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DIGITAL HEALTH & TECHNOLOGY:

Implementation of Artificial Intelligence in Allied Health

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“I predict in the not-too-distant future, perhaps in less than 20 years, AI will not be just a tool but it will become a critical infrastructure, much like electricity did when it became widely adopted more than 100 years ago“

Jensen Huang

Co-Founder & CEO, NVIDIA in London Tech Week 2025

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TRADITIONAL HEALTH SYSTEM
EARLY 20TH CENTURY

Advancement in Robotic,Imaging, Medicine, Equipment & etc.

MODERN HEALTH SYSTEM
LATE 20TH CENTURY

The medical and health industry has experienced **tremendous transformation** in the 20th century due to the rapid **advancement in health technologies**

Advancement in Vaccine, Clinical Research, Cell Culture, Bioreactor & etc.

IMPACTS

- ACCESSIBILITY
- AFFORDABILITY
- EQUITY
- LONGEVITY
- QUALITY OF LIFE
- ACCURATE DIAGNOSTIC
- TREATMENT OUTCOMES
- PREVENTIVE CARE

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Exciting Frontiers in Medical Innovation

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ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

Market Size:
USD 25 bil (2024) to USD 190 bil (2030)

Disrupted Areas:
Diagnostics, Drug Discovery & Development, Virtual Assistant, Patient Management

ADVANCED ROBOTICS & MINIMALLY INVASIVE INTERVENTIONS

Market Size:
USD 40 bil (2024) to USD 80 bil (2030)

Disrupted Areas:
Complex Surgical Procedures for Orthopedic, Vascular, Neurological, Cardiothoracic, Urological, & Gynecological

PRECISION MEDICINE & GENE THERAPY

Market Size:
USD 110 bil (2024) to USD 350 bil (2030)

Disrupted Areas:
Oncology, Rare Diseases, Genetic Diseases

REGENERATIVE MEDICINE

Market Size:
USD 40 bil (2024) to USD 100 bil (2040)

Disrupted Areas:
Cardiovascular Diseases, Neurological Disorders, Cancer, Musculoskeletal Disorders, and Aging

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AI as Key Revolutionary Driving Tool in Healthcare

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AI in administrative efficiency can reduce healthcare **administrative costs by 30%** and **turnaround time for administrative processes by up to 50%**

AI-powered medical diagnostics enhance **diagnostic accuracy by up to 40%** and **reduce diagnostic time by an average of 82%**

AI in automation **leads to a 40% reduction in overall documentation time , cut patient wait times by up to 30%** and **increased operating room utilisation by about 25%**

AI-enabled patient engagement tools have been associated with a **45% decrease in mortality rates**

It has been consistently demonstrated that **ROI from the adoption of AI can be achieved within 12 - 24 months**

Source: Accenture (AI for Healthcare, 2020 and 2024)

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Examples of AI Implementation in Allied Health Applications

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Physiotherapy

Jintronix - This telerehabilitation platform leverages AI, motion sensors, and a camera to track and analyse a patient's movements during exercises, providing real-time feedback for correct performance.

Rehabilitation

MOTUS - A system that uses AI and wearable sensors to track the biomechanics of a patient's movement. It helps physical therapists analyse gait and identify risk factors for injury

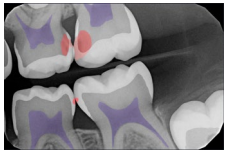
Audiology

Audicos OMNI AI Hearing Aids - AI-powered hearing aids use machine learning to adapt to different sound environments in real-time.

Dietetics

Heidi Health - An ambient AI scribe tool that automates clinical documentation for dietitians during patient consultations.

Dental Hygiene



Overjet - An AI platform that analyses dental X-rays to detect caries and measure bone levels with high accuracy, providing visual overlays to help dental hygienists quickly identify areas of concern

Respiratory Therapy

VentAI - An AI-based system that helps optimise mechanical ventilation settings for critically ill patients

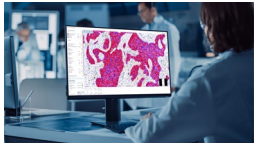
Podiatry

Remedy Podiatry AI - AI-driven foot scanning and gait analysis systems that create personalized orthotic designs

Radiology Technology

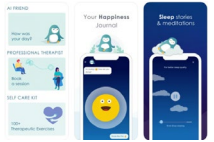
AIDOC- An AI platform that analyses medical images, such as CT scans and X-rays, to detect critical findings and alert radiologists and technologists to potential issues.

Medical Laboratory Technology



AIFORIA- AI models that automate the analysis of digital pathology slides. They can identify and quantify specific cell types, such as cancer cells.

Mental Health Counselling



Wysa - A clinically validated AI mental health chatbot that uses cognitive behavioral therapy (CBT) techniques and mindfulness

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Challenges for AI Adoption

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TECHNOLOGY & INFRASTRUCTURE

AI Performance & Algorithm Bias

Data Security, Privacy & Interoperability

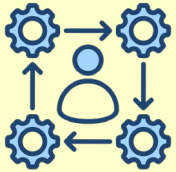
COST & ETHICAL DILEMMAS

High Upfront Implementation Cost

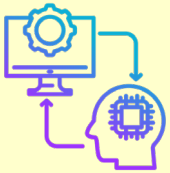
Accountability, Trust & Ethical Issues

Challenges

WORKFLOW INTEGRATION



Integration with Current Clinical Workflow



Change in Roles & Responsibilities

PEOPLE

Lack of AI Knowledge & Skills

Job Displacement Fears

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Key Considerations in Adopting AI Solutions

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Performance on Local Demographics (No Algorithm Bias)

AI developed based on external datasets may not be accurate for local deployment due to unique local demographics.

Any AI technologies developed from external datasets shall be tested on local population first before it can be deployed system-wide.

Transparency, Explainability & Accountability

Both allied health professionals and patients need to understand how an AI system arrive at its recommendation.

It is essential to clarify who is responsible when an AI system makes an error (developer, the healthcare provider, or the users?)

Workflow Integration, Training, Adoption & Trust

AI solutions should be designed to streamline and improve, not complicate, existing processes.

Allied health professionals need adequate training and education to understand how AI works, its limitations, and how to use it safely and effectively.

Justifiable Values & Return on Investment (ROI)

It is important to have a clear plan for how the AI solution will deliver a positive return on investment.

This could be through increased efficiency, improved patient outcomes, reduced wait times, or a more efficient allocation of resources (which need to be justified).

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Ideas to Impact

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Let’s Connect!

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