Investigating Mortality: From Basic Science to Information Technology Tools and Applications

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Abstract: Investigating the temporal and spatial patterns of the indicators of mortality is a crucial area in epidemiology. One particular concept, excess mortality gained widespread attention and was often both used and misused in scientific discussions and public debates during the coronavirus pandemic. In this talk, I will present work conducted in Hungary under my supervision to estimate excess mortality during the pandemic and I will explore the related challenges. I will outline the foundational research aimed at identifying the optimal theoretical methods, and I will demonstrate their practical applications. In particular, I will introduce the pipeline developed for the comprehensive calculation and reporting of excess mortality, as well as its long-term use in ongoing mortality monitoring.

Short CV: Tamás Ferenci earned his degree with honors in Computer Engineering, specializing in Artificial Intelligence, from the Budapest University of Technology and Economics (BME) in 2009. He also holds a degree in Biomedical Engineering with honors (2010, jointly from BME and Semmelweis University), and degrees in Economics (BA with honors in 2010, MSc in 2013, both from Corvinus University of Budapest), as well as in Applied Mathematics with a specialization in Stochastics and a focus on Multivariate Statistics (MSc with honors, 2013, BME). He obtained his PhD with summa cum laude honors from biostatistics at Obuda University in 2013 under the supervision of Prof. Levente Kovács. He obtained his habilitation in 2019 and was appointed as a full professor in 2025. He is currently the head of the Biostatistics and Epidemiology Research Group at the Physiological Controls Research Center of Obuda University, in addition, he is a part-time full professor at the Department of Statistics at Corvinus University of Budapest, and a visiting lecturer at the Institute of Public Health at Semmelweis University. His research areas include biostatistics, pathophysiological modeling, and the critical evaluation of medical research. He has received several honors and awards, including the György Mundruczó Award (2010), the Young Biostatistician of the Year title (2011), the Gábor Nyerges Award (2013), the John von Neumann Publication Award (2015), the János Kemény Award (2017), the Lajos Markusovszky Prize twice (2017, 2021), the Excellent Mentor Award (2018), the Dean's Commendation (2019), the Rector's Commendation (2020), the Researcher of the Year Award (2021), the Highly cited researcher award (2024), the Dean’s Extraordinary Commendation (2024) and the Béla Gyires Award (2024). He is an author of 116 journal papers and has more than 1200 citations with an *h*-index of 24.