

# Massive Open Online Learning – accelerating knowledge in digital health in the management of children with growth disorders

Paul Dimitri<sup>1</sup>, Luis Fernandez-Luque<sup>2</sup>, Ekaterina Koledova<sup>3</sup>, Merat Bagha<sup>4</sup>, Syed Abdul Shabbir<sup>5</sup>

<sup>1</sup>The Academic Unit of Child Health, Sheffield Children's NHS Foundation Trust, Western Bank, Sheffield, UK; <sup>2</sup>Adhera Health Inc., Palo Alto, CA, USA; <sup>3</sup>Global Medical Affairs Cardiometabolic and Endocrinology, Biopharma, Merck Healthcare KGaA, Darmstadt, Germany; <sup>4</sup>Tiba Medical Inc., Beaverton, OR, USA; <sup>5</sup>Graduate Institute of Biomedical Informatics, Taipei Medical University, Taipei, Taiwan



**GET POSTER**  
Copies of this poster obtained through QR (Quick Response) code are for personal use only and may not be reproduced without written permission of the authors

## CONCLUSIONS

**Digital health**  
Challenges and opportunities in the diagnosis and management of growth disorders

**Research**  
Methodology in digital research, principles of technology development and real-world evidence

Our MOOC provides unlimited online learning on 'Tools to support growth disorders through digital health'

**Collaboration**  
Unmet needs and co-design, co-creation and behavioral change; training important for clinical adoption

**Behavioral support**  
Patient and carer communication, digital patient support and mental wellbeing

## INTRODUCTION

- Massive Open Online Courses (MOOCs), introduced in 2008, are digital and online courses aimed at unlimited participation and open access via the internet as part of distance learning/education.<sup>1</sup>
- Atique et al. designed a MOOC to increase **digital health literacy**, and identified a demand for more training to increase skills/capabilities to determine trustworthy and useful health information.<sup>2</sup>
- Over the last decade, and in light of the COVID-19 pandemic, there has been a substantial increase in the use of **digital health tools to track growth and manage growth disorders** in children.
  - Pediatric endocrinologists acknowledge the usefulness of these tools in clinical decision-making but lack the confidence and skills to use them.

## OBJECTIVE

The MOOC was developed with the following objectives:

- Learn about the **emerging challenges, opportunities and digital health solutions** in the management of growth from the perspectives of caregivers, patients, and healthcare providers based upon previous digital health Advisory Boards.<sup>3</sup>
- Engage in activities that support the understanding and application of **research methods for the evaluation of digital health tools**, including:
  - Basic concepts of privacy.
  - Ethical considerations applicable to the use of digital health tools.
- Gain an understanding on how to **search for and critically appraise additional resources related to digital health**.
- Learn about the process of **co-design and co-creation in the development of digital health tools** for children and young people.
- Gain an understanding of **current digital health tools and future opportunities** to develop new technologies in the evaluation and management of growth disorders.
- Learn about the principles underpinning the development of digital health tools.

## THE MOOC

- The MOOC entitled '**Tools to support growth disorders through digital health**' has been developed to cover 4 weeks of online learning, with two courses running per year, thanks to a collaboration between Taipei Medical University and Merck Healthcare KGaA, Darmstadt, Germany (**Flow Diagram below; Figure 1**).
- Each week, MOOC participants have set objectives, access to online video content delivered by Key Opinion Leaders, interactive quizzes, and access to relevant literature. The MOOC carries CPD certification on completion.

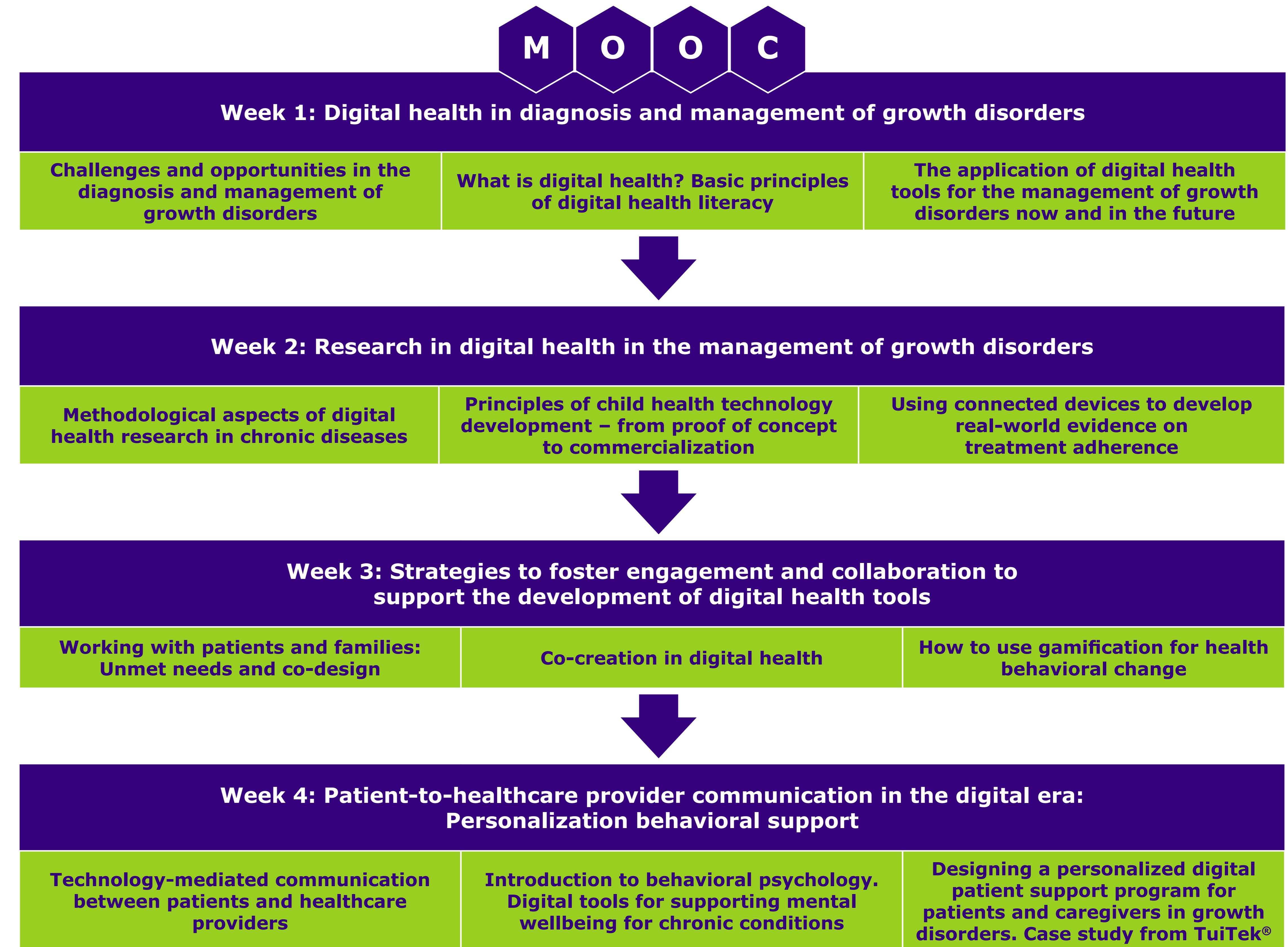
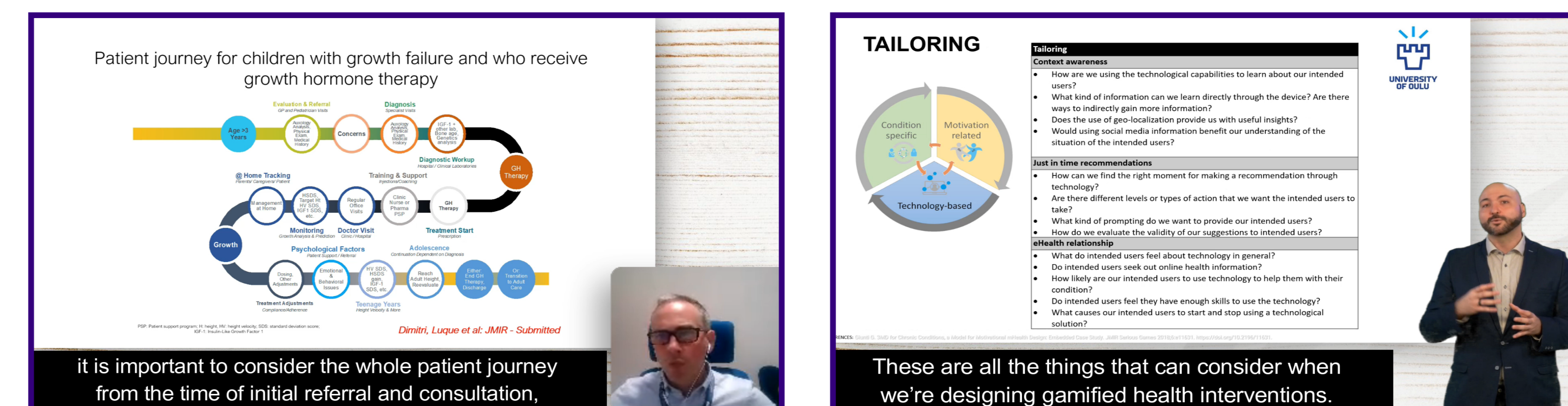


Figure 1. Screen Captures from the MOOC Online Video



**Abbreviations:** CPD, continuing professional development; MOOC, Massive Open Online Courses.

**References:** 1. Siemens G. Massive open online courses: Innovation in education. In McGreal R, Kinuthia W & Marshall S (Eds). Open educational resources: Innovation, research and practice (2013; pp. 5–16). Vancouver: Commonwealth of Learning and Athabasca University. 2. Atique S, et al. *Annu Int Conf IEEE Eng Med Biol Soc* 2016;2016:5636–5639. 3. Dimitri P, et al. *J Med Internet Res* 2021;23:e27446.

**Disclosures:** PD and SAS received consultancy fees from Merck Healthcare KGaA, Darmstadt, Germany. LF-L is a shareholder of Adhera Health Inc. and General Manager of its research subsidiary, Salumedia Labs, which consults with Merck Healthcare KGaA, Darmstadt, Germany and other pharmaceutical companies. EK is an employee of Merck Healthcare KGaA, Darmstadt, Germany and holds shares in the company. MB is a former employee of Merck Healthcare KGaA, Darmstadt, Germany and has subsequently provided advisory services to the company.

**Funding:** This online course was made possible thanks to a collaboration between Taipei Medical University and Merck Healthcare KGaA, Darmstadt, Germany. The course is designed for educational purposes and does not contain any kind of product promotion or marketing.

Presented at the European Society for Paediatric Endocrinology (ESPE) 59<sup>th</sup> Annual Meeting | 22–26 September, 2021