

# MULTICRITERIA DECISION ANALYSIS (MCDA) IN HTA – PILOT STUDY IN THE CZECH REPUBLIC

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## Introduction

- Value Based Pricing group of Czech ISPOR Chapter was established in spring 2013 and includes more than 30 members
- Working group has focused on rating system primarily for new drugs and technologies for which the incremental cost per QALY is higher than 3xGDP per capita in Czech Republic
- Main goal of this project was to:
  - Define parameters which should enter into the evaluation of new medicines
  - Suggest way of systematical evaluation of these parameters and test it on real life examples
- Multicriteria Decision Analysis (MCDA) is one of most often cited evaluation approach of highly specialized innovative medicines in HTA and was selected as a main technique in this pilot project
- MCDA is an analytical quantitative instrument focused on supporting the decision-making process between alternative strategies or products based on multiple estimates, comparisons and priorities often in conflict with one another
- MCDA is more and more often used in HTA with several publications available already

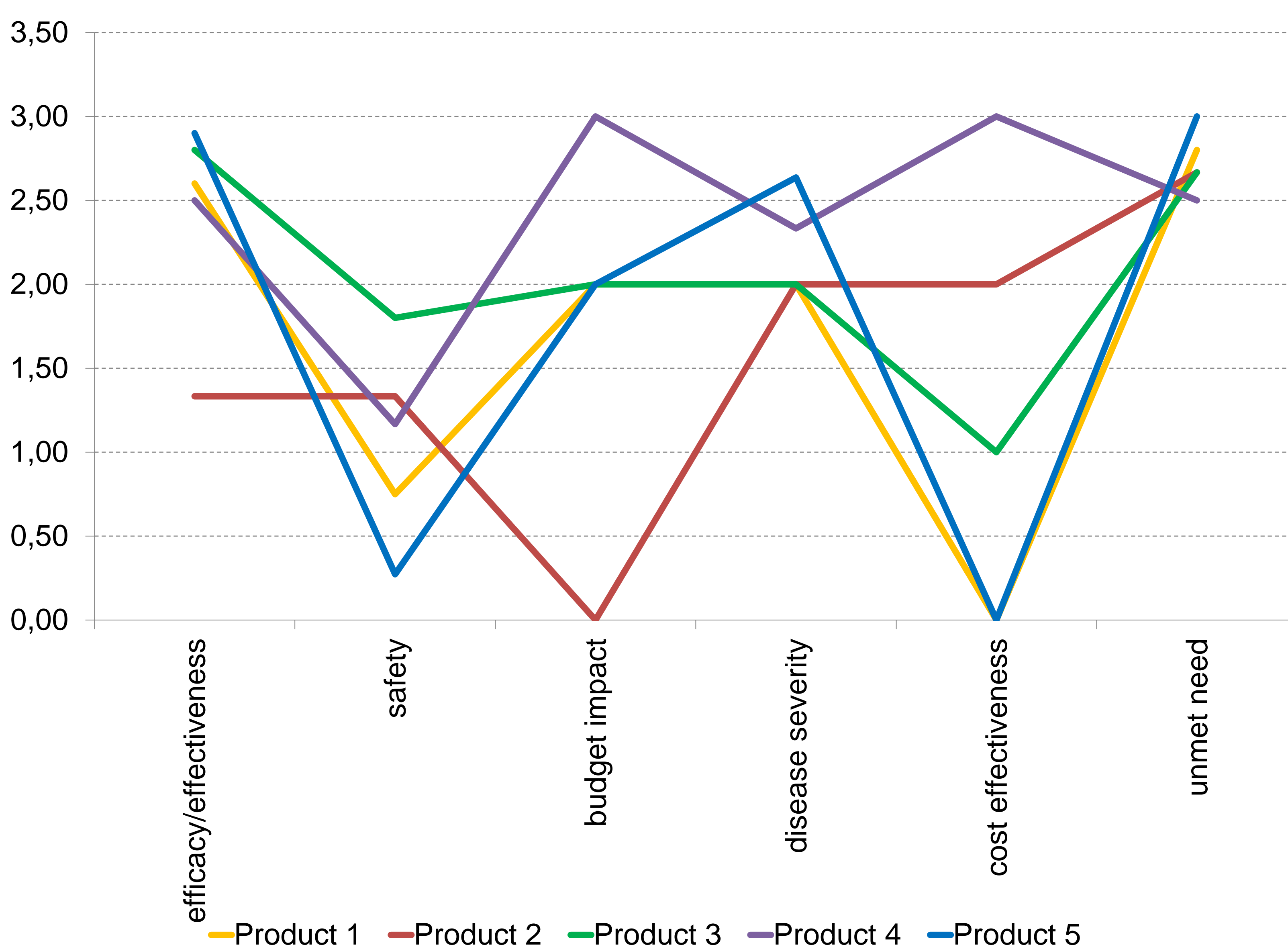
## Methods

- In the pilot study on MCDA application in HTA in the Czech Republic, the following criteria were chosen by the experts from universities, regulators including insurance companies, physicians, providers and pharmaceutical industry:
  - efficacy/effectiveness
  - safety
  - budget impact
  - disease severity
  - cost effectiveness
  - and unmet need
- The number of evaluators was 10
- Each evaluator determined weights within the range from 1 to 10 (from the least to the most important)
- The resultant weights were displayed as an arithmetic mean of weights of the individual evaluators and as a trimmed mean with the minimum and maximum values discarded
- The weights were also calculated by discarding the last evaluator, i.e. there were 4 sets of weights examined, each time normalized by 100%.
- Each evaluator rated 5 chosen medicines with weights 0, 1, 2, 3 within the chosen categories.
- Afterwards, the mean scores and trimmed means with the lowest and the highest values discarded were determined for each of the 5 medicinal products chosen

## Results

- All 8 estimates (4 weights times 2 mean scores) lead to the identical classification of medicinal products which proves the robustness of selected approach
- Fig 1 shows scoring result for 5 individual products. Proposed scoring system seems capable to sufficiently differentiate among products based on priorities (parameters) confirmed before evaluation

Figure 1: The results of new drugs evaluation in each parameter.

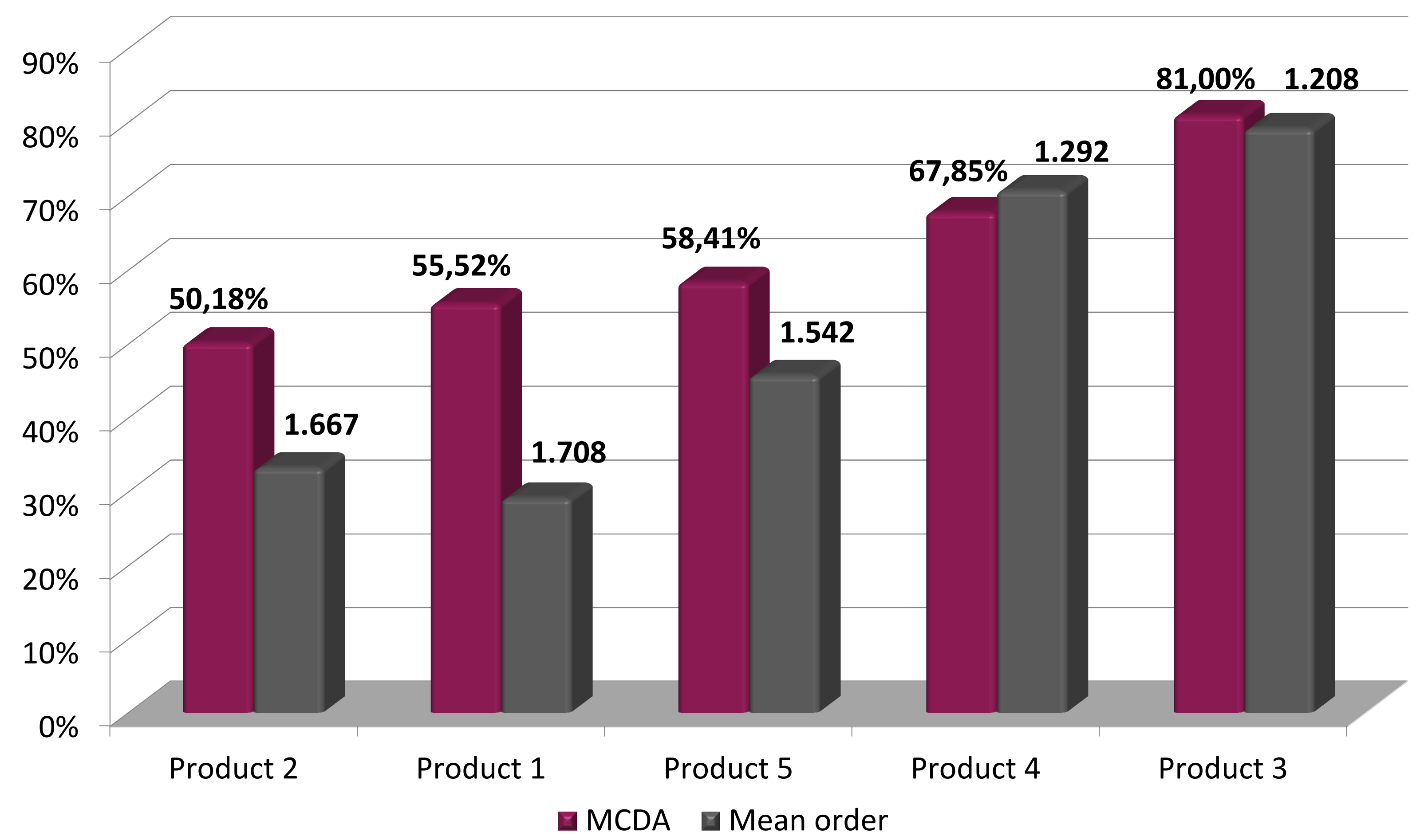


## Conclusions

- This MCDA pilot enabled to evaluate products based on predefined parameters. Its future use for evaluation of highly specialized medicines is promising
- MCDA as a systematic and comprehensive way of technology evaluation brings additional information which can be used for ranking of new technologies to support informed decision making

- The biggest divergences between the evaluators' assessment of the same medicinal product was observed in case of its safety, whereas the slightest considered the budget impact and cost-effectiveness
- On the other hand, the differences in the cost-effectiveness assessment of the 5 medicinal products considered were followed by the greatest discrepancies as regards the budget impact
- The slightest differences in the assessment of the medicinal products were noticed with respect to the unmet need evaluation and the relative effectiveness assessment

Figure 2: Product ranking in MCDA compared with Mean Order.



- The results of the MCDA analysis were also compared with the classifications of the medicinal products based on the ICER (cost/ QALY) only which revealed some significant inconsistencies, the most noteworthy of which classified the product B in the 2nd place according to the ICER parameter and in the 5th place according to the MCDA
- However the budget impact was classified just in the 4th place of 5 according to the weights, it matches the best the total scores achieved by means of the MCDA

Figure 3: Preference of products P1-P5 calculated by MCDA.

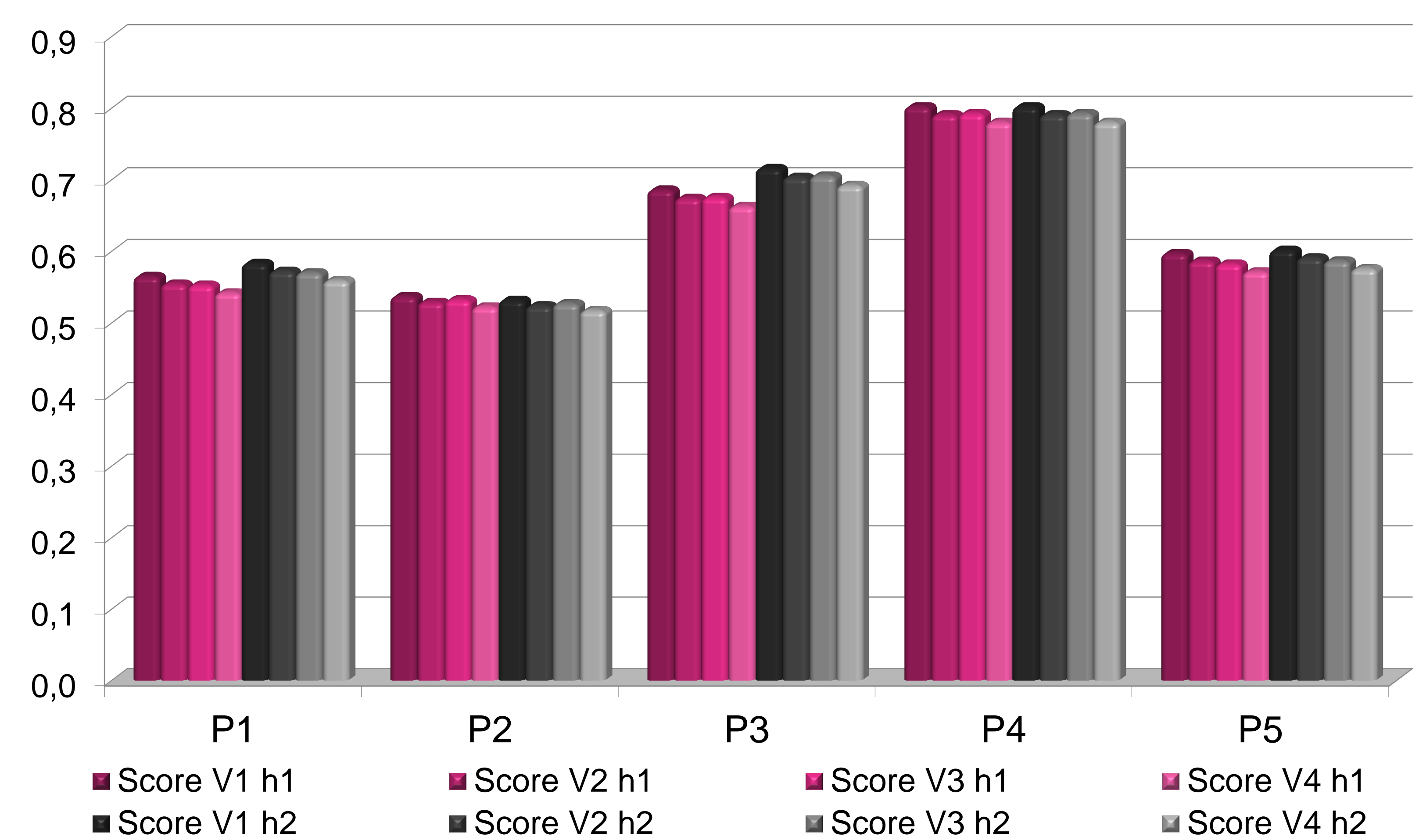


Figure 4: Final score of products P1-P5 calculated by single subcategories.

