

Chapter 3: Artificial Intelligence in Healthcare: Principles, Applications, and Clinical Implications

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Abstract:

Healthcare is a fundamental part of individual well-being, maintaining social order and developing economies. The delivery of organized preventive, diagnostic, curative and supportive services make up a healthcare system that includes primary, secondary and tertiary levels. Healthcare has developed from traditional, cultural-based forms of service delivery into an integrated, multi-disciplinary practice including medicine, nursing, behavioral science and public health. Contemporary healthcare systems are becoming patient-centered, relying on technology and delivering care through settings beyond hospitals (including community, telehealth and digital health platforms). New technologies including artificial intelligence, personalized or "precision" medicine and genomics will continue to transform the methods used for diagnosing, treating and accessing healthcare. However, despite significant advances, healthcare continues to be both an individual right and a collective obligation. Creating sustainable, fair and effective systems of healthcare delivery necessitates reconciling technological advancement with compassion; the need for efficient use of resources with the need for equitable access to those resources; and technological advancements with human dignity.

Keywords: *Multidisciplinary Framework, Patient-Centred care, Digital Health and Telemedicine, Behavioural Changes, Health Equity and Accessibility.*

1. Introduction

There are many global healthcare issues that may lead to a disruption of providing quality, equitable, and sustainable care. These factors affecting the system arise from multiple places and include the rising elderly population with chronic illness worldwide, increased demands by patients, exponential increase