

## ABSTRACT 06

**Measuring Children's Height Using Mobile Application for Growth Monitoring**Siti Zarina Yaakop<sup>1</sup>, Noor Azleen Ambak<sup>1</sup>, Azriyanti Anuar Zaini<sup>2</sup>, Muhammad Yazid Jalaludin<sup>2</sup>

**Objectives:** Measuring height in children requires meticulous standardization. The objective of this study is to validate an automated height estimation smartphone application to ease growth monitoring at home. **Methods:** Children aged 5 to 18 years seen at paediatric clinic Universiti Malaya Medical Centre (UMMC) were invited to participate. Data collection over 8 weeks involving two different measuring tools were performed on the same day. The child and their parents were measured using the standard wall mounted Harpenden stadiometer manually and by using the mobile application. This application was developed by Trifork eHealth and downloaded into two types of phone (android and IOS). Parent's and child's manual height measurements were entered into the application. The child must stand next to an adult against a wall while three pictures were taken. The smartphone must be held at least 3 meters away. **Results:** A total of 100 children were measured. Fifty captured to IOS phone and another 50 to android phone. Mean age was  $11.35 \pm 3.16$  SDS years. For manual measurement, the mean height was  $133.67 \pm 17.39$  SDS cm (range 101.3-177cm). Mean Absolute Percentage Error (MAPE) metric was used as a statistical measure for the overall accuracy of the automated height measurements. The overall MAPE achieved were 1.82% with validity of 98.18%. **Conclusion:** The automated height measurement application via smartphone provided a valid height measurement. This mobile application may assist parents to keep track on their children's growth as any deviation will trigger the need for early assessment.

**Keywords:** Growth monitoring, Automated height measurement, Children growth

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