Report on the Transplantation Transmission Sentinel Network (TTSN)

CATB Session - AATB’s 31st Annual Meeting, Boston
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TTSN system slides provided by:
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“That men do not learn very much from the lessons of history is the most important of all the lessons of history.”
Aldous Huxley
Related “Sentinel Events”

- HIV transmissions - 1985
  - Multiple organ and tissue donor
  - Lack of recognition that organ recipients infected by donor
  - Lack of communication - first recognized in 1991 in tissue recipient
  - Infectious disease testing deficiency (1st generation test HTLV-III Ab)
  - Tissue processing effectiveness and ineffectiveness realized
  - Voluntary reporting systems
- HCV transmissions - 2000
  - Multiple organ and tissue donor
  - Lack of recognition that organ & tissue recipients infected by donor
  - Lack of communication - first recognized in 2002 in tissue recipient
  - Infectious disease testing deficiency (HCV NAT not required)
  - Tissue processing effectiveness and ineffectiveness realized
  - Voluntary reporting systems

A Few Facts

- From one to 50, to more than 100 allografts, can be processed and distributed from one person’s tissue donation
- One donor’s tissues can be recovered by more than one recovery entity and tissues from one donor can be sent to multiple tissue banks to process specific tissue types (S, MS, C, V, ocular)
- \( \approx 13\% \) of all tissue donors are organ donors and
  - \( \approx 36\% \) of all organ donors are tissue donors (ocular tissue donor data not included above)
- Most recent estimate of MS tissue donations annually is 43,000 (FDA blitz, referring to 2005)
Improvements to Surveillance & Reporting

- **EBAA**
  - System since 1991, called the EBAA Adverse Reaction Reporting Registry
  - OARRS data base (Online Adverse Reaction Reporting System) since ≈ 2004
    - Developing flowcharts, definitions, a Guidance Document

- **OPTN/UNOS**
  - Expanded Policies for Transplant Centers regarding recognition and mandatory reporting of infections/malignancies in organ transplant recipients
    - UNOS implemented the Patient Safety System in March 2006

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**Improvements to Surveillance & Reporting**

- **AATB**
  - TTSN development, TTSN Task Force/Adverse Reaction Task Force
  - Drafting a Guidance Document, “Identifying, Reporting, and Investigating Recipient Adverse Reactions”
  - The Standards Committee has begun to review related terminology in standards to harmonize these terms with others in use
Improvements to Surveillance & Reporting

- Globally (for cells and tissues)
  - Canada
    - Quebec Hemovigilance Public Forum
    - Health Canada - CTO Regulations & Guidance
    - Public Health Agency of Canada (PHAC)
    - Canadian Council for Donation & Transplantation (CCDT)
  - Europe
    - Belgium, France have systems
    - The EUSTITE Project
      - European Union Standards & Training in the Inspection of Tissue Establishments

EUSTITE Project

The primary objective of the EUSTITE project is to optimise and harmonise the standards and methods applied by Competent Authorities in the inspection and accreditation of tissue procurement and tissue establishments within the EU, in compliance with Directive 2004/23/EC, Articles 5, 6 and 7 and its associated implementing directives. A secondary objective is to propose common systems for definition, classification and reporting of adverse events and reactions that are consistent with similar systems in other parts of the world. The project will have 4 main components:

1. Achieving consensus on best practice in the inspection of tissue establishments;
2. The development of practical guidelines for the conduct of inspections in tissue establishments;
3. The design and testing of a training programme for inspectors in the field;
4. The establishment of a pilot scheme for adverse event and reaction reporting and management.

Last Updated: Tuesday, 23 January 2007
World Health Organization

Global interest in EUSTITE

Tuesday, 12 June 2007

WHO was invited to report on the Eustite work on Vigilance & Surveillance at a number of international meetings and congresses. Dr Luc Noel presented the project at five events and introduced the objectives to be achieved by 2009 and the work carried out to date on the Vigilance & Surveillance aspects of the project. Eustite was presented at the following meetings:

- Second Global Consultation on Transplantation, WHO, Geneva 28-30 March 2007
- Comité d’Hémovigilance du Québec, special session on traceability and vigilance of tissue for transplantation, 27 April 2007
- Canadian Council for Donation and transplantation, Tissue traceability task force meeting, Montreal 28 April 2007
- Transplantation Transmission Sentinel Network (TTSN) Reston, US, 5-6 June 2007
“Vigilance is an attitude.”

Dr Luc Noel, WHO
July 2007, EUSTITE Meeting, V&S MAC

AABB’s Interorganizational Task Force on Biovigilance

AABB Task Force in Talks with Government to Support Voluntary National Biovigilance Network

By Ashley Smith
AABB STAFF WRITER

The AABB Interorganizational Task Force on Biovigilance currently is in talks with the federal government to explore technical support options for the creation of a national biovigilance network that would help improve patient and donor safety. Under the plan, the biovigilance network—a central, coordinated system for identifying adverse events and near-miss incidents occurring at any point in the collection, processing, distribution, transfusion or transplantation of blood, tissue and cellular therapy products—would get technical support from the federal government, including software and a platform. The network itself would remain voluntary, nonpunitive and independent of governmental regulation.

“While we originally envisioned this as solely a private initiative, the government’s support will help us make this program a reality more quickly, and that could mean instituting safer practices sooner,” said Stanlee Whitaker, PhD, director of the Center for Data and Statistical Programs at AABB. While this contribution from the federal government will help expedite completion of the network, “support from the transfusion medicine and cellular therapies community remains a critical element for success,” noted Whitaker.
Background of TTSN

- In June 2005, the Centers for Disease Control published a request for application (RFA) for federal funds for the development of a sentinel network for detecting emerging infections among allograft donors and recipients.

- The United Network for Organ Sharing (UNOS), in an alliance with Association of Organ Procurement Organizations (AOPO); American Association of Tissue Banks (AATB); Eye Bank Association of America (EBAA); American Society of Transplantation (AST); and American Society of Transplant Surgeons (ASTS), applied for and was awarded the cooperative agreement with the Centers for Disease Control and Prevention (CDC).

Background

- The TTSN is required by the RFA to develop and maintain “a national sentinel network of organizations that recover, process, and distribute tissues from organ and tissue donors.”

- Additionally, the RFA requires a series of recommendations be developed, “...based on network experiences and collaborative investigations with public health, to improve the safety of organ and tissue transplantation and identify emerging infectious diseases in organ and tissue transplant recipients. These recommendations will be made in concert with existing regulatory oversight agencies.”
Background

• In order to meet these requirements and to plan, direct and study the actions needed to accomplish these requirements, a TTSN Advisory Group was established.

• The TTSN Advisory Group includes representatives of the major stakeholder organizations representing organ and tissue procurement and use and regulatory agencies of the Federal government.

• The following organizations are represented:
  - AATB - American Association of Tissue Banks
  - EBAA - Eye Bank Association of America
  - AOPO - Association of Organ Procurement Organizations
  - ASTS - American Society of Transplant Surgeons
  - AST - American Society of Transplantation
  - STS - Society of Thoracic Surgeons
  - AAO - American Academy of Ophthalmology
  - AAOS - American Association of Orthopedic Surgeons
  - AOSSM - American Orthopaedic Society for Sports Medicine
  - FDA - Food and Drug Administration
  - HRSA - Health Resources and Services Administration
  - CMS - Centers for Medicare and Medicaid Services
  - CDC - Centers for Disease Control and Prevention

  - The AABB has recently been asked to participate on the overall group so they can be aware of this biovigilance system’s development.
Background

• The primary tasks of the TTSN Advisory Group are to:
  
  - Develop a secure web-based electronic communication forum that will serve all groups involved in allograft transplantation
  
  - Improve information dissemination to clinicians, health professionals and patients
  
  - Develop a notification algorithm for trace-back and trace-forward allograft tracking to optimize collaboration between the clinical community and public health authorities

Background

• The TTSN will:

  - Allow for traceability of allografts to the end recipients using electronic methods by replacing paper implant cards
  
  - Allow banks and end users to generate reports detailing graft utilization (you can only look at your “stuff”)
  
  - Allow tissue and eye banks to know the number of donors recovered nationwide
  
  - Provide an end user-driven mechanism for communication of adverse events
  
  - Provide a standardized mechanism for communication of potential or confirmed donor related disease transmissions among OPOs, Tissue and Eye Banks
  
  - Improve patient safety
Background

• The TTSN will not:
  - Replace existing tissue bank donor IDs
  - Replace existing adverse event reporting mechanisms
  - Require retroactive entry of donors
  - The system is currently only planned to track tissues that are used and will not be an inventory system for hospitals or tissue banks

TTSN System Description

• The web-based application has been divided into the following 5 stages of development:
  - Part A: Donor ID Registration (December 2006)
  - Part B: Graft Implant Registration (March 2007)
  - Part C: Adverse Event Registration (September 2007)
  - Part D: Regulatory and Public Health Notification (December 2007)
  - Part E: Community Education (March 2008)
TTSN System Description

- **Part A:** will generate a unique TTSN identifier using the following data:
  - The recovering agency’s donor identification number and demographic data from each organ, tissue and eye donor
  - Each tissue processor, or distributor will add their donor IDs to the system

- **Part B:** the ability to track the final disposition of any allograft recovered using the following data:
  - Allograft identifier, type of allograft, surgeon, implanting institution, and confidential recipient identifiers
  - Procedure type and date

- **Part C:** a simple trace-back and trace-forward notification system for adverse events using the following data:
  - Recipient and allograft identifiers, implanting institution, contact information and the nature of the event, including a documented infection or syndrome.
  - This portion of the system will be searchable by clinical personnel (but this is a limited search)

- **Part D:** The system will expand to include notification of appropriate public health and regulatory agencies.

- **Part E:** The system will expand to include education within the community through communication of epidemiologic information to system participants.
Notification Algorithm TBD

- Priority: Coordinate with current reporting processes
  - Does not replace current adverse reaction reporting systems
  - Potential high for duplicate notification methods (OK)...so, why have this system, too?

- TTSN System advantages vs current processes
  - Tracking of overall activity and determine incidence of reports and confirmed transmissions
    - User confidentiality, limited access - “I can only look at my stuff”
  - Immediate widespread graft quarantine notification (tissue from same donor provided by multiple banks)
    - Can develop levels of “flags” or alerts
  - Replacement system for implant card management (Yay!)

- TTSN System disadvantages ???
  - Reliant on compliance by all who should use system (status quo)
  - Refer to all other Parts of TTSN (A - donor entry, B - graft use entry, C - reporting/investigation, and E - community education)

Coordinate with Current Processes

- End User Reporting
  - Tissue & Eye:
    - The Joint Commission TS&I Standards instruct to report adverse events to source facility (Eye/Tissue Bank); this is congruent with EBAA and AATB Standards, FDA Regulations

- Other reporting possibilities
  - MedSun (project participants only) - to FDA
  - MedWatch Form 3500 (voluntary) - to FDA
  - State health authorities, if applicable
  - TTSN System entry (our hope!) - to Eye/TB & system administrator
    - Eye/TB to make entry in database, if not done by end user
  - Voluntary (a gap)
Coordinate with Current Processes

- End User Reporting & OPO Reporting
  - Organs:
    - UNOS/OPTN Policy 4.7 POST-TRANSPLANT REPORTING OF POTENTIAL TRANSMISSION OF DISEASE OR MEDICAL CONDITIONS, INCLUDING MALIGNANCIES
      - Transplant Program reports to OPO
      - OPO reports to any Transplant Center and “tissue bank” who received an organ or tissue from donor, & notifies OPTN (UNOS Patient Safety System)
        » OPTN/UNOS entry into TTSN (ideally via link between UNet & TTSN), then...

- Eye/Tissue Bank reporting
  - TTSN System original adverse reaction entry made by:
    - End user
    - Eye/Tissue Bank
    - UNet (check by UNOS Admin/SuperUser ?)
  - Bank investigates initial report of possible tissue-transmitted disease (EBAA & AATB Standards, FDA regulations)
    - Reports to FDA within 15 days of receipt of report if there is a reasonable possibility that the unintended or noxious response is related to the ocular tissue or tissue
    - Reports to relevant state health authorities, as indicated
  - Further notification algorithm TBD
Next Steps

- Decide notification algorithms
  - Determine what triggers this during investigation
    - Directly affects notification scheme
      - To whom?
      - When?
  - Edit original donor/graft alert in TTSN
    - Determine threshold levels
    - Use definitions
Issues Needing Input

- Reliance on recognition of a possible organ or tissue-caused adverse reaction
  - Educate & promote awareness
- Reliance on appropriate & timely reporting
  - Educate & promote compliance!
- Finalize all definitions
  - Affects notification algorithm
  - Affects decision-making
- Finalize expectations of timeframes for decisions
  - Critical to patient safety
    - Quarantining of grafts in end user inventory via TTSN System
    - Usual recall procedures also used

TTSN System Review:
Site Map
System Login

- The user will be able to:
  - Create their user account
  - Access links to organ, tissue or eye national associations or sites
  - Read a description of the TTSN background and purpose
Donor Search

- The user will be able to:
  - Search for an existing TTSN donor record using:
    - TTSN ID or
    - UNOS Donor ID or
    - Institution and Donor ID or
    - Last Name, First Name and at least one of the following:
      - Date of Birth, Date of Death and/or Date of Recovery
Donor Search Results

- The user will be able to:
  - View a list of donors meeting their search criteria
  - Link to the edit donor page
  - Perform a new search
  - Add a new donor
Register Institution Donor Identifiers

- The user will be required to:
  - Add their institution name and donor ID

- The user will have the option to:
  - Enter the types of tissue recovered
  - Print the record

- If the user entered the original donor identifiers to generate a TTSN ID, the user will be able to:
  - Edit the donor information
Graft Implantation Event

- The user will search for the TTSN donor record using:
  - TTSN ID or
  - Graft packaging institution and graft ID
Graft Implantation Search Results

- The user will be able to:

  - View a list of donors meeting their search criteria
  - Link to the register graft implant event page
  - Perform a new search
  - Register/add a graft implant event without a TTSN donor record
Graft Implant Registration

- The user will be required to:
  - Enter all data fields
  - Save the record

- The user will have the option to:
  - Print the page

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<th>Institution Name</th>
<th>Institution Donor ID</th>
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<td>234567</td>
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</table>
Proposal has been to offer this in multiple languages to promote global entries.
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Questions?

I encourage you to attend the TTSN Task Force Meeting on Tuesday afternoon.