

CALL FOR PAPERS

A Special Issue of the Journal of Multi-Criteria Decision Analysis on:

The Interface Between Biomedicine and MCDA: A Mutually Beneficial Relationship

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SCOPE OF THIS SPECIAL ISSUE:

Multi-Criteria Decision Analysis (MCDA) focuses on the development and application of methodologies that can lead to a successful solution of some of the most complex decision-making problems today. Such problems deal with the evaluation of alternatives (decision choices) in terms of a number of criteria. On the other hand, biomedicine applies biological and physiological approaches to clinical practice. Using MCDA approaches to solve decision problems in biomedicine can benefit biomedicine as it provides the appropriate methodologies for making important decisions in that area. At the same time, it can also benefit MCDA as it provides incentives for defining new types of problems and solution approaches. That is, the interface of biomedicine and MCDA may create a sustainable cycle of feedback that can benefit both fields. Given the fast-growing need for solving many complex problems in biomedicine, understanding the interface between biomedicine and MCDA becomes extremely urgent today (e.g., [1] to [5]). This is the scope of this Special Issue of the Journal for Multi-Criteria Decision Analysis. All accepted papers will be made free to read for 90 days upon publication (this is also known as Bronze OA) unless it is published as an OA paper in which case it will be perpetually available to read and download.

References:

- [1] Thokala, P., Devlin, N., Marsh, K., Baltussen, R., Boysen, M., Kalo, Z., Longrenn, T., Mussen, F., Peacock, S., Watkins, J. and Ijzerman, M., 2016. Multiple criteria decision analysis for health care decision making—an introduction: report 1 of the ISPOR MCDA Emerging Good Practices Task Force. *Value in health*, 19(1), pp.1-13.
- [2] Kujawski, E., Triantaphyllou, E. and Yanase, J., 2019. Additive multicriteria decision analysis models: misleading aids for life-critical shared decision making. *Medical Decision Making*, 39(4), pp.437-449.
- [3] Omasa, T., Kishimoto, M., Kawase, M. and Yagi, K., 2004. An attempt at decision making in tissue engineering: reactor evaluation using the analytic hierarchy process (AHP). *Biochemical Engineering Journal*, 20(2-3), pp.173-179.
- [4] Schey, C., Krabbe, P.F.M., Postma, M.J. and Connolly, M.P., 2017. Multi-criteria decision analysis (MCDA): testing a proposed MCDA framework for orphan drugs. *Orphanet Journal of Rare Diseases*, 12(1), pp.1-9.
- [5] Nutt, D.J., Phillips, L.D., Balfour, D., Curran, H.V., Dockrell, M., Foulds, J., Fagerstrom, K., Letlape, K., Milton, A., Polosa, R. and Ramsey, J., 2014. Estimating the harms of nicotine-containing products using the MCDA approach. *European Addiction Research*, 20(5), pp.218-225.

Topic areas of interest include (but are not limited to) the following:

Shared Decision Making (SDM) and MCDA: Under an SDM approach, the patient and the health care providers together decide on what is the best course of action for the patient. This may involve eliciting data from the patient, analyzing multiple choices of action (therapies, interventions, etc.) and selecting what seems to be the best or an acceptable choice.

Mental Health and MCDA: The recent growing substance abuse, Covid-19 pandemic, natural disasters (including earthquakes, floods, draught, climate change), economic and geopolitical developments have created enormous challenges to many people. Such challenges have affected mental health on a grand scale. Retrieving data, processing data, and making decisions in this area may be approached via MCDA.

Health Technology Assessment (HTA) and MCDA: Available are various therapies or technology alternatives related to health care. Which one is the best? HTA aims at evaluating a wide range of surgical and pharmaceutical options which are available today.

Tissue Engineering and MCDA: New developments in this area have the potential to revolutionize therapies related to many degenerative diseases. Having multiple options in tissue engineering decision making problems may necessitate an MCDA approach.

Policies regarding Orphan Drugs and MCDA: Deciding on orphan drug policies involves the simultaneous consideration of multiple evaluative criteria and policy choices. Thus, MCDA is a needed approach for formulating successful policies in this area.

Drug Selection and MCDA: Having multiple drug choices, each with its own set of benefits and potential harms, can be modeled as an MCDA problem. Drug development and administration are of huge significance in today's pharmaceuticals. Thus, MCDA plays a crucial role in this area too.

Patient Elicited Data and MCDA: By nature, patients may not be at the best physical and/or mental position to provide the highest quality of data regarding their symptoms and preferences. Nevertheless, such data are crucial to their health care. How can such data be assessed and used in a way that provides the best benefit to the patient? Data preprocessing is a necessary step to any data-based approach, including for MCDA. This is another important aspect of the interface between biomedicine and MCDA.

Searching under the previous topic areas and the key-phrase "multi-criteria decision analysis" reveals that there are multiple references which signify the strong connection between these and more topic areas and MCDA.

Of particular interest are MCDA studies within the scope of this Special Issue that involve real data elicited from patients and/or health care personnel. Any results should have to be reproducible by others. Methods that explore different scenarios or the criticality of various parts of a problem by means of a sensitivity analysis are important too. The MCDA approaches would have to be viewed from a pragmatic point of view and to have a great potential to improve R&D in the biomedical arena and ultimately improve health care for patients.

IMPORTANT DATES:

Submission deadline:	September 30, 2023
Notification of first round of review results:	November 30, 2023
Submission of revised papers:	January 31, 2024
Notification of second round of review results:	March 15, 2024
Final decision notifications:	April 15, 2024

SUBMISSION OF MANUSCRIPTS:

Please submit your manuscript before the submission deadline. Instructions for authors can be found at:
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The authors should submit their manuscripts via the Research Exchange (ReX) platform by September 30, 2023, **indicating that the submission is for this Special Issue.**

The URL with this Call for Papers can be found at:

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Please kindly send a quick email to Dr. Triantaphyllou at etrianthphyllou@yahoo.com with a preliminary article title as soon as possible.