

KIDNEY PAIRED DONATION:  
OPTIMAL AND EQUITABLE MATCHINGS IN BIPARTITE  
GRAPHS

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**Abstract.** If a donor is not a good match for a kidney transplant recipient, the donor/recipient pair can be combined with other pairs to find a sequence of pairings that is more effective. The group of donor/recipient pairs, with information on the potential effectiveness of each match, forms a weighted bipartite graph. The Hungarian Algorithm allows us to find an optimal matching for such a graph, but the optimal outcome for the group might not be the most equitable for the individual patients involved. We examine several modifications to the Hungarian method which consider a balance between the optimal score for the group and the most uniformly equitable score for the individuals.

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