



Innovative medicine and health management: A special session of The Innovation Conference 2024

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Received: August 16, 2024; Accepted: September 2, 2024; Published Online: September 2, 2024; <https://doi.org/10.59717/j.xinn-med.2024.100088>

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Citation: Li T., Huang T., Xiao N., et al., (2024). Innovative medicine and health management: A special session of The Innovation Conference 2024. *The Innovation Medicine* 2(3): 100088.

The Innovation Conference 2024 was held in Shenzhen, China, from July 12 to 14, 2024. Organized by the journal *The Innovation*, this annual event serves as a prestigious gathering for researchers, publishers, investors, and government representatives to explore the latest advancements in science and technology. The primary objective of the conference is to create an open ecosystem that bridges the divide between academia and industry. To facilitate this, the conference adopts an interactive format, encouraging all partici-

pants, regardless of their field, to engage in 50-minute in-depth discussions during each session, initiated by a question posed by the host. This approach has demonstrated its effectiveness in enhancing critical thinking, nurturing creativity, and promoting meaningful collaboration among attendees.¹

At this conference, a special session—Innovative Medicine and Health Management was organized by the journal *The Innovation Medicine*, during which three topics were discussed (Figure 1).

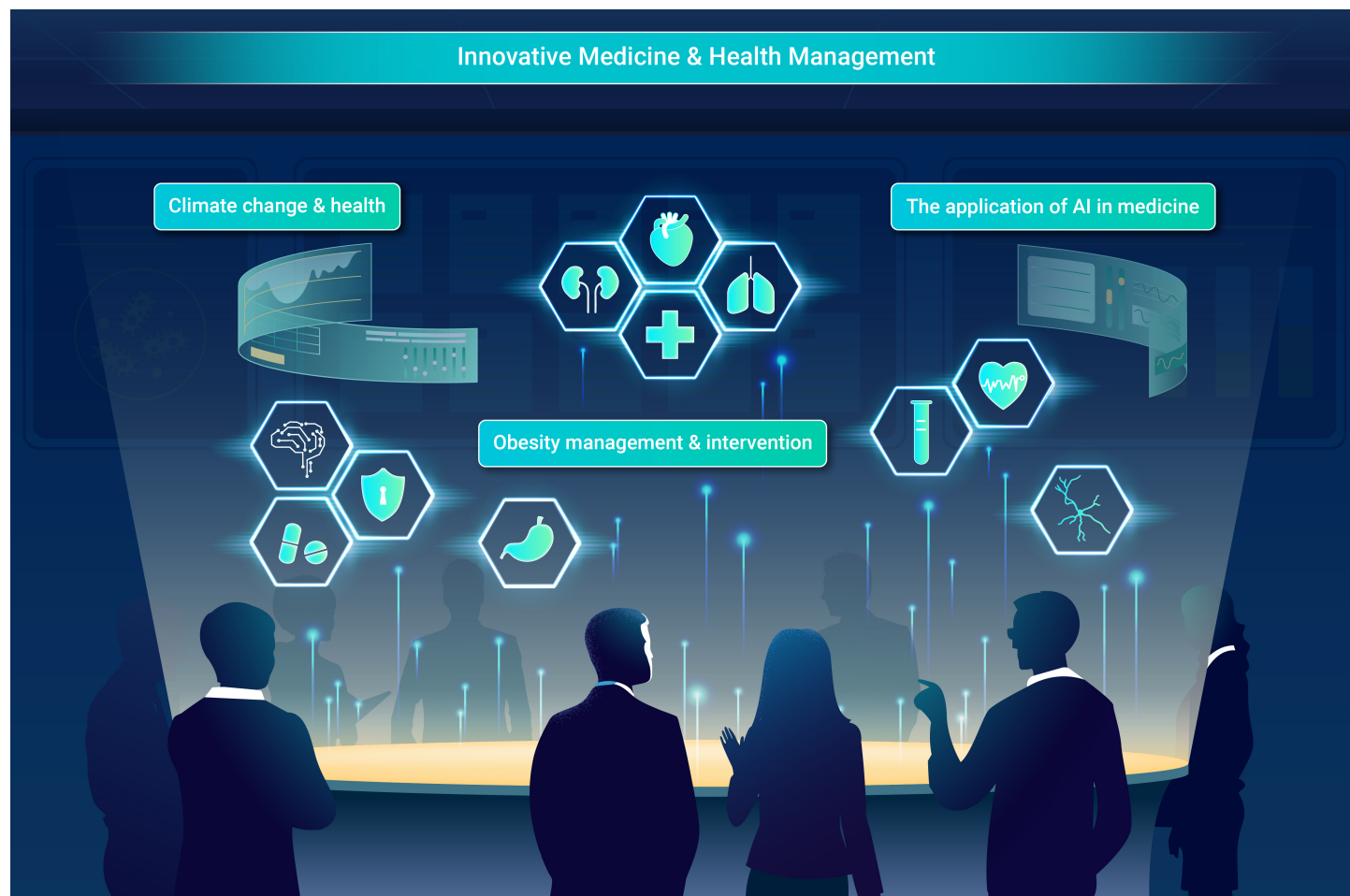


Figure 1. Topics included in the session of Innovative Medicine and Health Management.

TOPIC 1: CLIMATE CHANGE AND HEALTH

The global climate crisis has raised significant concerns regarding its implications for human health.² During a one-hour open discussion, participants engaged in a thorough examination of critical topics, including the

effects of extreme weather on health, the potential health risks associated with rapid future warming, and strategies for mitigating and adapting to climate change through scientific research and policy initiatives. This dialogue provided valuable insights into the future relationship between climate change and health. The repercussions of climate change and

extreme weather events are already extensive, affecting various aspects of human health, such as the spread of infectious diseases, heat-related illnesses, and the well-being of women and children, as well as mental health issues. There is a pressing need for more evidence regarding the complex interactions and mechanisms behind climate-related health effects. Implementing proactive carbon reduction strategies can yield significant health co-benefits; however, the challenges of adaptation must be addressed with urgency. Strengthening collaboration between meteorological and public health agencies is essential. Additionally, integrating health risk prevention into carbon neutrality policies is a crucial consideration. Establishing guidelines for health risk assessment and early warning systems in the context of climate change is vital to support both mitigation and adaptation efforts.

TOPIC 2: THE APPLICATION OF AI IN MEDICINE

Artificial intelligence (AI) has shown significant promise in the realms of disease diagnosis and precision therapy.^{3,4} However, it also raises serious concerns about the potential misuse of patient data and the risk of displacing entry-level medical professionals. Traditional AI models often fall short when it comes to handling the diverse and complex nature of medical big data, resulting in various challenges. Deep neural networks require extensive training datasets and considerable computational power, which can lead to prolonged training times and a tendency to overfit. Additionally, large language models are prone to generating inaccurate outputs, known as hallucinations, which undermines their reliability. To effectively integrate AI models into medical practice, it is essential to enhance their accuracy and dependability. In medical research, the number of features often exceeds the number of samples, and there is frequently a significant amount of missing data. Therefore, it is crucial to develop new statistical methods to tackle the challenges posed by high-dimensional sparse data. Furthermore, retrieval-augmented generation (RAG) may offer a partial solution to the hallucination issues associated with large language models.

TOPIC 3: OBESITY MANAGEMENT AND INTERVENTION

Addressing the obesity crisis requires a collaborative effort from doctors, nutritionists, physiotherapists, scientists, psychologists, healthcare providers, and policymakers. Together, they can tackle the issue from biological, psychological, and socio-economic angles, ensuring comprehensive strategies for diagnosis, treatment, diet, exercise, innovation, mental health, and policy to promote healthy living.

Technological advancements are transforming obesity management with personalized solutions. AI and machine learning predict risks and customize interventions. Genomics aids therapy development through genetic insights. Wearables and health apps track activity and diet, offering feedback. Virtual reality promotes physical activity, and telemedicine expands access to

services. Big data analytics refine public health strategies, improving precision in obesity management.⁵

China's obesity challenge is driven by urbanization, lifestyle shifts, and healthcare gaps. A nuanced approach is crucial, factoring in cultural and economic differences. Educational campaigns should target diverse demographics, and healthcare training must include modern treatments and counseling. Tackling childhood obesity is vital, requiring school programs that encourage healthy eating and exercise. Policy reforms and improved educational efforts are essential to combat obesity. Nowadays, given the serious trend of obesity, the Chinese government has formulated a three-year public health policy for weight management.

CONCLUSION

The advancement of healthcare relies heavily on innovative medicine and health management, which incorporate state-of-the-art technologies and fresh methodologies. The discussions held at this conference encourage collaboration among fundamental researchers, physicians, and healthcare practitioners, aiming to enhance proactive health management strategies, and ultimately resulting in more effective interventions and improved patient outcomes.

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AUTHOR CONTRIBUTIONS

T.L., T.H., and N.X. were the session organizers. J.D. was the session coordinator. All authors drafted the manuscript and approved the final version.

DECLARATION OF INTERESTS

The authors declare no competing interests.