Research Profile: We are currently working on developing a fully automated, real-time database of infectious complications in transplant recipients. The database is being developed using innovative data mining tools, natural language processing, and text pattern recognition. We have validated the extraction process achieving near 100% precision. The finalized database will incorporate data from multiple sources and will be housed in the UT Southwestern Clinical Research Data Warehouse. This project has been developed in collaboration with the UT Southwestern Department of Information Technology, UT Southwestern Office of Quality Improvement and Safety, and UT Southwestern Solid Organ Transplant Programs. The data generated by the Transplant Infectious Diseases Database will be leveraged to develop clinical research programs to describe the epidemiology and risk factors of infectious complications as well as their impact on rejection and all-cause mortality. We will collaborate with the UT Southwestern Division of Epidemiology to develop these projects. This type of analysis will translate research into clinical practice with the overarching objective of minimizing the burden of infectious complications in transplant recipients. This project has been funded by a UT Southwestern Center for Translational Medicine Grant.

Techniques:
- Development of a Big Data Transplant Infectious Diseases Database using innovative data mining tools and natural language processing: It is housed in the UT Southwestern Data Warehouse and will incorporate data from the UT Southwestern Electronic Medical Record, UT Southwestern Histocompatibility and Pathology Servers, Scientific Registry of Transplant Recipients, and Social Security Death Index.
- Multivariate analyses with the following objectives: a) identify risk factors for acquisition of bacterial, viral and fungal infectious complications in transplant recipients; b) determine prognostic risk factors of common infectious complications in transplant recipients; c) determine if specific infectious complications are independent risk factors for development of donor specific antibodies, transplant organ rejection and all-cause mortality.

Selected Recent Publications: