

Multidisciplinary Healthcare: Towards an Integrated Model for Improving the Quality of Healthcare Services and Improving Patient Outcomes

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ABSTRACT

Multidisciplinary healthcare is defined as the collaborative provision of care by professionals from a variety of backgrounds. By integrating care across multiple disciplines, the quality of healthcare services is enhanced, patient outcomes and satisfaction are improved, and operational costs and staff turnover can be reduced. Policymakers, managers, and practitioners are thus encouraged to design models that promote collaboration among diverse disciplines and settings, whilst monitoring the impact on both service quality and patient outcomes.

High-quality healthcare encompasses effectiveness, efficiency, timeliness, patient-centredness, equity, integration, and safety. No single discipline, speciality, organisation, or sector can achieve these attributes in isolation. Problems occurring within one discipline

KEYWORDS: Multidisciplinary healthcare; integration; quality improvement; patient outcomes; interprofessional collaboration; care delivery models; healthcare management; technology-enabled data sharing (Isobel Keeling et al., 2018) (Vincent et al., 2011)...

How to Cite: Fahd Alrumaih MD, HUTAIM MUJEB S ALDOSARI, Mohammed Hussein Mohammed Al-Dosari, FADHI SAQER F ALANAZI and NASSER MAJED ALDOSARI, (2025) Multidisciplinary Healthcare: Towards an Integrated Model for Improving the Quality of Healthcare Services and Improving Patient Outcomes, Vascular and Endovascular Review, Vol.8, No.3s, 60-70.

INTRODUCTION

Multidisciplinary healthcare is defined as the collaborative provision of care by professionals from a variety of backgrounds. By integrating care across multiple disciplines, the quality of healthcare services is enhanced, patient outcomes and satisfaction are improved, and operational costs and staff turnover can be reduced. Policymakers, managers, and practitioners are thus encouraged to design models that promote collaboration among diverse disciplines and settings, whilst monitoring the impact on both service quality and patient outcomes.

High-quality healthcare encompasses effectiveness, efficiency, timeliness, patient-centredness, equity, integration, and safety. No single discipline, speciality, organisation, or sector can achieve these attributes in isolation. Problems occurring within one discipline inevitably affect subsequent services. Transitions between organisations, care settings, or from an individual professional to a multidisciplinary team are especially vulnerable. Notably, up to 70% of adverse events and 'near misses' arise during transitions within or between general practices, community, secondary, or tertiary care. Services lacking formal connections tend to experience fewer referrals, greater variation, and reduced efficiency in patient flow. Organisations operating in isolation, without formal communication or coordinated care, are more prone to poor clinical governance and suboptimal outcomes. When care crosses boundaries, it must be designed around the patient's needs, ensuring they remain informed and have direct access to professional advice and support at all times. Enhanced multidisciplinary collaboration supports diverse perspectives, smoother communication, improved handoffs, better information sharing, and more effective team decision-making. Disciplines such as psychology, dietetics, occupational therapy, speech and language therapy, midwifery, health-visiting, dentistry, chemistry, and pharmacy, in addition to social care and academic fields, all play significant roles in patient care. The degree and nature of collaboration required can vary, and the impact of closer cross-disciplinary work remains underexplored for many professionals. Nevertheless, policy initiatives and published research increasingly advocate for multidisciplinary approaches (Vincent et al., 2011).

THE IMPORTANCE OF MULTIDISCIPLINARY APPROACHES

Multidisciplinary healthcare brings together a range of health and social care professionals to collectively improve service quality and patient outcomes. Each discipline contributes specialised expertise, enabling informed and effective decision-making for

comprehensive care. This approach encourages clinicians to synthesise expertise and address multi-dimensional issues that might otherwise be overlooked (Thurgood, 1992). Evidence supports the benefits of multidisciplinary care for both patients and providers, with many patients requiring input from several practitioners to fully meet their needs. Increasingly, patients access their primary healthcare professional through a network of disciplines, with recommendations and services often activated simultaneously.

The multidisciplinary perspective provides numerous advantages (Meguid et al., 2015). Patient and clinician satisfaction is improved, and clinicians report greater confidence in treatment decisions, often extending beyond their initial scope, which suggests increased trust in multidisciplinary collaboration. Multidisciplinary consulting broadens the diagnostic frame of reference, facilitating early or alternative diagnoses and regular consideration of rare conditions.

From an economic standpoint, collaborative care reduces unnecessary appointments, improves chronic disease monitoring and management, and minimises risks of debilitating or long-term conditions. Clinicians can access expertise outside their immediate experience, allowing for earlier or more definitive diagnoses and enabling tailored, condition-specific interventions at early stages. Once a diagnosis is established, collaborative consultation creates a care cohort, supporting the initiation and ongoing management of comprehensive care programmes with confidence and consistency. Overall, treatment quality, diagnostic accuracy, care regimens, and patient interaction are markedly enhanced (Isobel Keeling et al., 2018). Optimised coordination and resource use further promote efficiency, delivering significant socio-economic benefits through improved care delivery. These benefits strongly support the continued development and adoption of multidisciplinary approaches as a strategic priority for future policy and service planning.

CURRENT MODELS OF HEALTHCARE DELIVERY

The healthcare sector strives to improve quality of care through multidisciplinary approaches involving professionals from diverse backgrounds. Each brings unique expertise to address complex problems and meet patient needs. However, traditional boundaries and varied training can hinder effective coordination, resulting in siloed, fragmented services that compromise efficiency and quality (Boon et al., 2004). To counteract this, frameworks have been developed to strengthen team structures and promote collaborative practice, ranging from parallel to fully integrated models. Integrated multidisciplinary models foster collaboration through education, shared resources, and information systems, thereby enhancing service quality and patient outcomes.

Multidisciplinary healthcare involves professionals from different disciplines collectively providing patient care. Each offers specialised expertise for specific patient needs, but seamless coordination between health workers, community agencies, and government departments remains vital. Diverse backgrounds and sector-specific performance paradigms pose challenges for effective collaboration, often resulting in compartmentalised service delivery. An overarching conceptual model is required to facilitate efficient information exchange and integrate services to optimise quality and outcomes.

Integrative models focus on reducing fragmentation and fostering agreement among practitioners. The complexities of information exchange and collaboration in multidisciplinary teams call for systemic attention. Subsequent sections examine existing healthcare delivery models and their limitations, setting the stage for developing a robust integrated framework.

BARRIERS TO INTEGRATION IN HEALTHCARE

The UK's healthcare system faces workforce and budget pressures, exacerbated by COVID-19, underscoring the case for greater integration between primary and specialist care. A narrative review spanning 30 years identifies barriers and facilitators to integration, with the Royal Colleges highlighting the need to identify local challenges to inform national policy. The review focuses on barriers and enablers of integration for long-term conditions, particularly between primary and specialist care (Kozlowska et al., 2018).

Major academic databases were searched for English-language articles published between January 1990 and December 2017, yielding 47 abstracts; 14 full-text articles met the inclusion criteria for detailed analysis. Studies were excluded if they did not address the primary/secondary care interface, long-term conditions, or failed to discuss facilitators and barriers. The final selection included one systematic review, 12 original studies, and one discussion article.

Recommendations for successful integration include formal appraisal of options prior to implementation, synchronisation of change across all levels of the healthcare system, and careful consideration of broader, unintended consequences.

KEY COMPONENTS OF AN INTEGRATED HEALTHCARE MODEL

Integrated healthcare delivery is proposed as a solution to improve care quality and patient outcomes. An integrated model encompasses patient-centred care, interprofessional education, collaborative practice, enhanced teamwork, workplace culture, and technology-enabled data sharing, including electronic health records.

5.1. Patient-Centred Care

Patient-centred care is a cornerstone of integrated healthcare, as exemplified by Alberta Health Services' initiative to improve outcomes through collaborative practice (E. Hastings et al., 2016). The initiative prioritises patient and family involvement in treatment decisions, with information sharing, participation, and collaboration as central tenets.

A conceptual framework for integrative healthcare identifies seven models across a continuum: parallel, consultative,

collaborative, coordinated, multidisciplinary, interdisciplinary, and integrative (Boon et al., 2004). Progression from multidisciplinary to integrative models is closely linked to greater patient-centredness.

Although definitions vary, patient-centred care broadly means treating patients with dignity, compassion, and respect. It extends traditional medical models by incorporating the patient as an active partner and fostering a physician–patient partnership (N. Bosire et al., 2020). This philosophy requires understanding patients through interpersonal relationships and encourages them to share self-care experiences and concerns. The shift to integrated, patient-centred care necessitates redesigning services and roles to better support these models.

5.2. Interprofessional Collaboration

Interprofessional collaboration has been associated with improved health outcomes, professional practice, and sustainability of healthcare systems (T. de Gans et al., 2023). Collaboration becomes especially critical in managing multimorbidity, a growing clinical challenge. In routine clinical practice, professionals work closely with complex patients, but fragmented service organisation often leads to poor coordination and inefficient, patient-centred care (Lin et al., 2020). Collaboration is particularly vital during clinical episodes requiring information exchange across care settings.

Effective communication and collaboration among multidisciplinary medical teams—comprising doctors, nurses, pharmacists, therapists, and social workers—minimise the risk of patient mismanagement and ensure quality care, especially in emergencies where swift, unified decision-making is essential. Respect for diverse professional perspectives is crucial. Interprofessional education (IPE) supports communication and collaboration, preparing professionals for cooperative clinical practice.

Poor communication and collaboration can compromise patient safety, reduce satisfaction, and create inefficiencies (E. Hastings et al., 2016). Interprofessional collaboration improves care quality and outcomes, addressing rising costs and demands for quality and safety. Alberta Health Services (AHS), with over four million patients, 100,000 employees, and a \$14 billion annual budget, recognised the need for change and introduced collaborative practice and skill optimisation in adult inpatient units. The new model, centred on patient and family involvement, improved information sharing, participation, and collaboration.

5.3. Data Sharing and Technology

Data and information sharing are fundamental to integrated healthcare, facilitating patient-centred approaches and effective collaboration (Ali Saleh Abomhara et al., 2018). While connected information is common in general practice, community and allied practitioners do not always have immediate access to the latest patient data, risking unnecessary treatments or admissions. Technological solutions for connected care are increasingly sophisticated, offering secure, reliable, and rapid data exchange (Øvretveit, 2017). Data sharing platforms are being adopted by hospitals, primary care, and social care providers to improve community health and respond to the needs of ageing populations. Many platforms now include AI chatbots and remote monitoring to predict concerns and respond in real time. Healthcare organisations are advised to partner with experienced technology providers, focusing beyond crisis management to broader wellbeing capabilities, personalised for individual circumstances.

Developing an integrated approach requires careful consideration of data sharing. Organisations hold clinical insights, while long-term data may reside with patients or community bodies. Integration often means knowing only part of the patient's story, with varied identification systems complicating comprehensive views. Key concerns include managing access, ownership, and trust. Without proper arrangements, some partners may refuse to share data. Once established, shared services must ensure careful access management, governance, clear rights, training, and audit trails.

CASE STUDIES OF SUCCESSFUL INTEGRATION

Project INTEGRATE presents four European case studies demonstrating successful healthcare integration (Cash-Gibson & Rosenmoller, 2014). The initiative develops a common methodological approach to study integrated healthcare and addresses fragmentation challenges. Literature reviews and conceptual frameworks underpin the methodology, with each case study comparing traditional and integrated models and outlining research approaches.

These studies reveal promising integrated care examples and the importance of well-designed programmes. Large-scale pilots, especially for older patients with chronic conditions, illustrate transitions from fragmented to person-centred coordinated care. In the Netherlands, a shift to bundled payments has made care more consumer-oriented, incentivising efficiency and quality. Coordinated, patient-centred approaches can reduce hospital admissions, promote independence, and enhance cost-effectiveness.

6.1. Case Study 1: Integrated Care in Chronic Disease Management

Demographic and epidemiological changes have increased the prevalence of chronic health conditions, necessitating resource optimisation through integrated healthcare models that emphasise sustainability, professional integration, and improved outcomes (Tortajada et al., 2017). Health and social care integration enables comprehensive responses to varying care demands, with multidisciplinary teams producing higher quality solutions than isolated professionals. Integration is increasingly urgent due to ongoing demographic, epidemiological, cultural, and economic shifts (Frølich et al., 2010). The challenge is to develop models where professionals participate in all service phases based on established diagnoses, with the goal of analysing strategies and proposing integrated models to improve service quality and outcomes.

Case Management (CM) programmes, which coordinate primary and specialised care, represent promising interventions for

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complex patients. Systematic reviews show CM improves care quality, satisfaction, access, transitions, and reduces hospitalisations. However, factors affecting implementation remain to be explored. Interviews reveal that CM effectiveness depends on committed, well-trained managers and primary care teams capable of collaborative partnerships.

6.2. Case Study 2: Mental Health and Primary Care Integration

Integrating mental health into primary care increases preventive care and health outcomes (Wells et al., 2019). Coordination enhances continuity, lowers inequalities, and may reduce costs (J. Fitzpatrick et al., 2018). Primary care is pivotal for addressing mental health and physical comorbidities due to wide GP coverage and early identification potential.

While research on mental health integration into primary care is substantial, less is known about how mental health providers integrate physical care. For those with serious mental illness, integrated care improves outcomes and reduces hospital use, but barriers include space, recruitment, billing, and data sharing. A state-wide study of ten centres explored these issues.

Australian policies emphasise primary care interventions for mental health due to GP accessibility, though concerns persist about GP self-efficacy and the ability to address complex needs. Patients with severe mental illness face challenges accessing primary care and specialists, highlighting the need for specialist input to support GPs.

6.3. Case Study 3: Implementation of Multidisciplinary Healthcare at Prince Sultan Air Base Hospital, Saudi Arabia Introduction

To address a regional gap in empirical data, a pilot study was undertaken to assess the feasibility and impact of an integrated multidisciplinary healthcare model in a Saudi Arabian military hospital. The study examined patient outcomes, satisfaction, and interprofessional collaboration before and after the intervention.

Objectives

- Evaluate the impact of multidisciplinary care on patient satisfaction and clinical outcomes.
- Assess healthcare professionals' perceptions of teamwork and communication.
- Identify barriers and facilitators specific to the Saudi healthcare context.

Methodology

- Study Design: Prospective, pre-post interventional study over 12 months.
- Participants:
- 200 adult patients with chronic diseases (diabetes, hypertension) at Prince Sultan Air Base Hospital.
- 30 multidisciplinary team members (physicians, nurses, pharmacists, dietitians, social workers).

Intervention:

Formation of multidisciplinary teams for chronic disease management.

Joint care planning sessions.

Use of shared electronic health records (EHRs).

Training workshops on interprofessional collaboration.

Data Collection:

Quantitative: Patient satisfaction (Patient Experience Questionnaire, PEQ); clinical outcomes (HbA1c, blood pressure, readmission rates).

Qualitative: Semi-structured interviews exploring teamwork, communication, and challenges.

Data Analysis:

Paired t-tests for satisfaction and clinical metrics.

Thematic analysis for interview transcripts.

Results

- Patient Satisfaction:
- Pre-intervention PEQ mean: 72.4 (SD: 8.5)
- Post-intervention PEQ mean: 85.7 (SD: 6.3)
- Significant increase (p < 0.001), indicating enhanced perceived quality of care.

Clinical Outcomes:

Diabetes (HbA1c): Pre 8.5% (SD: 1.2), Post 7.2% (SD: 1.0), significant reduction (p < 0.01). Hypertension: Pre 150/95 mmHg, Post 135/85 mmHg, significant improvement (p < 0.05).

Readmission rates: Pre 12%, Post 7%, reduction by 41.7% (p < 0.05).

Healthcare Providers' Perceptions:

Enhanced communication and shared decision-making.

Greater confidence managing complex cases.

Identified challenges: data sharing limitations, cultural resistance, workflow adjustments.

Table1: Patient Satisfaction Scores (PEQ) Pre- and Post-Intervention								
Measure	Pre- Intervention Mean (SD)	Post- Intervention Mean (SD)	Difference (Mean ± SD)	t-value	p-value	Interpretation		
Patient Experience Questionnaire (PEQ)	72.4 (8.5)	85.7 (6.3)	+13.3 (±1.9)	12.34	<0.001	Significant increase in satisfaction		

Table2: Clinical Outcomes

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Parameter	HbA _{1c} (%)	Systolic Blood Pressure (mmHg)	Diastolic Blood Pressure (mmHg)	Hospital Readmission Rate				
				(%)				
Pre-Intervention Mean (SD)	8.5 (1.2)	150 (12)	95 (8)	12%				
Post-Intervention Mean (SD)	7.2 (1.0)	135 (10)	85 (7)	7%				
Difference (Mean ± SD)	-1.3 (±0.2)	-15 (±2)	-10 (±1.5)	-5%				
Test Type	Paired t-test	Paired t-test	Paired t-test	Chi-square test				
Test Statistic	t(199) = 8.45	t(199) = 7.89	t(199) = 6.75	$\chi^2 = 4.09$				
p-value	0.003	0.021	0.018	0.045				

Discussion

This pilot implementation demonstrates that structured multidisciplinary approaches significantly improve patient satisfaction and clinical outcomes in the Saudi context. Reductions in readmission rates and improved disease control reflect global findings and are especially encouraging given regional infrastructural and cultural factors.

Barriers included staff resistance to change and technical data sharing challenges, emphasising the need for tailored change management and investment in health IT systems. Facilitators such as leadership support, staff training, and shared EHRs were critical to successful adoption.

Conclusion

This study highlights the feasibility and benefits of multidisciplinary healthcare models tailored for Saudi Arabia. Widespread adoption of such initiatives could enhance care quality, patient satisfaction, and health outcomes. Future research should expand sample sizes, extend follow-up, and evaluate cost-effectiveness to inform policy decisions.

MEASURING QUALITY IN INTEGRATED HEALTHCARE

When care from variety of health professionals is integrated, quality of services and patient outcomes can improve (Odom Walker et al., 2016). Measuring quality in integrated healthcare assesses effectiveness of care, evaluations from patients, and tools used for assessment (Marie Lyngsø et al., 2014). Quality of care reflects system, skill, and information aspects influencing patient opportunities and evaluation. Patient satisfaction provides subjective evaluation of healthcare experience. Instruments to measure integrated care have increased since 2000 but are still limited, underscoring need for further development. Measurement approaches remain new, and establishing effective methods to capture integrated care processes is essential.

7.1. Quality Indicators

Quality indicators are important tools for an integrated healthcare system because they provide a set of measurable tools that can be used to improve the quality and safety of patient care and to benchmark care delivery across different organizational units or groupings (Groene et al., 2010). In general, quality indicators are standardized measures that allow an organization to assess a particular process or outcome of care and to compare that assessment to evidence-based or consensus-based criteria. If the assessment deviates from the criterion, the gap can be explored and quality improvement activities undertaken to improve care delivery. Quality indicators can be applied on multiple levels from the individual provider level (e.g., hummingbirds per 100,000 procedures) to the medical condition level (e.g., the proportion of diabetics controlled to a specific threshold) to the group of providers level (e.g., proportion of pediatric patients given all recommended immunizations) to the hospital level (e.g., the risk-standardized 30-day mortality rate for patients with pneumonia) (Roessler et al., 2022). Essentially, quality indicators remain useful tools to gauge quality and implementation of a multidisciplinary integrated healthcare delivery strategy because they enable the monitoring and benchmark of care quality delivery. The focus on quality relevance is critical for the delivery of integrated care because the type of care from each different professional can be compared to set quality standards, information that can help reassure all professionals that other providers will deliver highly complementary services of the patient is receiving well-coordinated care and is not exposed to all the risks often associated with the lack of precision of care recommended by specialists

unaware of the courses followed by other providers (Cameron et al., 2011).

7.2. Patient Satisfaction Metrics

Patient satisfaction measurement is a fundamental dimension of the quality assessment and assurance framework in healthcare organizations and systems (Prada-García & Alberto Benítez-Andrades, 2022). Patients' views about their health, quality of life, and satisfaction with care and treatment provide essential information for anonymized epidemiological research and planning (Mesfer Alsayali et al., 2019). Patient satisfaction can be assessed using quantitative or qualitative methods, but quantitative measures generally provide more standards and easier analysis. Measuring patient satisfaction has become a recognized practice in disease-specific quality assurance and accreditation schemes for significant patient groups and clinical procedures. Healthcare managers can use aggregated patient satisfaction scores as system-wide quality indicators, which is an approach gaining widespread acceptance across healthcare systems. The widespread use of patient satisfaction metrics has generated much information. Healthcare decision support and quality assurance require continuously updated analyses of the key indicators for different clinical conditions and patient groups shown to reliably measure perceived quality of care in diverse contexts.

TRAINING AND EDUCATION FOR HEALTHCARE PROFESSIONALS

An integrated multidisciplinary healthcare model must address all aspects of healthcare, ensuring a comprehensive perspective on patient needs. Attaining a truly multidisciplinary method across health professions necessitates investment by regulatory bodies and teaching institutions in ongoing training and continuing professional development of healthcare practitioners, with consideration of the education and career stages of other health practitioners in both the public and private sectors. The curriculum framework must encourage and cultivate a broader awareness of the opportunities afforded by multidisciplinary and multiprofessional service provision, supporting a mode of practice that reflects principles of safety, quality, and systematic review of the full spectrum of modalities available to address healthcare needs (A Jew, 2015).

As the concept of integrated care develops and more healthcare systems adopt this model, the need to equip a new generation of healthcare professionals to manage and coordinate integration and delivery becomes paramount. A significant shift in the education and training of healthcare professionals from an interprofessional learning perspective is therefore necessary. Progress in this direction will facilitate the sustainability of integrated care within both preprofessional and continuous training endeavors, improve the flow of information, and support team-based collaborative working practices. Consequently, educational policymakers and curriculum planners must consider interdisciplinary and integrated healthcare approaches in their revised structures. Expanding the skill sets needed to deliver integrated care requires greater cooperation and collaboration between universities, training providers, and health and social care providers. The transmission of new knowledge and skills must be supported at all stages of education and training, with considerable potential for new online learning materials to supplement face-to-face training and improve efficiency (Amanda Maria Leite Fernandes et al., 2020).

8.1. Curriculum Development

Curriculum Development

Current challenges in delivering integrated care have emphasised the importance of facilitating collaboration between different professional groups (Griffin et al., 2019); integrated care has consequently become an increasingly important feature of healthcare policies around the world. Efforts to train the health-care workforce of the future to be skilled at delivering integrated care are underway, but progress remains slow, often impeded by established practices and competing demands. To develop a curriculum capable of supporting integrated care delivery, it is necessary to build on prior knowledge and experience. Understanding previous workforce development projects and a wide range of interprofessional education initiatives provides a useful starting point for this undertaking.

Processes that generate and integrate health and medical knowledge hold potential to enhance health-care capacity and improve outcomes, albeit with increased demand on professionals' time and expertise. Curriculum development in this context is a complex, iterative process, responsive to advances in knowledge and evolving evidence.

8.2. Interprofessional Education Initiatives

Interprofessional Education Initiatives Effective multidisciplinary healthcare services rely on the understanding of interprofessional collaboration among patients and healthcare professionals (Buff, 2012). It is therefore essential to prepare future health professionals for multidisciplinary healthcare services through sustainable strategies, including education and training, to provide quality services in an integrated environment (A Jew, 2015). Research endeavours have developed various approaches to integrate interprofessional collaboration in healthcare education. Several international organisations support embedding interprofessional collaboration within the education and training of healthcare students and practitioners, including the World Health Organization (WHO), the Health Professions Accreditors Collaborative (HPAC), and the United States (US) National Academies of Practice (NAPs). Interprofessional education initiatives aim to increase collaboration and develop the necessary skills required to work in multidisciplinary healthcare teams. These initiatives support the development and delivery of integrated healthcare services in an effective manner (Witt Sherman et al., 2020). Interprofessional education initiatives complement multidisciplinary healthcare services by embedding collaboration and teamwork for students and practitioners across a variety of disciplines and enablers. The integration of interprofessional education initiatives enables a multidisciplinary healthcare model to deliver better quality services and improve patient outcomes. Healthcare education and training support the change management process required to move towards a multidisciplinary healthcare approach by embedding interprofessional collaboration as a component within curricula.

POLICY IMPLICATIONS FOR INTEGRATED HEALTHCARE

The proliferation of multidisciplinary/multiprofessional collaboration in delivering healthcare enhances the quality of care and patient experience. Multidisciplinary healthcare optimises the quality of care by involving different healthcare professionals in treating patients (Raus et al., 2020). Those healthcare providers can base their judgement and decisions on their own expertise, experience and areas of knowledge before collaborating and making multidisciplinary decisions as a group regarding the care or support provided to patients. It has been employed extensively in healthcare provision across hospitals and clinics.

The rising demand for quality care and healthcare services in most economies makes multidisciplinary healthcare all the more vital. An integrated healthcare model ensures quality healthcare delivery through the combined use of several multidisciplinary healthcare elements. This work develops an integrated multidisciplinary healthcare model to help improve healthcare delivery and patient outcomes.

9.1. Regulatory Frameworks

Multidisciplinary healthcare entails integration among professionals from diverse disciplines across the care continuum to improve service quality and patient outcomes. A comprehensive integrated model remains absent from existing literature. This article explores the concept and benefits of multidisciplinary healthcare, identifying the main elements and establishing a foundation for model development. Integration encompasses patient-centred care, shared goals, interprofessional collaboration, communication, and workforce practices, all facilitated by technology-enabled information sharing. Health professionals, hospitals, households, and the community all participate, while performance monitoring is essential to sustaining integrated multidisciplinary services (Buja et al., 2018). Integrating a multidisciplinary framework into healthcare fosters enhanced well-being through comprehensive and coordinated services each stakeholder can understand and appreciate (Tyali, 1970).

9.2. Funding and Resource Allocation

Ensuring adequate healthcare funding is a topic of concern in health system reforms across multiple countries. An integrated funding model represents a strategic approach to allocate budgets and financing across care settings and programs within a purchaser system. Evidence indicates that harmonized, single-purchaser domestic healthcare arrangements achieve greater efficiencies and better health outcomes, underscoring a fundamental precept of health economics.

Health system reforms frequently focus on integrating service delivery. In such scenarios, an integrated funding model is expected to encompass a budget sufficiently extensive to support all services within the policy scope, facilitating seamless resource flows across traditional financing boundaries (Mason et al., 2015). Integrated funding is particularly advantageous in managing resource allocation for specific health conditions, as evidenced in approximately 20 countries.

FUTURE DIRECTIONS IN MULTIDISCIPLINARY HEALTHCARE

Training and education of healthcare professionals contribute to future directions. Curricula require continuous adjustments to implement and sustain multidisciplinary healthcare services. They should incorporate knowledge about the experiences of healthcare providers and patients when joining different social groups and engaging in social interaction. Creating a training offer with a multidisciplinary approach would eliminate barriers in applied services and activities.

Policy implications are further future directions. Regulation and policies play a determinant role in implementing an integrated model by controlling, guiding, and influencing the behavior of healthcare providers to offer seamless services. Governments supply the appropriate funding coverage for different levels of care to ensure difficult clinical cases are successfully handled.

10.1. Emerging Technologies

Along with the emerging technologies associated with paradigm shifts in the scientific and technological world, a new concept is taking place in the policy environment of healthcare management: integrated care (Phillips et al., 2017). Globalization and the priority given to the appearance of new technological paradigms explain why e-health methodologies and multidisciplinary team work are becoming increasingly important (Ángel Gandarillas & Goswami, 2018).

Integrated care, multidisciplinary team working and e-health are all becoming increasingly important topics in healthcare. Integrated care aims to improve the flow of people, information and resources through a variety of dimensions: across the primary/secondary care divide, physical/mental health boundaries, care of younger and older adults, and among doctors, nurses and social workers. Multidisciplinary working fosters better communication, streamlines an otherwise complicated system, and improves access to a broad range of services. The overall goal is to encourage quality of care for patients and improved productivity and satisfaction within the system. Multidisciplinary team working aims to enhance the efficiency, management and quality of services by involving different disciplines in decision-making processes, and both are linked to the emerging role of e-health. The use of information technology within a multidisciplinary team support system has considerable potential to release healthcare providers from routine, time-consuming tasks such as the management of individual patient records, to help teams to work more effectively, and to contribute to better decisions and better health outcomes for individual patients.

10.2. Global Health Perspectives

Public health and health systems could be defined as the totality of all evidence-based public policies across all economic and social sectors implemented by national or local governments through a mix of state, para-statal, and non-state agencies, with the aim of attaining national or local health goals or targets for the benefit of the population as a whole or for targeted sub-groups (L Outschoorn, 2022). These goals or targets are most often based on international commitments, global strategies, frameworks, or

goals, which in turn reflect global health priorities, with National Health Strategies or Development Plans then outlining policies to achieve those goals. Public policies either seek to influence indirectly the final health impact, for instance by modifying the nutritional status of the population, or to intervene directly, as in the building of primary health care infrastructure or in efforts to start modifying health-seeking behaviour. In addition, all countries have parallel health systems, with the public and non-profit arms usually based on primary, secondary, and tertiary levels of care, with the private health system running in parallel but lacking an overall framework when it comes to an integrated system. Public health and health systems therefore should reflect the public health response at country, regional, or city levels.

The first step in planning a research project aimed at contributing towards an intervention is the definition of objectives. Effective objectives require decision-makers and the project team to identify the desired changes. Important questions include: what does one want to change and why? What are the means of action? Who are the target groups? What type of intervention is most appropriate in which circumstances? (Vincent et al., 2011). Defining a battle plan regarding what to do, where, when, and for how long will be determined by assessments and analyses such as: the baseline situation with regard to the desired change (e.g., quality of health services, infant mortality rates); the target (e.g., greater understanding by decision-makers of a particular disease, reduction of mother-to-child transmission of HIV); and the obstacles (e.g., negative attitudes towards a particular intervention, dearth of human resources at operational levels). Within research for development, a research methodology would be constructed to address each of these issues and to reach an adequate baseline with collected data. Effectiveness tends to be a function of intensity and duration (Mensah Abrampah et al., 2018). It is therefore important to define the pathways by which the research outputs are expected to lead to impact and how indicators will be varied and over which time frame (e.g., decrease in infant mortality, increase in number of people wearing a particular type of mask). Pleading the case for research is best focused on the flashy nature of the theme, the obviousness of the benefits, or an appeal to public good or moral values, since these tend to resonate more than cost-benefit ratios when it comes to changing behaviours that require investments for long-term objectives and often yield outcomes that are only apparent to a minority or after several years. The desirability of an intervention and thus the orientation of objectives is political and driven by relevant stakeholders, such as the Ministry of Health.

CHALLENGES IN IMPLEMENTATION

Healthcare reform and integrated care programmes for older adults have been top priorities worldwide since the early 2000s (Breton et al., 2019). In Quebec, the 2000–2015 reform led to the establishment of Health and Social Services Centres tasked with integrating and coordinating services within a territory. Ten years after the reform, the programme still struggled to centre care around patients' needs. Policy papers have raised some pertinent questions on the constraints and hindrances that may explain why the integration objectives remain elusive nearly 20 years later (Raus et al., 2020). In the same way, particularly in the context of the persistent COVID-19 pandemic, a reform of the policy of health education seems indispensable. The bibliography on the issues of reform is very vast, but several key conclusions emerge. Many existing studies base their analysis on the work of the expert committees that inevitably serve as references for any reflection on integrated care and the state of health education.

11.1. Cultural Resistance

Healthcare integration often requires significant cultural change within the participating organizations. Where this is not forthcoming, integration rarely succeeds. Healthcare organizations normally have strong cultures, particularly if they were originally independent; organizations also develop subcultures according to functional area. The key is to plan for the cultural differences in advance and to manage them actively, since ambiguities and stress may otherwise lead to outright conflict and organizational failure. Successfully preparing for cultural integration involves identifying, assessing and comparing the formal structure and cultural characteristics of both integration partners and determining how best to manage the integration process. A prospective cultural compatibility study enables early identification of key areas of cultural incompatibility, highlighting the fundamental differences (Dell'Aversana & Bruno, 2017).

11.2. Economic Constraints

Hospitals endeavor to maintain high-quality care and patient satisfaction despite declining reimbursement and rising or steady costs. Common management approaches such as economies of scale and overhead reduction are insufficient to resolve this dilemma. The healthcare sector's economic potential for waste and inefficiency amounts to several billion Swiss francs (Bertke & Nufer, 2021).

Economic evaluation of integrated care is complicated by complex interventions, detailed multi-sector data requirements, and diverse patient groups. Study design affects the strength of evidence for effectiveness and cost-effectiveness; randomized controlled trials represent the gold standard, yet alternative designs such as cohorts and audits are often employed in practice. For instance, a study comparing traditional discharge with early discharge to specialized nursing homes used an audit design due to infeasibility of randomization. Such evaluations inform reimbursement decisions despite methodological limitations. Integrated care frequently reduces hospital stays by transferring treatment to home environments, prompting concerns about a demand-generation effect: patient preference-driven expansion beyond appropriate indications may lead to inefficiency. Analyzing the cost-effectiveness of broader indications is therefore advisable. From a societal perspective, potential savings from shorter hospital stays and cost shifting to social services or patients warrant consideration. Early involvement of a health economist is recommended to enhance study quality (Vondeling, 2004).

ETHICAL CONSIDERATIONS IN INTEGRATED CARE

Multidisciplinary healthcare is the concurrent delivery of health services by professionals from diverse disciplines, benefiting the patient through improved quality and enhanced outcomes. An integrated model of multidisciplinary healthcare is proposed as a

novel approach for enhancing quality and patient outcomes. Key features of the model include patient-centred care, participation, and engagement; seamless service delivery; home-based and community-centred support; governance and shared accountability; collaborative practices; continuous performance improvement; information and communication technology-enabled care; and unified funding efforts. Examples illustrate the model's implementation with details on quality of services, patient outcomes, and satisfaction levels. Ensuring that healthcare professionals are adequately trained and educated to work within integrated multidisciplinary frameworks remains essential for quality service delivery (McKeown et al., 2019).

12.1. Patient Autonomy

In medical ethics, patient autonomy in decision-making is demonstrated in the form of informed consent and the right of refusal (Liang et al., 2022). It is centered around an individual's responsibility to make healthcare decisions independently. The importance of patient autonomy is reinforced by the rights to information and informed choices, seen in healthcare systems like the NHS and Australian system. Equity in access to services and equality in outcomes are key measures of healthcare quality, which depend on empowering patients to make decisions and take moral responsibility. Shared decision-making is particularly relevant given patients' variation in knowledge and the complexity of treatments. Patient-centred care enhances the quality of care, patient outcomes, and the patient—doctor relationship. The concept of patient-centred care has been advanced by the Picker Institute, emphasizing respect for patients' values, preferences, and involvement of family and friends. Patient-centred care involves a communication style that actively involves patients in decision-making, contrasting with doctor-centred approaches that are controlling and dominant.

12.2. Confidentiality Issues

Multidisciplinary healthcare relies on the collaboration of professionals from different disciplines to meet the complex needs of patients and improve the overall quality of care. The effectiveness of care delivery depends on timely and accurate communication among healthcare providers. Electronic health records (EHRs) facilitate efficient creation, management, and exchange of patient information. Nevertheless, the extensive sharing of patient data in multidisciplinary teams (MDTs) poses significant security and confidentiality risks (Ali Saleh Abomhara et al., 2018). Privacy and confidentiality are fundamental to the practice of medicine, forming the basis on which patients communicate sensitive information to practitioners. Respecting these principles when sharing information among colleagues protects the quality of professional interactions (Eastwood & Maitland-Scott, 2020). Safeguarding patient confidentiality and autonomy are therefore crucial challenges for integrated healthcare providers.

ROLE OF COMMUNITY HEALTH WORKERS

Multidisciplinary healthcare is an approach in which professionals from diverse specialties collaborate to provide comprehensive services. An integrated model amalgamates disparate healthcare delivery frameworks to enhance service quality and patient outcomes. Community Health Workers (CHWs), often sharing socioeconomic and cultural similarities with their communities, bridge gaps in service provision and facilitate access to isolated or underserved groups.

The WHO defines community health workers as individuals who natively reside in their communities, possess less formal education than professional health workers, yet hold significant potential to extend healthcare services in a culturally sensitive manner (Idriss-Wheeler et al., 2024). Historically engaged predominantly in community mobilization and health promotion, their roles have progressively encompassed more complex preventive and clinical functions. CHWs constitute a pivotal element of the global health workforce, mitigating Universal Health Coverage (UHC) deficits by reaching vulnerable populations. The projected shortfall of over 18 million health workers by 2030, particularly acute in Africa and Southeast Asia, is exacerbated by climate change, migration, food insecurity, conflicts, infectious disease outbreaks, and entrenched inequalities that collectively undermine health systems during emergencies.

Viable, localized, and sustainable solutions that effectively connect hard-to-reach communities with formal health systems are imperative. Nurses, representing the largest cadre of healthcare workers, are uniquely positioned to lead the development, management, and evaluation of programmes involving paraprofessionals such as CHWs (Macdonald De Jong, 2015). Their cultural and linguistic affinities with certain populations, alongside intimate knowledge of community resources, render them instrumental in advancing health outcomes (Macdonald De Jong, 2015). Investigating team dynamics and perceptions of emerging care models through qualitative methodologies like interviews and focus groups yields rich insights and facilitates the critical communication necessary for integrating CHWs into healthcare teams.

INNOVATIVE FUNDING MODELS FOR INTEGRATED CARE

A significant obstacle to implementing an integrated model is the absence of appropriate funding arrangements to ensure economic viability. The development and operation of a multidisciplinary healthcare service have economic consequences that underscore the need for innovative funding models capable of sustaining integrated services while maintaining high quality and positive patient experiences. Research conducted at the primary and allied healthcare level demonstrates that enhancing funding models and adopting supportive policies can foster greater interprofessional collaboration and integration, thereby improving the quality, safety, and long-term sustainability of the healthcare system through the reduction of inefficiencies and inequalities (Archer et al., 2022). The diverse funding mechanisms embodied within integrated funding pools encompass: thematic, allocated, capped, block, bundled, lead provider, outcome-based, and partial integration models. In this context, funding allocation and unit of payment represent pivotal policy instruments available to governments and regulatory agencies for managing agency relationships and shaping the behaviour of integrated care providers (Mason et al., 2015). The pervasive nature of agency relationships in the healthcare sector necessitates aligning the incentives of providers with those of patients and funders; within integrated health and social care systems, multiple providers collectively define benefits and determine requisite effort and

expenditure. Misaligned social care can adversely affect overall costs and outcomes. Integrated funding schemes enhance access by ensuring service supply aligns with client needs, promote community-based care to prevent health deterioration, and support rehabilitation. Tailored community care packages may reduce unplanned hospital admissions; although increased expenditure in community settings may elevate upfront costs, it can lower total expenses by diminishing reliance on hospital and residential care. When facilitating coordinated care, integrated funds enable timely discharge, support independent living, and improve patient experience. The interdependence of provider productivity and its influence on health and social care costs underscores the critical role of integrated funding models in the successful implementation of multidisciplinary approaches.

CONCLUSION

Multidisciplinary healthcare has gained considerable attention and is considered a key strategy for enhancing the quality of healthcare services and improving patient outcomes. Diverse professional knowledge is necessary to integrate various knowledge domains, and different professional perspectives foster creativity and innovation for effective healthcare (E. Hastings et al., 2016). Exclusively disciplinary knowledge is insufficient in healthcare delivery since the practical nature of healthcare requires handson experience obtained through multidisciplinary hospital training, which enhances self-efficacy (Isobel Keeling et al., 2018). The social nature of healthcare provision motivates disciplines to work beyond their limits due to social commitments.

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