

IED – Functional performance rating methodology of dental implants for innovation improvement

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Abstract

Implants sector is currently in a mature stage where typical innovation brought to the market are rather incremental, and **principal or even disruptive innovations are rare**. Real innovations must focus strictly on critical **system functions** (e.g. avoiding periimplantitis risk) and improve those functions. This stringent function focused view is supported by the methodology IED (Implants Evaluation and Development) generated by MRL Advisors.

Single functions of „biocompatibility“ function group (importance rated for each)
▪ lowest micro leakage / movements (implant / abutment connection)
▪ no galvanic process (electron distribution)
▪ high osseointegration
▪ lowest particle emission (during implantation, during wear)
▪ plaque risk reduction (anti plaque properties)
▪ high biological compatibility (living cells, Index=1)

Background and Aim

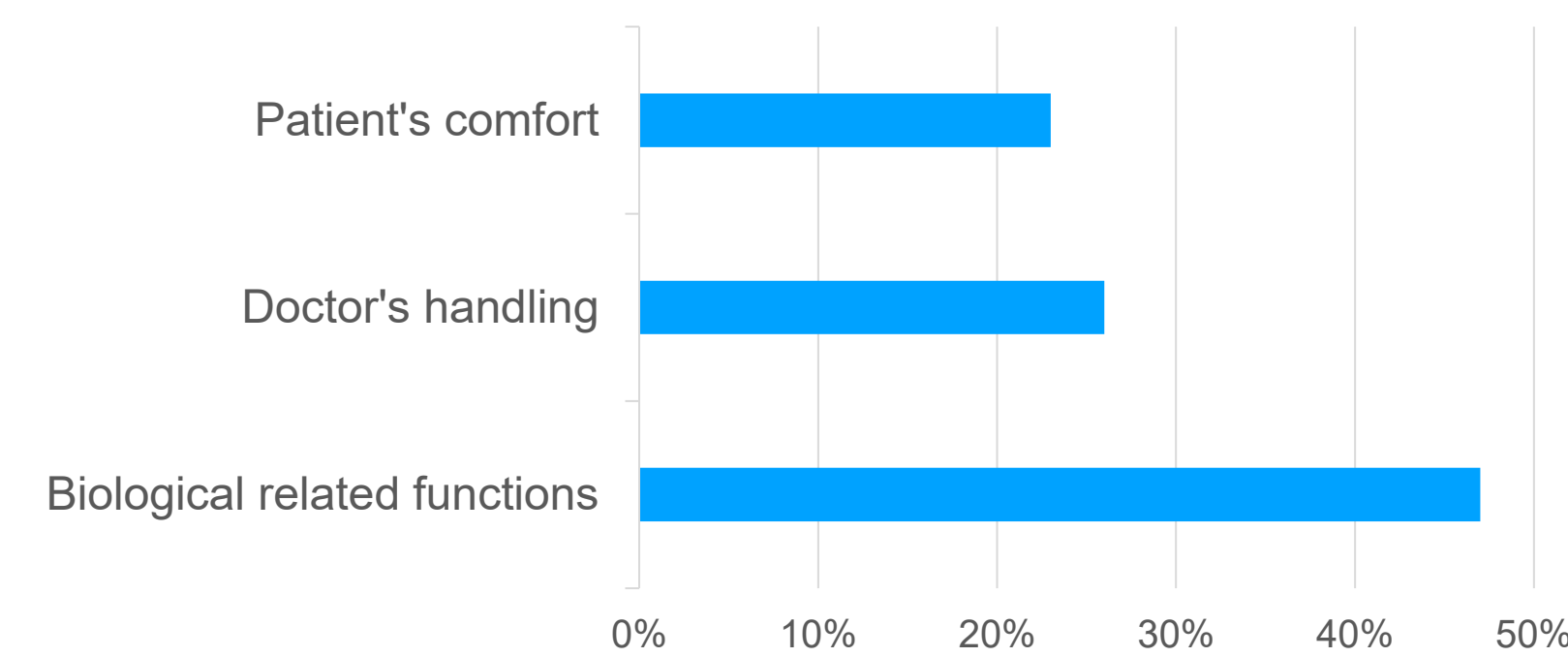
Objective is to develop and apply a suitable methodology for transparent, systematic and function-based comparison and further innovative development of implant systems.

Methods and Materials

The IED tool, which has been developed for the purpose to fact-based compare implant systems, makes the differences and individualistic function profiles of each implant system in the market clear and allows to define strategic R&D objectives for highest innovation success.

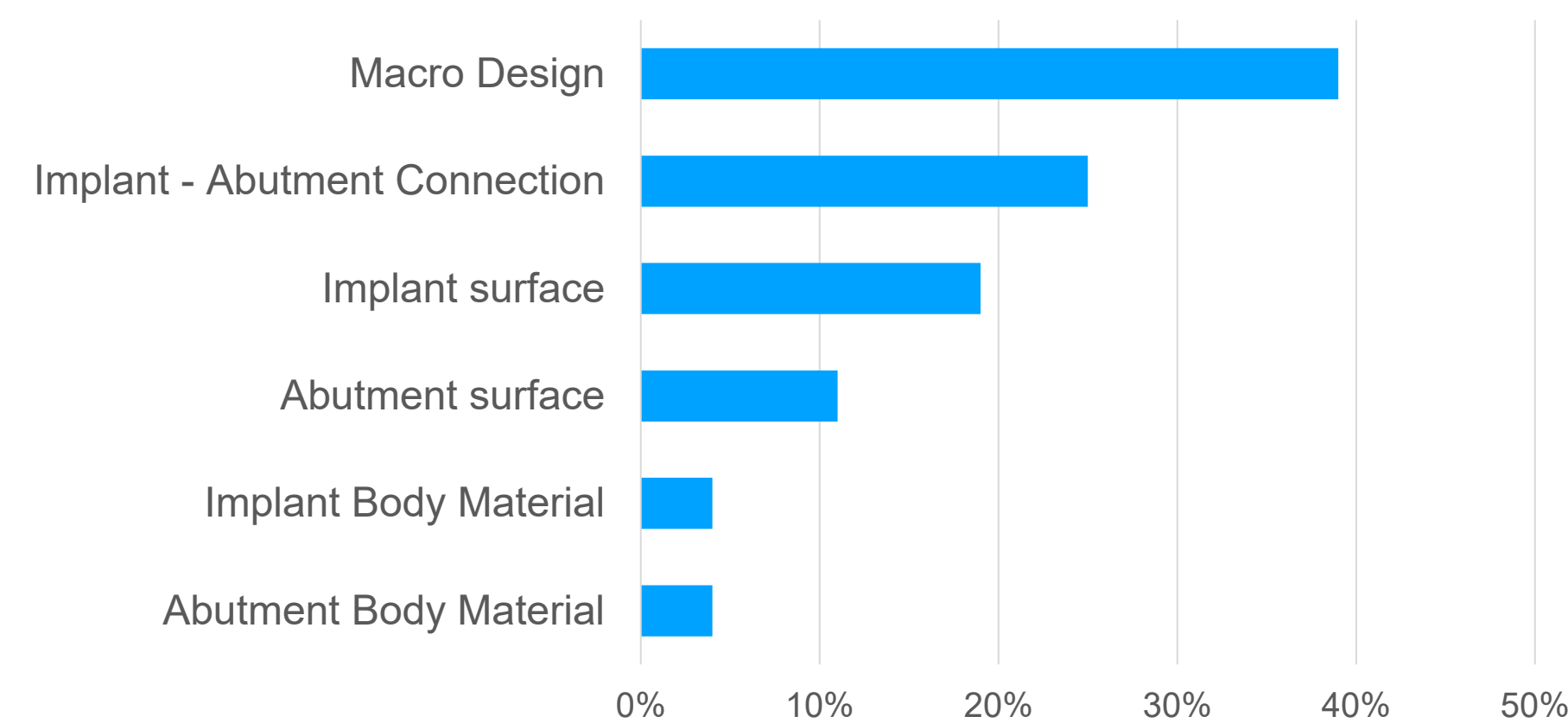
As per expert’s panel discussions moderated by author, there are a total of 15 functions relevant for an implant system. These can be clustered in three groups (% shows overall share of total system function).

General Importance of Implant System Function Groups



For the innovation strategy, besides **macro-design** and **implant abutment connection**, implant **surface** and abutment **surfaces** are of high importance and therefore have a potential for a USP (Unique Selling Position). This is reflected by current innovative implants surface projects for avoiding peri-implantitis risk (implants e.g. with glass coating or with a ceramics surface).

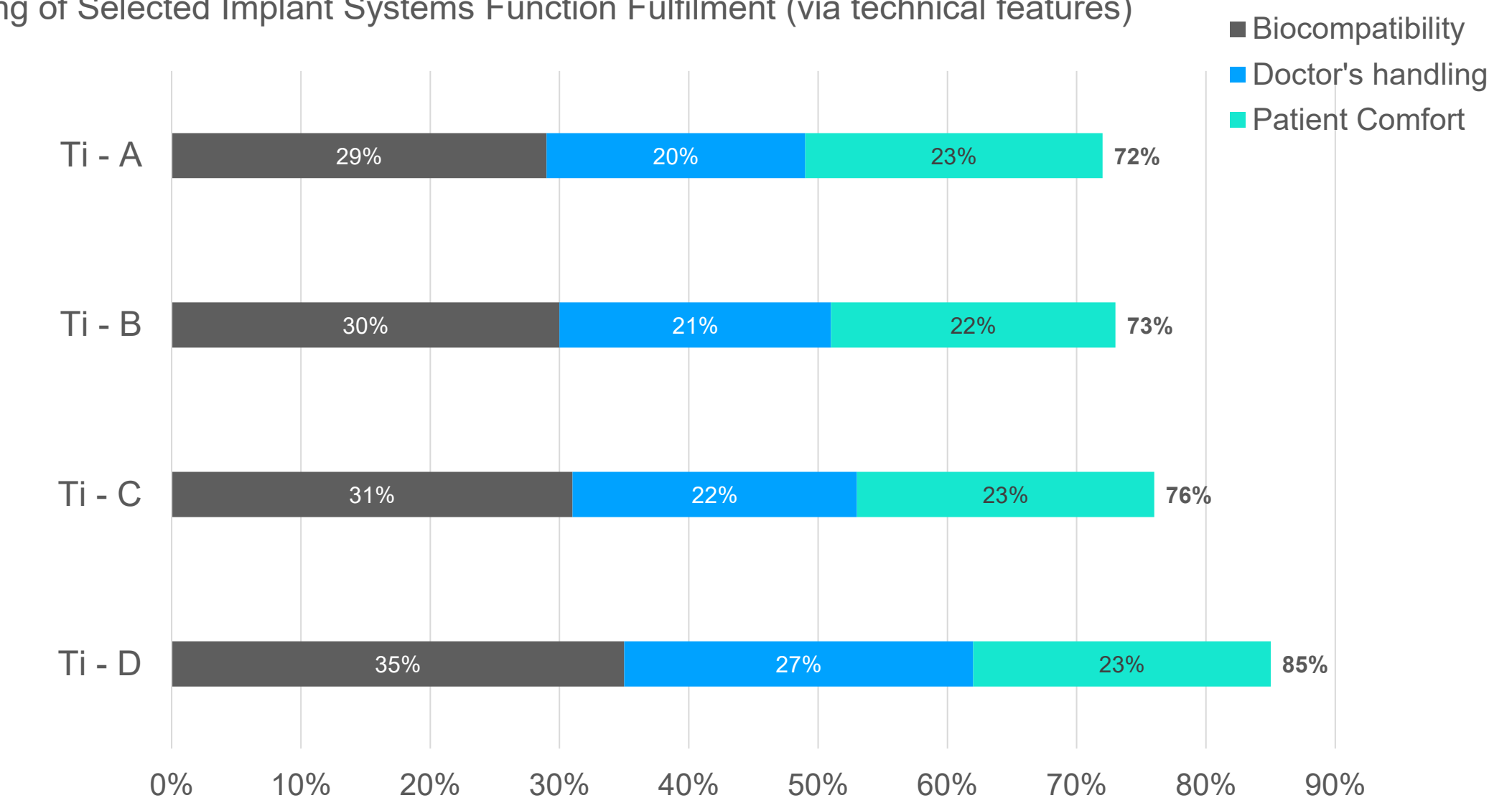
Importance of Technical Features – derived from functions contributions



Results

Via the link to the function importance, by technical features the fulfillment of each function can be assessed. Result from the IED tool for some titanium based systems (one of them with ceramics surface) are shown:

Rating of Selected Implant Systems Function Fulfilment (via technical features)



Conclusion

With the methodology presented, clear innovation areas can be identified, and innovation directions be designed. Based on defined target segments and markets, and desired margin, technical costs can be defined. Furthermore, the methodology works as tool for the strategic marketing of dental implant systems.

References

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