

# **Insights into clients' choice in preventive health care facility location planning**

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In this contribution we build on the approach proposed by Zhang et al. (OR Spectrum 34: 349–370, 2012) to consider clients' choice in preventive health care facility location planning. The objective is to maximize the participation in a preventive health care program for early detection of breast cancer in women. In order to account for clients' choice behavior the multinomial logit model is employed. In this paper, we show that instances up to 20 potential locations and 400 demand points can be easily solved (to optimality or at least close to optimality) by a commercial solver in reasonable time if the problem is modeled by an alternative formulation. We present an intelligible approach to derive a lower bound to the problem. Our paper provides interesting insights into the trade-off between minimum workload requirement (to ensure quality of care) and participation (and thus early diagnosis of disease). We present a general definition of clients' utility (which allows for clients' characteristics, for example) and discuss some fundamental issues (and pitfalls) concerning the specification of utility functions.