Optimal kidney exchange with immunosuppressants *

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The deployment of centralized matching algorithms for efficient exchange of donated kidneys is a major success story of market design. In the standard kidney exchange problem, blood- or tissue-type incompatibility between a patient and a donor makes a transplant impossible. However, novel technological advances on potent immunosuppressant drugs can lift this barrier.

We present a general computational framework to study kidney exchange with immunosuppressants. In contrast to the standard kidney exchange problem, our problem also involves the decision about which patients get immunosuppressants to make them compatible with originally incompatible kidneys. Our main contribution is a set of general algorithms that provide flexibility in terms of satisfying meaningful purposes.

*Based on joint work with Haris Aziz.