

co-ordinated with the Director of the Institute / Research Unit

Institute of Health Economics and Health Care Management (IGM)

PSP-Element:

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Person to contact for further enquiries:

Wolf Rogowski, rogowski@helmholtz-muenchen.de, -4182

Title of the highlight:

Concepts of 'Personalization' in Personalized Medicine: Implications for Economic Evaluation

Keywords:

Personalized medicine, physiological biomarkers, individuals' preferences, economic evaluation

Central statement of the highlight in one sentence:

The economic analysis of personalized medicine needs to account for two distinct, but linked, interpretations of the concept of personalized medicine: (1) using physiological biomarkers and/or (2) using individuals' preferences for personalizing' medicine.

Text of the highlight:

Personalized medicine (PM) raises a number of challenges for clinicians and healthcare systems. The rapid development of new testing technologies, the falling unit cost per mutation tested and the potential of diagnostic and screening technologies to determine subsequent individual care pathways involve specific challenges for designing and conducting economic evaluations. This study assesses if, and how, existing methods for economic evaluation are applicable to the evaluation of PM.

We organized a structured workshop with a pre-defined group of experts (n=47), using a modified nominal group technique. Workshop findings were recorded using extensive note taking and summarised using thematic data analysis. The workshop was complemented by structured literature searches.

The key finding emerging from the workshop, using an economic perspective, was that two distinct, but linked, interpretations of the concept of PM exist (personalization by 'physiology' or 'preferences'). These interpretations involve specific challenges for the design and conduct of economic evaluations. Existing

evaluative (extra-welfarist) frameworks were generally considered appropriate for evaluating PM. When 'personalization' is viewed as using physiological biomarkers, challenges include: representing complex care pathways; representing spill-over effects; meeting data requirements such as evidence on heterogeneity; choosing appropriate time horizons for the value of further research in uncertainty analysis. When viewed as tailoring medicine to patient preferences, further work is needed regarding: revealed preferences, e.g. treatment (non)adherence; stated preferences, e.g. risk interpretation and attitude; consideration of heterogeneity in preferences; and the appropriate framework (welfarism vs. extra-welfarism) to incorporate non-health benefits. Ideally, economic evaluations should take account of both interpretations of PM and consider physiology and preferences. It is important for decision makers to be cognizant of the issues involved with the economic evaluation of PM to appropriately interpret the evidence and target future research funding.

Publication:

Rogowski W, Payne K, Schnell-Inderst P, Manca A, Rochau U, Jahn B, Alagoz O, Leidl R, Siebert U: Concepts of 'Personalization' in Personalized Medicine: Implications for Economic Evaluation. *Pharmacoeconomics*. 2014 Sep 24. [Epub ahead of print]

Taking account of the HMGU mission:

Understanding the two concept of PM have important consequences for the design of economic evaluations, but also, in terms of directing a potential research agenda to generate a robust evidence base for PM.

The internal HMGU co-operation partners with whom the highlight was compiled, if appropriate:

ONKOTYROL / UMIT in Austria

Overview of issues in the economic evaluation of personalized medicine

