

## Value in Health Technology Innovations

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Abstract: Development of intelligent medical engineering systems are in the forefront of today's health industry. For market success, which elevates health technology developments to health innovations, it must be shown that their application realises additional health benefits.

Health benefits include values perceived by the patients, i.e. safer, more effective health solutions that improve their quality of life and meet their preferences. However, health benefit assessment from the societal perspective considers further values, such as financial affordability, sustainability, equity or labour force impacts. In addition, developers and manufacturers expect financial return on their innovation. Reconciliation of these three different perspectives and diverse values throughout the development process (from the first idea to implementation) is undoubtedly needed for the success of health innovations. Outcome assessment methods play a key role in this respect, as these can predict and demonstrate the clinical and economic value of health innovations. In case of intelligent medical engineering systems, the integration of AI in complex personalised engineering technologies has generated new challenges and opportunities for the science of outcome assessment.

In this lecture I will briefly discuss the developing methods of health outcome measurement and evaluation. I will illustrate with pragmatic examples how these can be used in innovation management and to boost health innovation.

Short CV: Prof. Márta Péntek graduated from the Faculty of Medicine of Semmelweis University in 1989, and then qualified in rheumatology and physiotherapy in 1997. She obtained her PhD degree from the Doctoral School of Clinical Medicine of Semmelweis University in 2008 and successfully defended her theses for the title of Doctor of Science (DSc) of the Hungarian Academy of Sciences in 2022.

She has been working as a rheumatologist at the Rheumatology Department of the Flór Ferenc Hospital since 1989. Between 2009 and 2020, she worked as an adjunct professor, associate professor and from 2015 onwards as a full professor at the Department of Health Economics (and its predecessors) of the Corvinus University of Budapest. Since 2020, she has been working as a full professor the Health Economics Research Centre at Óbuda University. She is a PhD supervisor at the Doctoral School of Applied Informatics and Applied Mathematics and lecturer at Innovation Management Doctoral School at Óbuda University. As an invited lecturer, she has been teaching at the doctoral schools of several universities abroad. So far, she has been the topic supervisor and co-supervisor of 8 successfully defended PhD students and is currently the topic supervisor of 3 PhD students ([https://doktori.hu/index.php?menuid=192&sz\\_ID=8437&lang=EN](https://doktori.hu/index.php?menuid=192&sz_ID=8437&lang=EN)).



Her main research interests are the measurement and evaluation of health-related quality of life, preferences of patients and the general public, methodological issues of measuring disease burden on the individual and societal level, with strong focus on their application in clinical, financial and health policy decision making.

She has successfully applied for and been the national leader/coordinator/senior researcher of EU Horizon international research programmes (EuroQol <https://euroqol.org/>); BurQol-RD (<http://www.burqol-rd.com/>); HealthPros (<https://www.healthpros-h2020.eu/>) and currently she is leading the Bur-EB project (<https://www.bur-eb.com/>) and the European Network on Optimising Treatment with Therapeutic Antibodies in chronic inflammatory diseases – Cost Action OC-2021-1-25445 (<https://www.cost.eu/actions/CA21147/>) in Hungary. She is the leader of the 'Development and evaluation of innovative and digital health technologies – Evaluation of digital medical devices: efficacy, safety and social utility' research project in Hungary. Professor Péntek is a member of the EuroQol Group (<https://euroqol.org/>). She is the Chair of the Section of Health and Health Economics of the Hungarian Economic Society since 2014.

Prof. Péntek has published 182 scientific articles, 8 books and 20 book chapters. Her impact factor is 435.5, has 2684 citations (1807 independent citations), Hirsch index of 31. She was guest editor of the 2019 supplement of The European Journal of Health Economics (<https://link.springer.com/journal/10198/volumes-and-issues/20-1/supplement>). Her publications in the field of budget impact analysis, cost-effectiveness and measurement of health gains has achieved remarkable citations worldwide.