graphs such as scatter plots, confidence intervals and acceptability curves. ICEplane and Health Strategy generated very similar statistics on the initial raw data such as mean, median, standard deviation and standard error. Bootstrapped statistics include mean, median, incremental cost effectiveness ratio (ICER), and 95% confidence intervals. Respective mean ICERs and confidence intervals between ICEplane and Health Strategy bootstraps on the three datasets were as follows: ABX: 3771 (−665, 20,797) vs. 3692 (−1054, 13,303); PIN: −1880 (−412, 2863) vs. −1832 (−333, 25,442) and TCA: −16.48 (−169, 136) vs. −19.96 (−221, 147). There was good agreement on Feiler’s confidence intervals. CONCLUSIONS: The ICEplane software has more statistical and charting features than the Health Strategy bootstrap program. The analyses from Health Strategy ran more slowly with over 1000 bootstrap replications, but the results obtained compare reasonably well to ICEplane. The Health Strategy site has the potential benefits of requiring no installation and accessibility on multiple computer platforms. Both of these freeware options should make it easier for individuals to explore basic bootstrap analyses of cost effectiveness data, but more comprehensive statistical packages like Stata should be used when possible.

**ESTIMATING COSTS AT THE FAMILY LEVEL**

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**OBJECTIVES:** Economic evaluations, such as cost effectiveness analyses (CEA), of pharmaceuticals have historically focused on costs and consequences at the individual level. However, illness and individual-level health interventions affect both the individual and their family members. METHODS: While certain disciplines have assessed the cost of illness on multiple family members and the effects of medical interventions on family members, CEA has not routinely incorporated measures of effectiveness and costs with the family as the unit of analysis. Family-level CEA is consistent with recommendations that CEA should consider everyone affected by the intervention and count all significant health outcomes and costs that flow from it, regardless of who experiences the outcomes or costs. RESULTS: Drawing from methodologies recommended by the Panel on Cost Effectiveness in Health and Medicine, we explore conceptual and methodology issues related to estimating costs at the family level for use in family-level CEA. CONCLUSIONS: We address the challenges inherent in defining a family, the availability of health service data to link families, and methods for aggregating, evaluating, and comparing family-level costs.

**THE OPTIMAL COST-EFFECTIVENESS RATIO THRESHOLD IN CASE OF CO-MORBIDITIES**

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**OBJECTIVES:** To find the optimal threshold in the cost-effectiveness analysis in case of co-morbidities. METHODS: The two-period model was constructed in which agent receives utility from the income net of medical expenses. Agent can fall ill with two illnesses in the first period. The illnesses are treated and in case of a success the agent survives to the second period. The intensity of the treatment (the cost and the survival probability) is subject to optimization maximizing the total utility. The illnesses may have different morbidities and their occurrence can be correlated. The relation between the cost of the treatment of the i-th illness–Ci–and its efficiency–Pi–is described by increasing and convex function Ci (Pi). The cases of exogenous and endogenous budget (the expenses are covered by the insurer collecting a fair premium) are analysed. RESULTS: The results are the same for the exogenous and the endogenous budget case. If the illnesses cannot occur together then the optimal thresholds are the same for both illnesses irrespectively of the morbidities, C(P) functions or risk aversion. If the correlation is equal to zero and the C(P) functions are equal then the illness with higher morbidity will have a higher optimal C/E threshold. More resources would be allocated to that illness both due to the higher morbidity and higher C/E threshold. If the correlation is equal to zero and the morbidities are equal then the illness that is less costly to treat (i.e. always Cj (Pi) < Cj (Pi)) will have a lower optimal C/E ratio threshold. Similar results are obtained for positive or slightly negative correlation. When the correlation is sufficiently negative the reversal of the above-mentioned phenomena may occur. CONCLUSIONS: The co-morbidities should be taken into consideration when specifying the optimal threshold for the ratio in the cost-effectiveness analysis, even when there is no correlation between illnesses.