


Chapter 20

Predictive Analytics to Support Clinical Decision Making: Opportunities and Directions

Nilmini Wickramasinghe

 <https://orcid.org/0000-0002-1314-8843>

Swinburne University of Technology, Australia & Epworth HealthCare, Australia

ABSTRACT

A key activity in healthcare is clinical decision making. This decision making typically has to be made rapidly and often without complete information. Moreover, the consequences of these decisions could be far reaching including the difference between life or death. Today analytics can assist in clinical decision making as the following chapter highlights. However, to gain the most from any type of analytics, it is first necessary to fully understand the dynamics around the clinical decision making process.

CRITICAL ATTRIBUTES OF CLINICAL DECISION-MAKING PROCESS

Clinical Decision Making (CDM) is a central aspect of healthcare in the present day (Stinson, 2017). While making patient care decisions has always been connected to clinical staff, it is gradually becoming a major facet in the role of radical caregivers; now present in the healthcare sector (Smith et al., 2008). The general aim of clinical decision making is to offer better-quality patient care (ibid). Further, it plays a significant role in value-based care that physicians can offer to patients (ibid). While its impacts the overall spectrum of the care team, it is typically encountered with primary medical choices on a daily basis (ibid). According to Stinson (2017), pitiable decision making can result in detrimental happenings and lead to adverse costs for individuals (ibid). In fact, it is projected that about sixty-five percent of the detrimental happenings may possibly have been mitigated had caregivers made improved choices (Smith et al, 2008). Therefore, being aware of the aspects that impact decision-making practice intensifies the probability of offering improved and relaxing patient care (ibid). Clinicians are responsible for their

DOI: 10.4018/978-1-7998-1371-2.ch020

patients, their occupation, and the institution for which they work (ibid). For that reason, it is beneficial that critical tools are involved in clinical decision making (ibid). Given that the decisions that the care team make have such greater consequences; it is prudent to understand critical aspects of clinical decision making as the following sets out to do.

CDM PROCESS

According to Hardy & Smith (2008), many psychologists have come up with numerous interpretations to define clinical decision making. However, Gillette (2010) defines CDM as the reasoning practice of selecting another course of action in offering patient care concerning both clinical judgment and reasoning. This comprises of managing a range of data from diverse sources to come up with critical judgment. In CDM, physicians most precisely evaluate and realize deviancies from a standard medical depiction of healthiness or disease and make a choice in accordance with the information accessible (ibid).

With changes in the delivery of care-services, augmented patient insight, and improved responsibility in physicians' choices, it is crucial to comprehend in what ways caregivers come up with medical choices and the key aspects that impact them (Hardy and Smith, 2008). Individuals within acute care settings have worse conditions that require more experienced clinical experts who will offer the utmost degrees of value-based care (ibid). This is predominantly accurate in acute precaution (ibid). In this environmental setting, choices are made with urgency and more frequently (Smith et al, 2008). An interruption in the decision making practice with such a setting can be a problem of survival or death (ibid). According to Stinson (2017), there are several key aspects of clinical decision making which influence the entire decision-making process. These include the experience, environment, education, and intuitions (ibid). Moreover, the experience aspect is vital when considering a CDM practice (ibid). It continues to be a critical provider even when determining medical choices (ibid).

Clinical decision making is an intricate practice that obliges nurses to be experienced and to have access to suitable data sources and work in a supportive environmental setting (ibid). As the health practitioner's occupational role expands, they turn out to be accountable for a wider array of medical decisions (Kozlowski et al, 2017). Clinical decisions necessitate that physicians ought to be experienced and well informed in pertinent facets of nursing (ibid). Consequently, clinical decision making becomes less complicated and more manageable (ibid). Physicians have to decide what the issue is, what data to collect, how to handle the concern, if the therapeutic is efficient or whether the patient requires to have a clinical review for further examination and cure (Stinson, 2017).

INTERNAL ASPECTS

Several decision making studies in the healthcare sector have recognized that aspects of patients impact CDM, with specific reference to decision making biases (ibid). Aspects of the practitioners (decision makers) such as their degree of expertise and experiences, intuition capabilities, and confidence also impact their decision making (ibid). Most of the clinicians have a number of personal qualities as well as abilities in CDM that enhances them to make efficient decisions in association with the task, and also putting into account the framework of the practice (ibid). When physicians poses a higher self-efficacy, they experience a greater willingness and confidence in making the right decisions (ibid).

9 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/predictive-analytics-to-support-clinical-decision-making/244711

Related Content

Interpreting Health and Wellness Information

Lena Mamykina and Elizabeth Mynatt (2010). *Health Information Systems: Concepts, Methodologies, Tools, and Applications* (pp. 510-526).

www.irma-international.org/chapter/interpreting-health-wellness-information/49883

Implementation of a Visual Telerehabilitation Protocol During the COVID-19 Pandemic: Patient Outcomes in an Italian Case Study

Giulia Perasso, Chiara Baghino, Elisabetta Capris, Elena Cocchi, Silvia Dini, Valentina Facchini, Antonella Panizzia and Valentina Salvagno (2022). *Building Resilient Healthcare Systems With ICTs* (pp. 1-24).

www.irma-international.org/chapter/implementation-of-a-visual-telerehabilitation-protocol-during-the-covid-19-pandemic/298396

An Efficient 3D Segmentation Method for Spinal Canal Applied to CT Volume Sequence Data

S. Zimeras (2012). *International Journal of Reliable and Quality E-Healthcare* (pp. 33-42).

www.irma-international.org/article/efficient-segmentation-method-spinal-canal/62272

'To Be or Not to Be': Altruism Needed for Our Progeny: A Commentary on "Reforming Medical Education- Some Eccentric Thinking"

Ranabir Pal (2013). *International Journal of User-Driven Healthcare* (pp. 71-73).

www.irma-international.org/article/to-be-or-not-to-be-altruism-needed-for-our-progeny/103921

Cascading Workflow of Healthcare Services: Transforming COPD Related Clinical Narratives from Discharge Summaries Into a Standardized Order Set

Phillip Osial, Arnold Kim and Kalle Kauranen (2019). *International Journal of Extreme Automation and Connectivity in Healthcare* (pp. 79-95).

www.irma-international.org/article/cascading-workflow-of-healthcare-services/219216