translation skills — including critical appraisal, evidence synthesis, QI methodology, and collaborative practice — graduates enter the workforce with knowledge that they lack the tools to convert into achievement.
- ◆ Cultural barriers to change: Organizational cultures that do not value evidence, discourage questioning of established practice, or fail to reward innovation and improvement create environments in which knowledge-achievement conversion is systematically suppressed, regardless of the competence of individual professionals.

Table 2: Knowledge-Achievement Barriers and Strategic Responses

Barrier	Level	Strategic Response
Professional fragmentation	Individual / Organizational	Interprofessional rounds; shared governance; joint CPD
Implementation inertia	Organizational	Change management training; PDSA cycles; leadership modeling
Inadequate data infrastructure	Organizational / Systemic	EHR optimization; analytics capacity; Nphies integration
Resource and workforce constraints	Systemic	Workforce planning; task shifting; technology augmentation
Educational-practice disconnect	Individual / Systemic	Simulation training; KT curriculum; SCFHS competency alignment
Cultural barriers to change	Organizational	Safety culture programs; reward for innovation; open reporting

6. A strategic framework for knowledge-to-achievement acceleration

Based on the disciplinary analysis and barrier assessment presented in preceding sections, a strategic framework for accelerating knowledge-to-achievement conversion in Saudi and regional healthcare systems is proposed.

The framework operates across four strategic axes.

6.1 Axis One: Competency Alignment

Health professional education and CPD systems must be explicitly aligned with knowledge translation competencies. This means embedding critical appraisal, evidence synthesis, quality improvement methodology, and interprofessional collaboration skills into pre-licensure curricula and SCFHS CPD requirements for all disciplines. It means developing simulation programs that rehearse not just clinical techniques but the collaborative decision-making and communication processes through which disciplinary knowledge is most effectively applied.

6.2 Axis Two: Structural Integration

Healthcare institutions must design organizational structures that facilitate knowledge flow across disciplinary boundaries. Interprofessional clinical governance committees, shared quality improvement teams, and colocated discipline representatives in primary and specialty care settings create the relational and operational infrastructure for knowledge integration. Joint research and audit programs — bringing together clinical, informatics, and management perspectives on shared service improvement questions — accelerate the pace at which evidence becomes practice.

6.3 Axis Three: Digital Enablement

The full achievement potential of the Saudi digital health infrastructure — Nphies, the NHIC, EHR platforms across the Ministry of Health, the military health system, and the private sector — will be realized only when these systems are designed with knowledge translation in mind. Clinical decision support tools that deliver evidence-based guidance at the moment of clinical decision, dashboard systems that surface quality metric performance to clinical teams in real time, and data linkage capabilities that enable population-level surveillance and research all represent digital pathways from knowledge to achievement.

6.4 Axis Four: Leadership and Culture

Knowledge-to-achievement conversion ultimately depends on the quality of leadership at institutional and system level. Leaders who model evidence-based decision-making, who invest in learning infrastructure, who create psychological safety for experimentation and failure, and who align organizational incentives with achievement rather than activity set the cultural conditions within which disciplinary knowledge is most productively applied. The development of health leadership capability — through programs affiliated with the Saudi Health Council, the King Salman Center for Disability Research, and leading academic institutions — is therefore not a peripheral human resources investment but a strategic achievement accelerator.

"The distance between knowledge and achievement is not measured in complexity — it is measured in the courage, structures, and systems that either bridge or widen the gap."

7. VISION 2030 AS THE ACHIEVEMENT HORIZON

Saudi Arabia's Vision 2030 Health Sector Transformation Program provides both the ambition and the accountability framework within which the knowledge-to-achievement imperative is most powerfully articulated. The program's eleven strategic objectives — spanning privatization, digital transformation, quality improvement, primary care strengthening, and workforce development — define the achievement horizon toward which disciplinary knowledge must be directed.

The Vision's emphasis on measurable outcomes — expressed through National Transformation Program key performance indicators covering access, quality, safety, and efficiency — creates a performance accountability environment in which the contribution of each discipline's knowledge to system-level achievement can be tracked, assessed, and reported. This is significant: it means that the argument for investing in nursing education, pharmacy integration, allied health expansion, and health informatics capability is no longer primarily normative but empirical. The KPIs either move or they do not, and disciplinary knowledge investment is the variable that moves them.

The establishment of health clusters — regional healthcare networks designed to integrate primary, secondary, and tertiary care within unified governance structures — creates organizational entities of sufficient scale to deploy the full range of disciplinary knowledge as an integrated system. Within these clusters, achievement is a collective product, and the question is not which discipline contributes but how effectively the contributions of all disciplines are coordinated, supported, and measured.

8. Recommendations

The following recommendations are offered to healthcare institutions, policymakers, and professional education bodies seeking to accelerate the conversion of disciplinary knowledge into healthcare service achievement:

- ◆ The Ministry of Health and SCFHS should jointly develop a National Knowledge Translation Strategy for Saudi Healthcare, establishing standards, resources, and accountability mechanisms for evidence-based practice across all licensed disciplines.
- ◆ SCFHS CPD requirements should be revised to include explicit competencies in knowledge translation, quality improvement science, and interprofessional collaborative practice for all health professional categories.

- ◆ Health professional education institutions should establish Knowledge Translation and Innovation Centers — faculty-supported units providing clinical teams with expert assistance in evidence synthesis, guideline adaptation, and QI project design.
- ◆ Saudi health clusters should establish mandatory Interprofessional Quality Committees — governance bodies with cross-disciplinary membership, responsible for monitoring KPI performance and coordinating improvement interventions across the care continuum.
- ◆ The NHIC and Ministry of Health digital health program should prioritize the development of clinical decision support capabilities within existing EHR platforms, ensuring that evidence-based guidance is accessible at the point of every clinical decision.
- ◆ KAIMRC and university health research programs should invest in implementation science and knowledge translation research as a designated priority area, generating Saudi-specific evidence on the most effective pathways from knowledge to service achievement.
- ◆ Health leadership development programs should incorporate knowledge translation leadership as a core competency domain, ensuring that current and future leaders possess the skills and motivation to create organizational conditions favorable to evidence-based practice.

9. Conclusion

The journey from knowledge to achievement in healthcare is not linear, and it is not automatic. It is the product of deliberate investment — in education, in systems, in culture, and in the structures that enable diverse disciplines to work together toward shared goals. It is, ultimately, a choice: to treat the knowledge held by health professionals as a resource to be actively converted into service excellence, or to allow it to remain latent, disconnected from the outcomes it could produce. Saudi Arabia's healthcare system stands at an inflection point. The knowledge base across its health professions has never been richer. The policy framework — Vision 2030, SCFHS standards, CBAHI accreditation, the digital health agenda — has never been more conducive to achievement. What remains is the purposeful, sustained, and collaborative application of that knowledge through every discipline's contribution to every dimension of care.

From the physician at the bedside to the informaticist designing the data architecture; from the nurse coordinating the care plan to the public health specialist monitoring the population trend; from the pharmacist optimizing the medication regimen to the manager aligning the organizational system — every discipline has a knowledge contribution that, when faithfully applied, brings Saudi healthcare closer to the achievement it is capable of and that its patients deserve.

The distance from knowledge to achievement is, ultimately, the measure of a health system's integrity. Closing that distance — consistently, equitably, and sustainably — is the defining work of every healthcare discipline in the service of every patient.

References

1. Canadian Institutes of Health Research. (2021). Knowledge translation definition and framework. Ottawa: CIHR. Retrieved from <https://cihr-irsc.gc.ca>
2. Grol, R., & Grimshaw, J. (2003). From best evidence to best practice: Effective implementation of change in patients' care. *The Lancet*, 362(9391), 1225–1230.
3. Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academies Press.
4. King Abdullah International Medical Research Center. (2023). *Research and innovation priorities: Annual report*. Riyadh: KAIMRC.
5. McGlynn, E. A., Asch, S. M., Adams, J., Keesey, J., Hicks, J., DeCristofaro, A., & Kerr, E. A. (2003). The quality of health care delivered to adults in the United States. *New England Journal of Medicine*, 348(26), 2635–2645.
6. Ministry of Health, Kingdom of Saudi Arabia. (2023). *Vision 2030 health sector transformation: Strategic objectives and KPI performance dashboard*. Riyadh: MOH Publications.
7. National Health Information Center. (2022). *Nphies health information exchange: Implementation status report*. Riyadh: NHIC.
8. Saudi Commission for Health Specialties. (2023). *Mumaris+ continuing professional development framework: Standards and requirements*. Riyadh: SCFHS.
9. Straus, S. E., Tetroe, J., & Graham, I. D. (Eds.). (2013). *Knowledge translation in health care: Moving from evidence to practice* (2nd ed.). Oxford: Wiley-Blackwell.
10. Wensing, M., Grol, R., & Grimshaw, J. (Eds.). (2020). *Improving patient care: The implementation of change in health care* (3rd ed.). Oxford: Wiley-Blackwell.
11. World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice*. Geneva: WHO Press.
12. World Health Organization. (2020). *Nursing and midwifery: Key facts and global strategy*. Geneva: WHO.
13. WHO.