PMAC PRINCE MAHIDOL AWARD CONFERENCE 2024

PL 1

ACHIEVING POSITIVE CONNECTIONS THROUGH TECHNOLOGICAL INNOVATIONS FOR HEALTHIER POPULATIONS, STRENGTHENED HEALTH SYSTEMS AND UNIVERSAL HEALTH COVERAGE

| BACKGROUND

The fourth industrial revolution has arrived[1].

The world is transforming at a rapid pace with innovative technologies, impacting the way we live. The health sector is no exception and is in fact an active participant in the changes that could herald a new era for provision of health care. Novel technologies such as Artificial Intelligence (AI) and next generation sequencing offer an opportunity to reimagine provision of healthcare[2],[3]. Telehealth, which had been practiced in one form or another, received a boost during the COVID-19 pandemic, when social distancing measures meant a dramatic reduction in mobility and availability of technological platforms facilitated its use at scale and at a reduced cost[4]. Strengthening information systems and better data protection regimes has also created a greater space for use of Big Data analytics that can improve patient experiences and provision of care[5]. Mobile health has the potential to revolutionise public health and also offers opportunities to increase access to health services and encourage self-management of health, thus empowering people[6]. Social media is a powerful tool and can not only increase awareness on issues related to health among the general public but also create a movement for better health and improve accountability[7]. These technologies can be employed across the spectrum of healthcare, prevention, diagnostics and treatment. Technology's promise to increase access and reduce inequities in health speaks to the overarching goal of the global health community to achieve Universal Health Coverage (UHC) has been enshrined in the Sustainable Development Goals (SDGs). Recent analyses show that the world is off-track in achieving its goal by 2030 and that there is a need to rethink approaches which can be enabled by innovative technologies[8].

Yet, barriers remain in harnessing the potential that these technologies have to offer and risks that must be recognised when embracing them. The "Coming Wave" of technology could not only change the way we operate but, also threaten our existence[9]. There are concerns around who uses these technologies and for what[10]. Many of the world's poorest people lack access to technologies such as mobile phones and the internet. Data privacy and security remains a matter of concern and the implementation of interoperable systems is still a challenge. There is a risk of these technologies exacerbating existing inequities rather than diminishing them. Bias in AI algorithms could perpetuate biases and limit access to care. This is the case, both within and across countries, with low-and-middle income countries facing unique challenges on how to develop and utilise these emerging technologies effectively. There is a need for technology transfer from high income to middle and low-income countries, as was amply demonstrated in the development and distribution of COVID-19 vaccines. Acceptability and applicability of novel technologies among users also needs to be considered closely.

The world is at a turning point and there is an urgent need for an accelerated response to reach the goal of achieving UHC within the expected timeframe, and having healthier populations through improved public health by embracing technological innovations, which has been identified as one of the mega-trends impacting the health sector. It will be important to consider how to safeguard individual rights and privacy, while harnessing the benefits of shared data, diagnostic algorithms and computational insights. The global health community has begun discussions on how to better govern AI and this is a welcome step[11]. This field is being shaped by other mega-trends on planetary health, security and demographics, including the role of gender, which will be relevant considerations in forging the path ahead. The Prince Mahidol Award Conference (PMAC) provides a unique platform for global health practitioners to debate and discuss this topic and articulate potential areas for collaboration in the future.

References

[1] The term refers to the fundamental change in the way the world operates, driven by technological advancements. Fourth Industrial Revolution | World Economic Forum (weforum.org)

[2] Top 10 health care innovations | Deloitte US

[3] WEF_Top_10_Emerging_Technologies_of_2023.pdf (weforum.org)

[4] Implementing telemedicine services during COVID-19 : guiding principles and considerations for a stepwise approach (who.int) ; The State of Telehealth Before and After the COVID-19 Pandemic - PMC (nih.gov)

[5] The use of Big Data Analytics in healthcare - PMC (nih.gov)

[6] mHealth (who.int) ; Mobile Health: making the leap to research and clinics | npj Digital Medicine (nature.com)

[7] The role of media in supporting health (who.int)

[8] Tracking universal health coverage 2023 global monitoring report (who.int)

[9] The Coming Wave by Mustafa Suleyman review – a tech tsunami | Science and nature books | The Guardian

[10] MIT Solve | Ethical Innovation: A Conversation Between Yuval Noah Harari and Serhii Plokhy | Ethical Innovation with Yuval Harari & Serhii Plokhy

[11] AI Advisory Body | United Nations

| OBJECTIVES

Objectives

To harness innovative technologies to improve public health and achieve Universal Health Coverage from a health systems perspective.

Specific objectives:

- To understand the trends in technology and their health impact on societies from a health systems perspective.
- To identify challenges and devise potential solutions to harness these technologies effectively to achieve Universal Health Coverage and the Sustainable Development Goals;
- To identify areas for collaboration across and outside the health sector to achieve Universal Health Coverage and the Sustainable Development Goals Topics for discussion.

Key issues

In Sub-theme 1, the role of health technologies will be organised, through parallel sessions around the building blocks of the health system, centred around innovations to achieve UHC and the SDGs[1]. The building blocks of the health systems have been adapted to showcase issues of **health financing, health workforce and people, access to health technologies**; **innovations in the use of health technologies from around the world;** and **service delivery, health information systems and data.** The theme of leadership and governance will be a cross-cutting one and will be explored further in depth in Sub-theme 3. **Real-world examples, demonstrating both positive and negative consequences,** will be showcased to encourage learning and sharing among practitioners**.** In addition, issues related to **AI, planetary health, security and gender** will feature across the parallel sessions.

The term “technology” for the purpose of this sub-theme is conceived as including the any application of scientific knowledge for practical purposes that is dynamic in nature[2]. Additionally, the aim of the sub-theme would be to highlight those technologies, within and outside the health system, that are emerging, novel or disruptive in nature and impact human health. It encompasses digital health innovations, innovations in biotechnology, public health innovations and social innovations, within the context of AI. Digital health technologies can be categorised those used for persons, providers, health management and support personnel and data services as well as outlining services and application types (point of service, registries, etc).[3]

The plenary session (PL1) will frame the above issues and situate them within the context of improved public health, UHC and the SDGs. It will examine the imperative for the global health community to proactively engage on innovative technologies for achieving UHC and will seek to involve diverse speakers on the topic, taking a health systems perspective. A few of the key points to be discussed are:

The world is at a turning point: what are the implications for public health and achieving UHC?

- Current state and use of technology for tackling health challenges
- Opportunities for utilising innovative technologies for health to achieve UHC
- Challenges in terms of ethics, regulation and data security
- Implications for low-and-middle income countries
- Implications for collaborations across sectors and at the global level

Expected outcomes

- Increased understanding of key issues on the role of technologies and impact on health systems, public health and Universal Health Coverage;
- Frame discussion for Sub-theme 1 sessions.

References

[1] Monitoring the Bulding Blocks of Health Systems: A Handbook of Indicators and their Measurement Strategies. Link: 9789241564052-eng.pdf (who.int)

[2] Technology: Concepts and Definitions (Chapter 2) - Technology and Global Change (cambridge.org)

[3] Classification of digital interventions, services and applications in health: a shared language to describe the uses of digital technology for health, 2nd ed (who.int)



Moderator

Gabriel Leung

Executive Director, Charities and Community

The Hong Kong Jockey Club Charities Trust
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Gabriel Leung is known for his commitment to improving human capabilities, nurturing impactful innovation and building strong institutions. He is Executive Director (Charities and Community) of The Hong Kong Jockey Club overseeing its Charities Trust, while serving as a governor of The Wellcome Trust – both of which are amongst the largest and most impactful philanthropies globally.

Gabriel's career has straddled academe, public service and philanthropy. From 2013 to 2022, he was the longest-serving Dean of Medicine and inaugural Helen and Francis Zimmern Professor in Population Health at the University of Hong Kong (HKU). Formerly, he was Hong Kong's first Under Secretary for Food and Health and fifth Director of the Chief Executive's Office in government.

Gabriel's research defined the epidemiology of three novel viral epidemics, namely SARS in 2003, H7N9 influenza in 2013 and most recently COVID-19. In government, he led Hong Kong's response against the 2009 influenza pandemic. He was founding co-director of HKU's World Health Organization (WHO) Collaborating Centre for Infectious Disease Epidemiology and Control and established the Laboratory of Data Discovery for Health (D24H) at the Hong Kong Science and Technology Park.

Gabriel is a member of the US National Academy of Medicine. He is currently serving as a member of WHO's Strategic Advisory Group of Experts on Immunization (SAGE).