

Digital Support Systems to Improve Child Health and Development in Low-Income Settings



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The team led by Prof Günther Fink (Swiss TPH) and Prof Daniel Mäusezahl (Swiss TPH) brings together expertise in early childhood development, epidemiology, health economics and artificial intelligence (AI) to enhance a mobile application that aims to improve the well-being and life-course of children growing up in low- and middle-income countries.

The motivation behind this project is driven by the fact that approx. 250 million children under 5 years of age are currently at risk of not reaching their full developmental potential. Many of these children are living in low- and middle-income countries and are exposed to early life adversities such as poverty, malnutrition and infectious diseases which delay their development. In the long run, these early life adversities can undermine children's ability to live healthy and prosperous lives, leading to negative implications for society and the economy.

A growing number of studies indicate that the level of nurturing care that a child receives early in life plays an important role in influencing their development. Therefore, interventions that aim to improve the environment in which infants and young children are growing up are now being implemented to help improve their future life and health trajectories. Currently, the most promising interventions for improving child health and well-being in low-income settings are home-visiting programmes in which healthcare staff or social workers help parents to support the healthy development of their children. However, such programmes are challenging to scale-up in many countries due to various economic, social and logistical factors.

However, the growing universal availability of mobile phones is opening new avenues for overcoming these challenges, enabling healthcare services to reach even the most vulnerable populations. This MIP project aims to assess the impact, efficacy and equity of a new AI- and mobile phone-based early childhood platform named Afinidata. Afinidata, founded by CEO Andreana Castellanos, uses an AI platform to provide parents with a per-

sonal digital assistant for detailed guidance on child health development.

In this study, the team will assess the reach, impact and scalability of the Afinidata platform through a study involving 2,400 families with young children in San Marcos province, Peru. The project aims to:

1. Assess the feasibility of using the Afinidata platform to systematically reach vulnerable populations located in low-income settings.
2. Compare the cost and cost-effectiveness of using the Afinidata platform for supporting early childhood development to a current "gold-standard" home-visiting programme.
3. Improve the Afinidata platform through high frequency feedback from local families and through the integration of state-of-the-art machine learning algorithms.
4. Assess the overall scalability of this approach in other settings.

In addition to Profs Fink and Mäusezahl and Ms Andreana Castellanos, the team is joined by Prof Ce Zhang from ETH Zurich, who will lead the further development of the platform through his expertise in data systems and machine learning, Prof Stella Hartinger from Cayetano Heredia University in Lima, Peru, who is an expert in epidemiology and public health and will coordinate the field study in San Marcos, and Prof Dana McCoy from Harvard University, who is a leading expert in global early childhood development with significant expertise in early life interventions.



A healthcare worker assists a parent in supporting the well-being of her toddler as part of a home-visiting programme for families living in low-income settings.