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THE QUALITY AND SAFETY OF HEALTHCARE IN THE FUTURE

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Introduction

A Health Care Organization (HCO) is inherently a complicated entity due to the intangible nature of its services and the diversity of its professional staff. Quality management in healthcare is an essential necessity within the health sector. Principles of quality have consistently existed in healthcare. Nonetheless, quality is not a tangible attribute of a service. The terminology "Health Care Service" instead of "Medical Care" delineates the domain and establishes it as a subject for evaluation, oversight, and enhancement. A high-quality healthcare system is "accessible, appropriate, available, affordable, effective, efficient, integrated, safe, and centered on the patient." Professionals in allied health services, dentistry, midwifery, obstetrics, medicine, nursing, optometry, pharmacy, psychology, and other healthcare disciplines deliver health care. Quality management in healthcare is an expansive notion. It was previously seen as instructing healthcare staff on their actions. Nonetheless, its present connotation is to oversee the care process. It pertains to perceiving organizational functions as a disordered array of procedures and processes that can be tackled both separately and collectively. Although numerous models have been suggested, Donabedian's triad of structure, method, and outcome continues to underpin contemporary quality evaluation.

Quality management has become increasingly imperative due to the revised definition of quality, which encompasses patient happiness as a service result. The caliber of services offered to patients is paramount. The conventional perspective on quality control emphasized fault detection, but the contemporary approach prioritizes defect prevention, ongoing process enhancement, and an outcome-oriented system informed by patient demands. Consequently, an immediate necessity exists to implement a paradigm shift in the quality of health care delivery. The authorities must proactively engage in quality assurance. At now, quality is receiving greater attention in the medical sector compared to associated sectors such as dentistry and nursing, particularly in developing nations.

Keywords: Future, Healthcare, Quality, Safety

Definitions of healthcare quality

Quality healthcare is characterized by numerous formal definitions. Medical quality is defined in three prevalent ways: the degree to which healthcare services enhance desired health outcomes for individuals and patient populations. To achieve this, healthcare must be patient-centered, secure, effective, prompt, efficient, and equitable (Hanefeld et al., 2017).

The degree to which healthcare services enhance the probability of achieving targeted health outcomes and align with professional expertise (Institute of Medicine, 2001).
Current information indicates that the extent of treatment delivered enhances the patient's likelihood of achieving favorable outcomes while reducing the probability of adverse effects (Busse et al., 2019).

All definitions underscore the connection between individual and population health, the significance of advancing scientific knowledge and technological expertise, the aspiration to enhance outcomes, and the value of the patient-provider relationship and collaborative decision-making.

IS and improvement science

Professionals, leaders, and decision-makers globally are grappling with the integration of swiftly evolving scientific knowledge, promoting the utilization of high-value clinical procedures, technologies, and organizational models, while also seeking to eliminate the use of practices that lack value or relevance (Bauer and Kirchner, 2020; Leppin et al., 2019). All of these projects seek to deliver optimal healthcare to individuals and communities alike. This developing field of study aimed at enhancing healthcare practices is referred to as improvement science, dissemination and implementation research, information transfer, and knowledge translation (KT) (Check et al., 2020; Granger, 2018).

Historically, initiatives aimed at enhancing patient safety and care quality have predominantly concentrated on detecting and addressing errors, refining particular dimensions of care quality (e.g., medication reconciliation), and diminishing unwarranted discrepancies in patient outcomes (e.g., diabetes management) (MacKay et al., 2020). Consequently, improvement science has emphasized measurement, feedback to decision-makers, and organizational change to tackle a distinctly defined clinical issue or quality deficiency. Local initiatives to enhance quality are prevalent, however their efficacy is often unexamined. Moreover, they could not be disseminated, and adherence to the Standards for Quality Improvement Reporting Excellence (SQUIRE) guidelines was not consistently maintained (Goodman et al., 2016).

Implementation Science offers theoretical frameworks and methodologies for: (a) identifying obstacles and enablers to implementation; (b) comprehending factors that affect professional and organizational conduct; and (c) choosing strategies to enhance implementation efficacy. Eccles and Mittman (2006) characterize implementation science (IS) as "the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine care delivery" (Bauer et al., 2015; Lasinski et al., 2021; Rapport et al., 2018). Knowledge Transfer is an essential element of Information Systems. Grimshaw et al. (2012) characterize this as "ensuring that stakeholders are cognizant of and utilize research findings to guide their health and healthcare decision-making" (Grimshaw et al., 2012). This definition acknowledges various stakeholders or target audiences, including policymakers, professionals (such as clinical practitioners), consumers (such as patients and unpaid caregivers), and researchers. KT underscores strategies for knowledge synthesis, awareness enhancement, and information dissemination tailored for busy practitioners, including toolkits and clinical decision support (CDS), alongside approaches for modifying practitioner behavior, such as academic detailing and communities of practice.

It is evident that enhancing clinician access to and utilization of research will be obstructed unless systemic and organizational hurdles are concurrently eliminated (Bowen et al., 2009; Ellen et al., 2014). Information Systems models and theories offer unique methodological frameworks for developing and evaluating a multi-level strategy for the acceptance, scaling, and sustainability of evidence-based practice change (Nilsen, 2015). Information Systems techniques are most effective for recognizing and addressing organizational and systemic facilitators and impediments (Moullin et al., 2020). IS additionally provides measurement science to evaluate implementation outcomes and patient-centered outcomes (Allen et al., 2020).

Information Systems often utilize theoretical frameworks to elucidate the factors contributing to the success or failure of implementations. Over 100 distinct IS models, frameworks, and theories have been presented, with various narrative reviews analyzing and contrasting them (Nilsen, 2015; Villalobos Dintrans et al., 2019). The predominant IS theory differentiates among organizational, systemic, and implementation issues. Implementation theories assist practitioners, teams, and organizations in evaluating barriers and facilitators, identifying stakeholders, and selecting implementation strategies and results (Moullin et al., 2020). Certain IS frameworks are particularly advantageous for specific implementation contexts, such as sustainability, whilst others facilitate integration and communication across disciplinary boundaries (Harrison and Shortell, 2020; Mitchell et al., 2010).

IS enhances and expands our conventional conceptual framework of outcomes research by detailing the connection between evidence-based therapies and enhanced outcomes across various patient populations and contexts, many of which are also subject to variable contextual factors. Proctor et al. classify outcomes measurement into three distinct groups. The implementation results include acceptability, adoption, feasibility, penetration or uptake, and sustainability; the service results encompass efficacy, safety, and effectiveness; and the client results involve satisfaction, quality of life, and mortality. Several recent assessments have aggregated the domains and quantitative measurement attributes of the instruments presently accessible for capturing implementation outcomes (Allen et al., 2020; Khadjesari et al., 2020; Lewis et al., 2015). Qualitative approaches are crucial in implementation research as enhancements in practice must be viable and acceptable within the inherently complicated and dynamic real-world conditions. Qualitative and mixed methods research approaches can completely analyze the dynamic implementation context, encompassing institutional structures, stakeholder interests and interactions, human-technology interactions, and social, political, economic, and legal conditions.

Information systems and technology

Future KT policies underpinned by technology will be important in attaining enhanced quality and safety standards. Examples of such technologies include interactions among patients, physicians, and other healthcare workers, as well as electronic databases, emails, text messages, electronic prompts and reminders, and web-based training and dissemination. These approaches can be employed to exert force in either a pushing or pulling manner. Push methods utilize venues like social media to enhance awareness by distributing evidence to targeted groups of clinicians, patients, and policymakers. Pull strategies, such as webinars designed to enhance research literacy, seek to augment the demand for and utilization of evidence among the intended audience (Brown et al., 2020).

Technologies like telemedicine, mobile health, and clinical decision support systems exemplify innovations that can enhance quality and safety. During the COVID-19 pandemic, telemedicine was extensively utilized, especially in outpatient environments. It has the capacity to enhance patient-provider interaction and accessibility, especially in underserved and rural regions (Batsis et al., 2019). Patient portals, wearables, and other patient-oriented applications, along with mobile health technology, facilitate the dissemination of information to patients and informal caregivers, thereby enhancing adherence, promoting healthy behaviors, and fostering self-management (Llorens-Vernet and Miró, 2020; Lu et al., 2020). Chapman et al. (2020), Obro et al. (2020), Abbasgholizadeh Rahimi et al. (2017). Ultimately, CDS possesses the capacity to enhance the quality and safety of healthcare. A meta-analysis of controlled trials assessing the impact of Clinical Decision Support (CDS) on quality revealed that it enhances adherence to guidelines, diminishes ordering errors for diagnostic tests and medications, and promotes the cessation of harmful or ineffective care practices (Kwan et al., 2020).

Evidentiary sources for quality whole person care

Active collaboration among interprofessional teams, quality improvement programs, and integrated implementation scientists is essential for pinpointing deficiencies in quality and safety, establishing crucial metrics and data for regular presentation to stakeholders, and facilitating the advancement of both quality improvement initiatives and implementation research. Figure 1 illustrates a potential framework of evidence-based data sources necessary for person-centered, evidence-based therapeutic decision-making. Exogenous evidence is derived from published studies, evidence-based recommendations, benchmarking with other healthcare systems, and patient registries. Endogenous evidence is obtainable via population data within the health system, organizational quality monitoring systems, targeted implementation and practice enhancement programs, and public health statistics. Patient electronic health records and quality indicators regularly communicated to designated physicians and teams offer contextual information. The implementation of this framework can enhance quality and safety initiatives while directing improvement science endeavors across all organizational tiers.

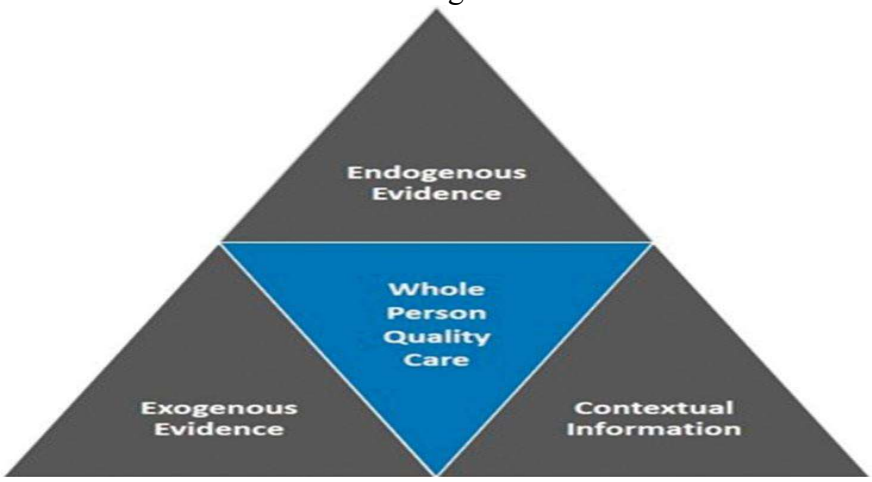

Figure 1. Evidentiary sources for quality care.

New and emerging approaches to improving quality and safety

In the past decade, healthcare executives have implemented high reliability organization (HRO) concepts to minimize practice variability and eradicate safety risks (Cochrane et al., 2017). The

ideas of High Reliability Organizations (HRO) have been shaped by the nuclear and aviation sectors. In the realm of error and injury prevention, several sectors, notably healthcare, depend on human intervention rather than technological solutions. They may also exhibit unpredictability and dynamism. HRO principles stress the identification and rectification of issues and operational failures, the recognition and prevention of errors and near-misses, and the enhancement of situational awareness among all personnel engaged in processes with potential harm. High-Reliability Organization (HRO)-oriented health systems underscore the necessity of comprehending the interrelations among system components to avert errors, while prioritizing frontline personnel as authorities in decision-making and problem-solving (Davenport et al., 2018). There is increasing evidence that frontline healthcare professionals comprehend both macro and microsystem concerns. Consequently, they are adept at managing minor operational challenges, thereby minimizing errors and near-misses in clinical practice environments (Stevens et al., 2017).

Future empirical research must measure and assess ways for engaging a varied array of stakeholders across all tiers of the healthcare system (Wensing and Grol, 2019). Front-line staff often encounter time limitations. A possible answer is to augment the number of researchers integrated into health systems (Cheetham et al., 2018; Gould et al., 2020; Robinson et al., 2017). Nurse researchers are ideally suited to fulfill this function owing to their proficiency in clinical care delivery and understanding of improvement science (Carter et al., 2020). A notable benefit of integrating nurse researchers is their enhanced capacity to cultivate relationships and establish partnerships with all stakeholders, which are essential for effectively leading quality improvement and implementation activities (Vindrola-Padros et al., 2017).

Capacity building

In the past twenty years, substantial advancements have been made in the scientific infrastructure for healthcare improvement research (Davis and D'Lima, 2020). Substantial financial support has been allocated by prominent sponsors, including the National Institutes of Health in the United States and the United Kingdom. Numerous annual scientific conferences on health enhancement and implementation science are hosted by the Society for Implementation Research Collaboration, with specific journals in this domain, including BMJ Quality and Safety and Implementation Science (SIRC). Global reporting standards for implementation studies (StaRI) have been created (Pinnock et al., 2017). Additionally, there exist other options for IS and quality improvement training, including those provided by the NIH (Boehm et al., 2020). These tools can aid nurse researchers in directing translational research teams focused on applying the best available evidence and enhancing the standard of care.

Conclusion

To enhance the application of novel research discoveries, bridge disparities in care quality and safety, and elevate health outcomes, it is imperative to augment the integration of Quality Improvement (QI) initiatives with Information Systems (IS) methodologies (theories, methods, and results). Thus far, many efforts in Quality Improvement have been fragmented, failing to properly leverage Information Systems theory and methodologies. Quality Improvement programs are adept in identifying deficiencies in quality and safety, as well as generating concepts for implementation studies. Moreover, IS offers instruments for delineating the immediate and remote effects of practice change on various outcomes, emphasizing success factors (facilitators or enablers) for the implementation and sustainability of practice change. Quality Improvement (QI) and Improvement Science (IS) are synergistic approaches for the ongoing enhancement of quality

and safety in healthcare environments. Collectively, they enhance intention, effort, and effective execution to offer astute counsel to the field of improvement science.

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