Transplantation Transmission Sentinel Network
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Intensive screening processes have been implemented to prevent the transmission of viral, bacterial, and fungal infections (e.g., West Nile Virus, lymphocytic choriomeningitis virus, rabies, Chagas’ disease, etc.) from donors to recipients of organs, tissues and corneas. However, cases continue to emerge in which even common, low-grade infections carried by asymptomatic donors can result in severe complications and fatalities among their immunosuppressed recipients.

Organ, tissue and cornea allografts of a single donor can be transplanted into 50 recipients or more, throughout the country and across multiple medical disciplines. Once a suspected or confirmed donor-related disease transmission to a recipient is detected, the survival of an exponential number of allografts and recipients are in critical danger.

Unfortunately, organ, tissue and cornea transplant communities share no central communications system in which they may:

- share urgent information regarding the likelihood of infection among associated recipients;
- link a donor and all associated recipients to allow for high-speed tracking and identification when the likelihood of disease transmission is suspected;
- collect clinically relevant, scientifically sound data that could support research into prevention of the life-threatening transmission of infection.

To address this concern, the Centers for Disease Control and Prevention (CDC) and UNOS have recently entered a three-year cooperative agreement to establish a Transplantation Transmission Sentinel Network (TTSN) for detecting, communicating, tracking, and preventing the transmission of infections from organ, tissue and cornea donors to organ, tissue and cornea transplant recipients. The TTSN will emulate the protocols and technology processes established by the CDC and the American Association of Blood Banks during the mid-eighties to prevent the transmission of HIV, hepatitis B and C and other diseases through blood transfusion.

To initiate the project, UNOS assembled a TTSN Advisory Group. This is an unprecedented consortium made up of representatives from the major organ, tissue and eye transplant
organizations, related Federal agencies, and associated medical experts, to advise and collaborate with the CDC in the formation and planning of the TTSN.

The Advisory Group’s ultimate objective is to continuously improve patient safety measures for transplant recipients, coordinate these measures with the appropriate public health authorities, and identify areas for clinical and basic, academic and corporate research that will enhance public safety. With this objective in mind, UNOS developed a three-year five-step work plan:

1. Develop a secure, robust and user-friendly web-based electronic communication forum that will serve all groups involved in allograft transplantation;
2. Enhance and develop unique donor identification systems to facilitate the tracking of organs, tissues and eyes;
3. Develop specific processes for adverse event reporting by healthcare facilities and professionals;
4. Improve information dissemination to clinicians, health professionals and patients; and
5. Develop a notification algorithm for trace-back and trace-forward allograft tracking to optimize collaboration between the clinical community and public health authorities.

The TTSN web-based system will be implemented in the following phases:

**Part A:** An initial system deliverable which will use the recovering agency’s donor identification number and demographic data (first name, last name, date of birth and date of death) from each organ, tissue and eye donor to generate a unique TTSN identifier. The TTSN identifier will then be used within the TTSN System database to link all allografts recovered from each donor.

**Part B:** The system will expand to include the ability to track the final disposition of any allograft recovered. The data collected will include the nature of the allograft, surgeon, institution where the surgery occurred, identifier for the original recovering OPO, tissue or eye bank or processing/packaging institution, and confidential recipient identifiers. This portion of the system will provide an electronic mechanism for institutions which use allografts to meet the current reporting requirements of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the Food and Drug Administration (FDA).

**Part C:** The system will expand to include a notification system for adverse events. This will provide a simple trace-back and trace-forward system in which clinical personnel can enter the patient and allograft identifier numbers, clinical institution, date, contact information and the nature of the event, which may include a documented infection or syndrome (hepatitis, gangrene, sepsis, etc.). This portion of the system will be searchable by clinical personnel, such as transplant clinicians and surgeons, to facilitate rapid
dissemination of critical, clinical information related to all recipients from a specific donor.

**Part D:** The system will expand to include notification of appropriate public health and regulatory agencies, such as the CDC, FDA (MedWatch), Organ Procurement and Transplantation Network (OPTN), American Association of Tissue Banks (AATB), and Eye Bank Association of America (EBAA). This will allow CDC or FDA to start investigations, if necessary.

**Part E:** The system will expand to include education within the community through communication of epidemiologic information to system participants. Participants will be able to register using a listserv function within the system. The information communicated may include specific disease outbreak information, contaminated tissue notices or recalls and other clinically significant information.

UNOS is excited to be a part of this groundbreaking project and, and pleased that through this cooperative agreement the CDC has pulled together the organ, tissue and cornea communities to address these important common patient safety issues.