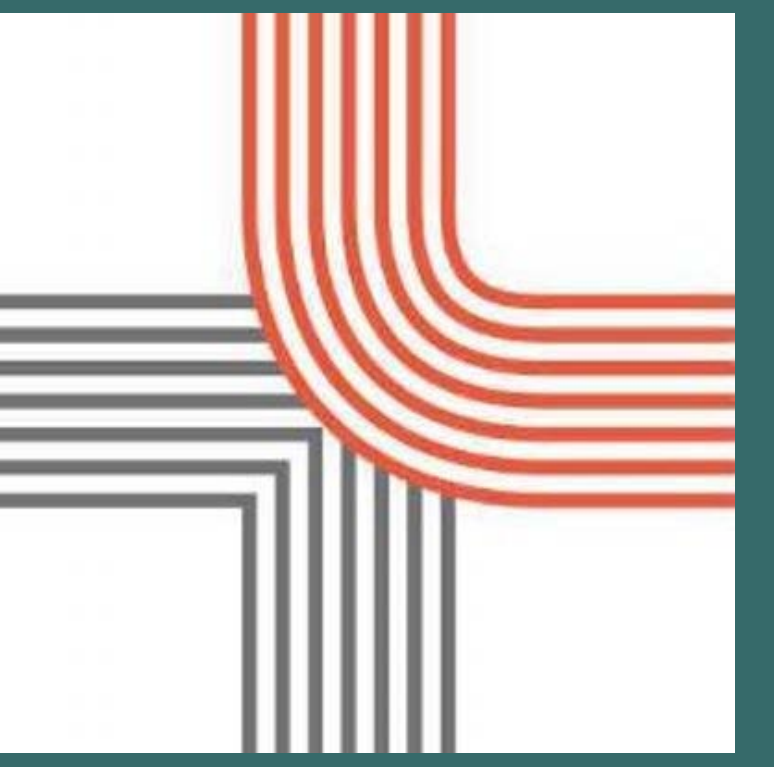


# Comparison of Pre-Transplant Criteria & Outcomes for Living Donor Kidney Transplant Programs in India and the United States

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## Background

The prevalence of non-communicable disease is rising worldwide, particularly so in those with rapidly growing economies, such as India.<sup>1</sup> Two of the most common non-communicable diseases are diabetes mellitus and cardiovascular disease, which often come with numerous co-morbidities. Both of these conditions are receiving increasing attention from international organizations and national governments, many of the co-morbidities associated with these conditions are neglected. One such condition is chronic kidney disease (CKD).<sup>2</sup>

Often, CKD is not diagnosed until a later stage, increasing the expense and difficulty of treatment, and the mortality rate for patients.<sup>3,4</sup> Thus, for many patients whose CKD is not diagnosed until it has progressed to end stage renal disease (ERSD), dialysis or transplant become their only options for care. While dialysis provides management for ERSD, globally, access and cost can be an issue for many patients.<sup>5</sup> For many kidney transplant is the better treatment option not only due to the expense and inaccessibility of dialysis, but also because transplant provides patients a greater chance at a more normal quality of life.

In 2009, an estimated 18,000 patients received kidney transplants in the US,<sup>4</sup> while in India over 3000 living donor kidney transplants were performed in 2000. The exact number of renal transplants is not known, and is likely to be significantly higher, but a comprehensive registry does not exist for organ transplantation in India.<sup>6</sup>

It should be noted that the health care systems in India and the US are quite different - India has an entirely self pay system, while the US operates on health insurance - creating different settings in which renal transplants are performed. This may raise the question of how the different settings affect kidney transplant programs. This study compares the pre-transplant criteria and outcomes for two living donor renal transplants programs - one in the US, St. Paul University Hospital in Dallas, and one in India, Medanta the Medicity in Gurgaon.

## Acknowledgements

Ms. Anjali Rawat, Medanta the Medicity, Kidney & Urology Institute  
Dr. Prasun Ghosh, Medanta the Medicity, Kidney & Urology Institute  
Dr. Bekir Tanriover, UT Southwestern Medical Center, Dept. of Internal Medicine,  
Dr. Prateek Sanghera, UT Southwestern Medical Center, Dept. of Internal Medicine

## Methods

This is a cohort study of living donor kidney transplant patients from the transplant program at St. Paul University Hospital in Dallas, TX and kidney transplant patients from the transplant program at Medanta the Medicity Hospital in Gurgaon, India.

Data for India was collected from a database of all patients who underwent a kidney transplant at Medanta, from which patients were selected based on the following criteria: one cohort of patients had been transplanted the previous month (N=29), one cohort had been transplanted one year prior the date of the study (N=29), and one cohort had been transplanted 3 years prior (N=13).

The patients were selected in this manner as the information in the database did not include dates beyond the date of transplant. Information from the database was used to calculate patient & graft survival rates for each cohort of patients from the time of transplant until June 2014, yielding 1 month, 1 year, and 3 year survival rates.

Data for St. Paul were obtained from the Scientific Registry of Transplant Recipients (SRTR), which already had the calculated 1 month, 1 year, and 3 year patient and graft survival rates. Information on pre-transplant criteria was obtained from the transplant teams at each respective institution.

## Results

The patient (Fig 1) and graft (Fig 2) survival rates were calculated for 1 month (N=29), 1 year (N=29), and 3 years (N=13) for Medanta. The patient (Fig 1) and graft (Fig 2) survival rates for St. Paul were obtained from the SRTR for 1 month (N=32), 1 year (N=32), and 3 years (N=21).

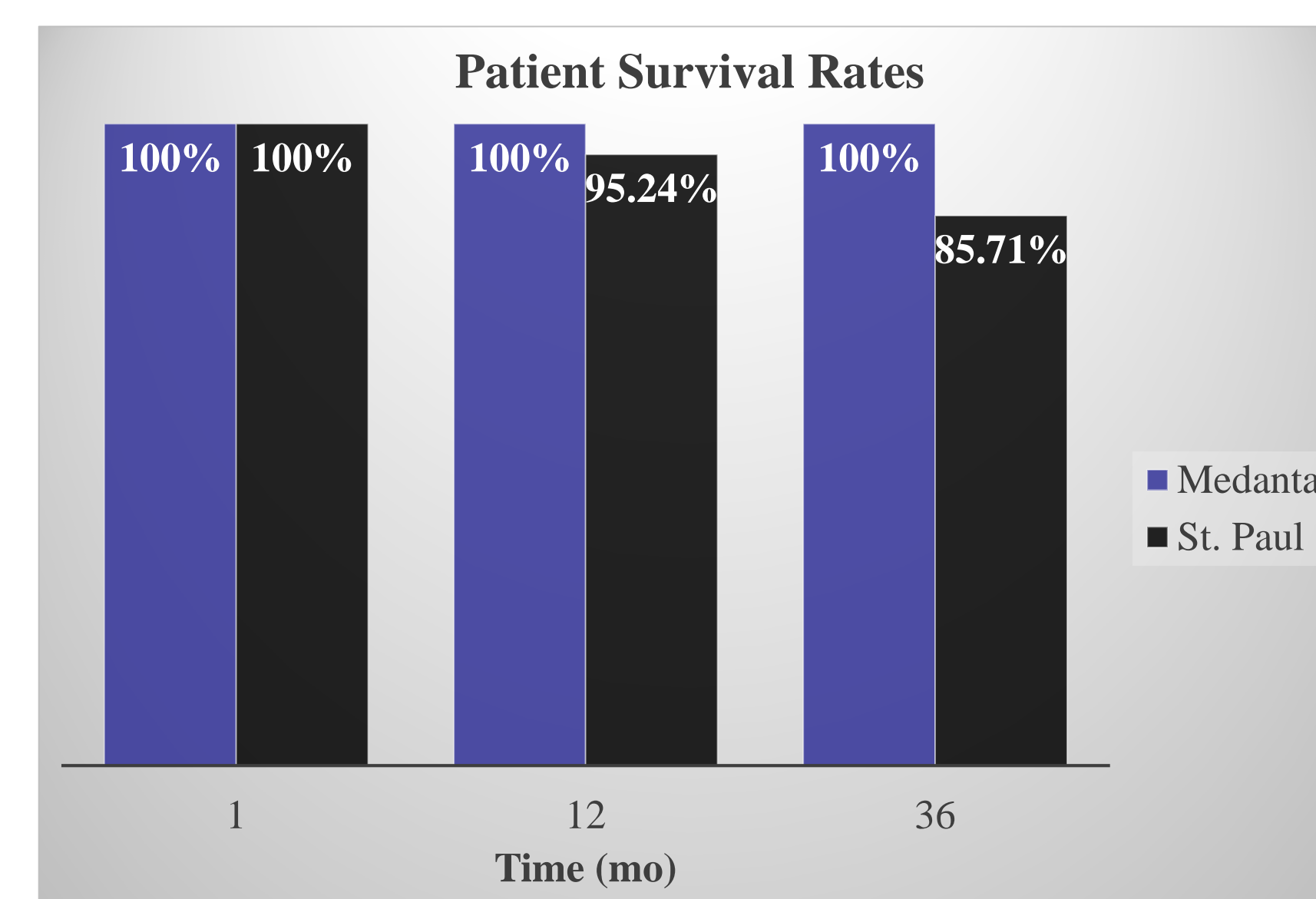


Figure 1: Patient Survival Rates for Medanta and St. Paul

At Medanta, in addition to the medical pre-transplant criteria, much of the pre-transplant evaluation and counseling process is focused on the legal criteria that donors and recipients must meet. The majority of the legal criteria is focused

## Results

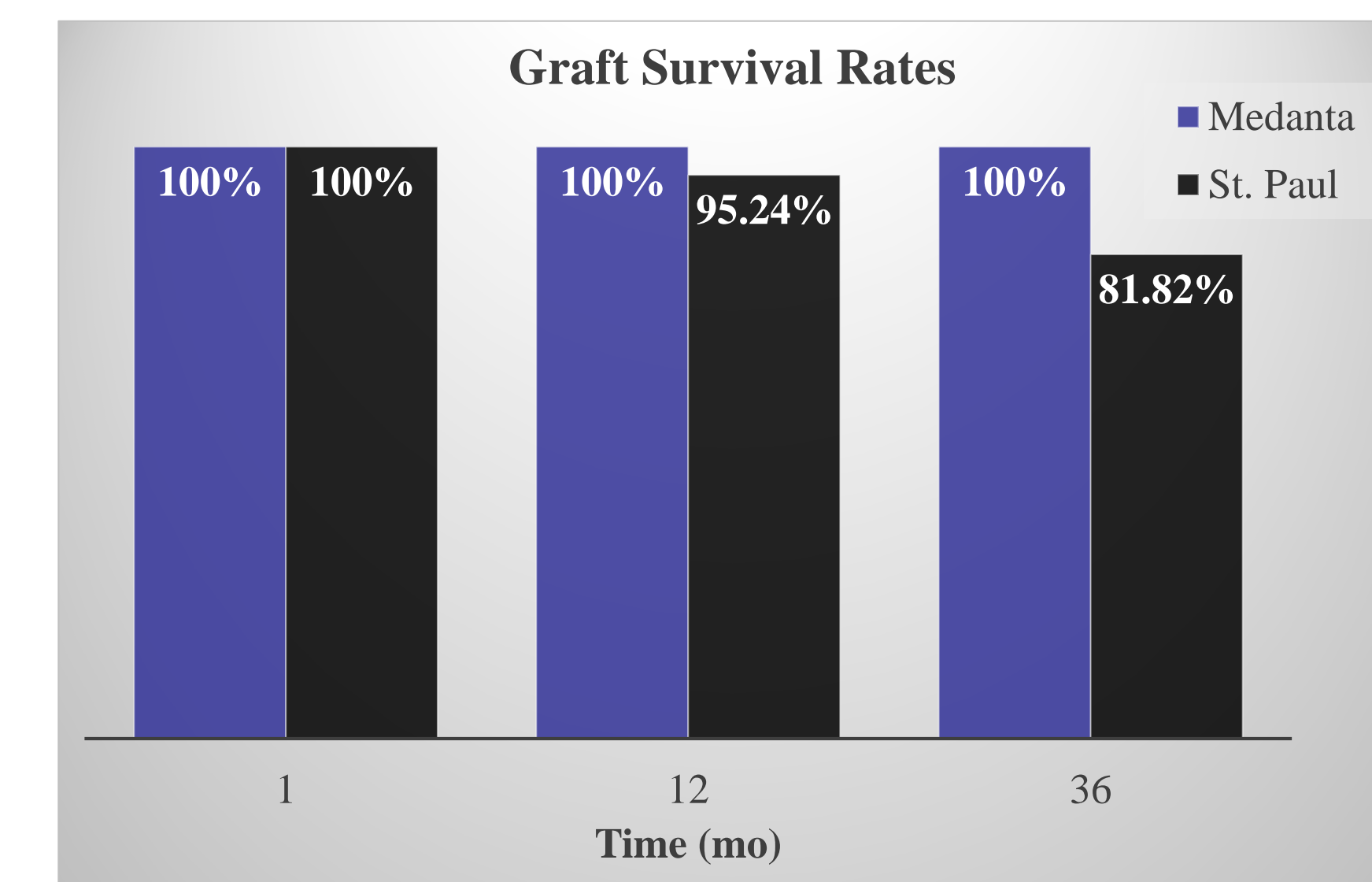


Figure 2: Graft Survival Rates for Medanta and St. Paul

on ensuring that donors are not financially motivated or coerced into acting as organ donors. As such, donors and recipients must prove a significant, well established relationship, either through marriage or blood.

At St. Paul, in addition to the medical pre-transplant criteria, patients must meet a number of psychosocial criteria, as well as demonstrate that they have sufficient financial support or insurance to cover their medical costs post-transplant. The psychosocial criteria are largely focused on ensuring that donors are not being coerced into donating and that recipients have adequate support and will adhere to post-transplant care regimens and follow up.

## Discussion

Medanta and St. Paul have highly similar medical pre-transplant criteria. The most notable difference is that donors and recipients must be ABO compatible at St. Paul, while Medanta performs ABO incompatible transplants, and so ABO compatibility is not required.

Beyond the medical evaluation, the main differences are in the legal and financial pre-transplant evaluation. Indian law requires that organ donors and recipients must be near relatives or be participating in an organ swap to prevent donor coercion or organ selling. Thus, Medanta's legal evaluation focuses on examining the relationship between donor and recipient.

At St. Paul a thorough psychosocial and financial evaluation is performed to ensure that there is no donor coercion and that recipients have adequate support (social and financial) and will adhere to post-transplant care regimens.

The 1 month and 1 year patient and graft survival rates are not significantly different. The 3 year patient and graft survival rates appear to be better for Medanta, however, the patient cohort was N=13, while Medanta's entire renal transplant program has N=874 in May 2014.

## Conclusion

While it appears that the 3 year patient and graft survival rates are better for Medanta than for St. Paul, there is a limitation on making conclusions because this data does not encompass the entire program at Medanta. The 1 month and 1 year patient and graft survival rates are not significantly different between the two institutions. Further study is needed to truly assess if there is a significant difference in outcomes between the two programs.

The medical pre-transplant criteria are largely the same between both programs, differences in legal and financial criteria seem to be a product of the different health systems.

The overall conclusion is that transplant programs in both settings have successful outcomes, with similar medical pre-transplant criteria.

## Future

The intention is to go back to Medanta and collect data that includes date information for all of the patients in the database, in order to expand the analysis for outcomes.

Additionally we would like to collect data on patients that have undergone renal transplant in the past year, as well as follow up on the patients included in this study. If possible outcomes may also be expanded to look at criteria such as infection rate, or a comparative analysis performed to include demographic data.

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