OPTN

Public Comment Proposal

Improve Deceased Donor Evaluation for Endemic Diseases

OPTN Ad Hoc Disease Transmission Advisory Committee

Prepared by: Taylor Livelli and Houlder Hudgins
UNOS Policy and Community Relations Department

Contents

Improve Deceased Donor Evaluation for Endemic Diseases

Affected Policies: *Policy 2.9: Required Deceased Donor Infectious Disease Testing*
Sponsoring Committee: *Ad Hoc Disease Transmission Advisory*
Public Comment Period: *January 19, 2023-March 15, 2023*

Executive Summary

OPTN P*olicy 2.9: Required Deceased Donor Infectious Disease Testing* requires certain infectious disease testing to be performed for deceased donors.[1] The purpose of this requirement is to minimize disease transmission through organ transplantation. The two most common donor derived parasitic infectious diseases reviewed by the OPTN Ad Hoc Disease Transmission Advisory Committee (DTAC) are Strongyloidiasis and Chagas. The parasite *Strongyloides stercoralis (Strongyloides)* causes Strongyloidiasis and the parasite *Trypanosoma cruzi (T. cruzi) causes* Chagas disease. Despite available strategies to mitigate risk, the DTAC continues to report transmissions due to these pathogens.

The Ad Hoc Disease Transmission Advisory Committee proposes modifying policy to require antibody screening for *Strongyloides* of deceased donors and *T. cruzi* antibody screening of deceased donors born in endemic areas for Chagas disease. The OPTN will maintain a list of countries currently classified as endemic for Chagas by the Centers for Disease Control and Prevention (CDC). If an antibody screen is positive for *T. cruzi*, the Committee proposes a sample for confirmatory testing be submitted to the appropriate reference lab within 72 hours. Any information regarding potential disease transmissions must be communicated to the medical staff responsible for the recipient's clinical care at the transplant program as soon as possible, but no later than 24 hours after becoming aware of the potential disease transmission.[2]

This revision of OPTN policy aims to maintain transplant recipient safety through infectious disease testing by minimizing disease transmission through organ transplantation. The Committee will evaluate the success of this proposal through decreased deceased donor derived transmission events.

[1] OPTN Policy 2.9: Required Deceased Donor Infectious Disease Testing (Accessed November 7, 2022) https://optn.transplant.hrsa.gov/media/eavh5bf3/optn_policies.pdf.
[2] OPTN Policy 15.1: Patient Safety Contact (Accessed November 7, 2022) https://optn.transplant.hrsa.gov/media/eavh5bf3/optn_policies.pdf.

Purpose

The universal screening requirement for *Strongyloides* and the targeted screening approach for *T. cruzi* aims to decrease donor-derived transmission from organ transplantation. *Strongyloides* and *T. cruzi* are endemic diseases that have high potential for morbidity and potential mortality if transmitted to recipients. As organ offer patterns continue to change, increased awareness and communication for potential endemic diseases across regions is necessary.

Background

In 2022, the Endemic Diseases Subcommittee of the DTAC reviewed the potential gaps in education and policy regarding certain endemic diseases that presented significant patient safety risks, and for which identification and treatment strategies exist but are not in common use. Diseases are endemic to a region when they are consistently prevalent in that specific area. The Subcommittee included subject matter experts from the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA), along with representatives from organ procurement organizations (OPOs). The OPTN Membership and Professional Standards Committee (MPSC) wrote a memo to the DTAC on opportunities to improve patient safety, noting concerns regarding a lack of standardized testing and reporting practices of OPOs for endemic diseases.[3] *Strongyloides* and *T. cruzi* were identified in this process as two pathogens that should be evaluated. The Committee received support from the OPTN Organ Procurement Organizations Committee, the OPTN Transplant Administrators Committee, and the OPTN Operations and Safety Committee for clarity on endemic diseases.

Strongyloides

Strongyloides is a soil transmitted roundworm that infects the human small intestine causing the chronic disease known as strongyloidiasis.[4] The parasite is endemic to tropical and subtropical regions, but its presence has arisen in more temperate locations as well, including the United States, Japan, Australia, and Italy.[5] Endemic diseases are diseases commonly occurring within an area or community. Strongyloides is common in these regions because the environment is ideal for the parasite to thrive. While the global prevalence is generally estimated to be somewhere between 30 to 100 million infected persons, more recent estimates have shown a prevalence of at least 370 million.[6]

Complications due to *Strongyloides* infection are more apt to occur in organ recipients due to immunosuppression. Adult worms live in the host's small intestine, such as humans, dogs, cats, etc. The larvae can invade the lung, brain, liver, and kidney, as well as other tissues or organs, causing

[3] Ian Jamieson, Chair, OPTN Membership and Professional Standards Committee to Ricardo la Hoz, Chair, OPTN Ad Hoc Disease Transmission Advisory Committee, "Streamline reporting of donor test results," January 17, 2022, Organ Procurement and Transplantation Network, https://bodandcommittees.unos.org/DTAC/OPTNMaterials/20220117_To_OPO_KI_Streamline_donor_Results.pdf.

[4] Nutman, Thomas B. "Human Infection with Strongyloides Stercoralis and Other Related Strongyloides Species." *Parasitology*, vol. 144, no. 3, 16 May 2016, pp. 263–273., https://doi.org/10.1017/s0031182016000834.

[5] Ibid.

[6] Bisoffi, Zeno, et al. "Strongyloides Stercoralis: A Plea for Action." *PLoS Neglected Tropical Diseases*, vol. 7, no. 5, 9 May 2013, https://doi.org/10.1371/journal.pntd.0002214.

strongyloidiasis.[7] Strongyloides stercoralis hyperinfection syndrome is a rare but fatal disease, which occurs commonly in immunocompromised patients.[8] The clinical presentation of strongyloidiasis varies from asymptomatic infection and mild symptomatic abdominal disease to fatal disseminated infection in immunosuppressed patients. Hyperinfection syndrome and disseminated Strongyloidiasis are the most common complications[9] and if left untreated mortality approaches 90%.[10] Hyperinfection syndrome implies the presence of signs and symptoms attributable to increased larval migration and disseminated infection occurs when larvae migrate away from the lung and gastrointestinal tract into other organ systems.[11]

There are multiple causes of strongyloidiasis among solid organ transplant recipients: a recent acquisition or reinfection in an endemic area, a reactivation of chronic *Strongyloides* infection, or a donor-derived infection.[12] From 2012 to 2017, 44.8% of recipients who received organs from a donor with *Strongyloides* developed a donor-derived infection.[13] Of those recipients with donor-derived infection, 30.8% died of transmission related causes.[14] In another retrospective study of 2008-2017 cases, the proportion of disease transmission events from positive *Strongyloides* antibody screening tests increased and subsequently the proportion of proven and probable cases decreased. [15]

Proven transmissions occur when a donor tests positive for a disease and transmits the disease to a recipient. A probable transmission occurs when one or more recipients has suggestive data of a transmission from a donor. The increase in screening positive cases and decrease in actual transmissions is consistent with OPOs increasing use of *Strongyloides* antibody screening tests as well as subsequent notification and prophylactic treatment in recipients when the donor has tested positive.[16]

For prevention of new infections and transmissions of *Strongyloides* in transplant patients, the American Society of Transplantation recommends that OPOs and transplant centers perform screening of living and deceased donors based on epidemiological risk factors with a serological test.[17] Another

[7] Qu TT, Yang Q, Yu MH, Wang J. A Fatal Strongyloides Stercoralis Hyperinfection Syndrome in a Patient With Chronic kidney Disease: A Case Report and Literature Review. Medicine (Baltimore). 2016 May;95(19):e3638. doi: 10.1097/MD.0000000000003638. PMID: 27175679; PMCID: PMC4902521.
[8] Ibid.
[9] Mobley, Constance, M., et al. "Strongyloides stercoralis in Solid Organ Transplantation; Early Diagnosis Gets the Worm." Current Opinion in Organ Transplantation, vol. 22, no. 4, August 2017, pp. 336-344. doi: 10.1097/MOT.0000000000000428.
[10] Centers for Disease Control and Prevention. Strongyloidiasis. Accessed December 9, 2022. https://www.cdc.gov/dpdx/strongyloidiasis/index.html#:~:text=Rarely%2C%20patients%20with%20chronic%20strongyloidiasis,eosinophilia%20or%20elevated%20IgE%20levels.
[11] Mejia R, Nutman TB. Screening, prevention, and treatment for hyperinfection syndrome and disseminated infections caused by Strongyloides stercoralis. Curr Opin Infect Dis. 2012 Aug;25(4):458-63. doi: 10.1097/QCO.0b013e3283551dbd. PMID: 22691685; PMCID: PMC3430846.
[12] La Hoz RM, Morris MI. "Intestinal parasites including Cryptosporidium, Cyclospora, Giardia, and Microsporidia, Entamoeba histolytica, Strongyloides, Schistosomiasis, and Echinococcus: Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice." Clin Transplant. 2019 Sep;33(9):e13618.
[13] Kaul, Daniel R., et al. "Ten Years of Donor-Derived Disease: A Report of the Disease Transmission Advisory Committee." *American Journal of Transplantation*, vol. 21, no. 2, 5 July 2020, pp. 689–702., https://doi.org/10.1111/ajt.16178..
[14] Ibid.
[15] La Hoz RM, Vece G, Danziger-Isakov L, Florescu D, Malinis M, Lilly K, Strasfeld L, Wood RP, Tlusty S, Wolfe CR, Michaels MG. Donor Derived Strongyloidiasis, a Preventable Event . Am J Transplant. 2019; 19.
[16] Ibid.
[17] La Hoz RM, Morris MI. "Intestinal parasites including Cryptosporidium, Cyclospora, Giardia, and Microsporidia, Entamoeba histolytica, Strongyloides, Schistosomiasis, and Echinococcus: Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice." Clin Transplant. 2019 Sep;33(9):e13618.

recommendation is for recipients of organs from *Strongyloides* seropositive donors (having detectable antibodies by blood test), or those whose transplant centers are contacted about a potential donor derived event, to be immediately treated with prophylactic Ivermectin.[18] These interventions prevent Strongyloidiasis in organ recipients.

Since 2008, there have been 39 proven or probable transmissions of *Strongyloides* adjudicated by the Committee. In addition, 475 transplants adjudicated as intervention without disease transmission. This means that recipients of a donor with *Strongyloides* received treatment preventing the transmission. Universal screening will identify infected donors, allow targeted treatment of recipients of organs from positive donors, and decrease the risk of transmission of an infection that currently affects 370 million people worldwide. Despite the above, a 2021 survey revealed that only 24% of OPOs are screening for this prevalent disease.[19]

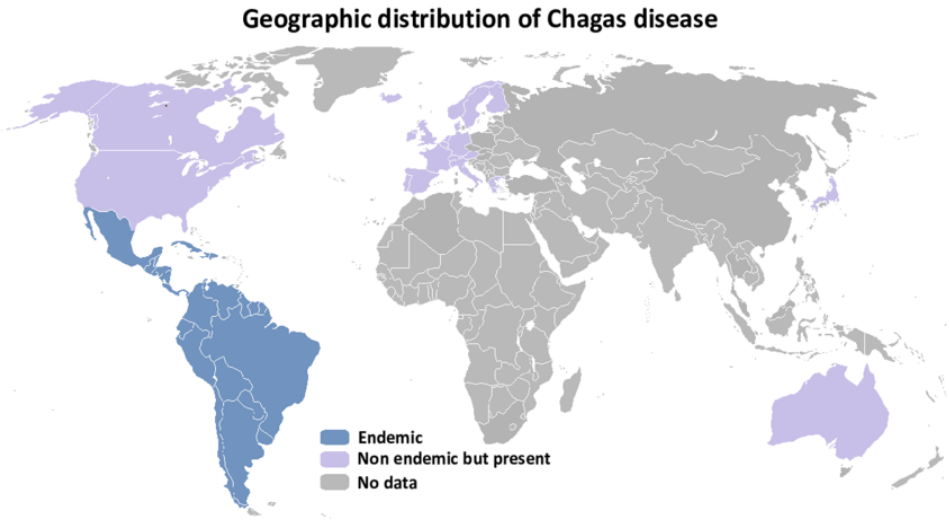
Trypanosoma cruzi

T. cruzi is a protozoan parasite which typically infects a patient through the bite and subsequent fecal or urine contamination from a triatomine bug and causes acute and/or chronic Chagas disease.[20] Other paths of transmission include in utero mother-to-baby, contaminated blood products, or via an organ transplanted from an infected donor.[21] *T. cruzi* is currently endemic to many parts of Latin America including Mexico, Central America, and South America, but not the Caribbean Islands, and an estimated eight million people globally are infected.[22] The list of countries classified as endemic for *T. cruzi* by the CDC include:

[18] Ibid.
[19] Theodoropoulos NM, Greenwald MA, Chin-Hong P, Ison MG. Testing deceased organ donors for infections: An organ procurement organization survey. Am J Transplant. 2021 May;21(5):1924-1930. doi: 10.1111/ajt.16552. Epub 2021 Mar 11. PMID: 33621430.
[20] WHO Expert Committee on the Control of Chagas Disease. "Chapter 2. Basic Information on Chagas Disease." *Control of Chagas Disease: Second Report of a WHO Expert Committee*, World Health Organization, Geneva, 2002, pp. 2–35. https://apps.who.int/iris/bitstream/handle/10665/42443/WHO_TRS_905.pdf?sequence=1&isAllowed=y.
[21] CDC. "Chagas Disease - Epidemiology & Risk Factors." *Cdc.gov*, Centers for Disease Control and Prevention, 11 Apr. 2022, https://www.cdc.gov/parasites/chagas/epi.html.
[22] Ibid.

- Mexico
- Belize
- Costa Rica
- El Salvador
- Honduras
- Guatemala
- Nicaragua
- Panama
- Argentina
- Bolivia
- Brazil
- Chile
- Colombia
- Ecuador
- Guyana
- Suriname
- French Guiana
- Paraguay
- Peru
- Uruguay
- Venezuela[24]

Figure 1: Areas affected by Chagas disease[23]



The World Health Organization estimates 6-7 million people worldwide are infected with *T. cruzi*.[25] The primary setting for Chagas disease is rural Latin America, where adobe houses and the presence of domestic animals favor domestic and peridomestic vector infestation.[26] While one study has estimated that Chagas disease has decreased worldwide by 11.3% between 1990 (7,290,000) and 2019 (6,460,000), increases in North America and Europe through 2010 highlight the importance of screening at-risk populations and raising awareness of this neglected tropical disease[27].

In 2019, the estimate prevalence of Chagas disease in the United States was 240,000 to 350,000 infections.[28] Another study estimated that there were 470,000 infected individuals living in the U.S. with an estimated 406,000 of these persons who migrated from endemic countries of Columbia, Brazil, and

[23] Sangenito, Leandro & Branquinha, Marta & Santos, André. (2020). Funding for Chagas Disease: A 10-Year (2009–2018) Survey. Tropical Medicine and Infectious Disease. 5. 10.3390/tropicalmed5020088.
[24] Centers for Disease Control and Prevention. "Chagas Disease: What U.S. Clinicians Need to Know." August 2012, https://www.cdc.gov/parasites/cme/chagas/lesson_1/5.html#:~:text=Endemic%20Countries&text=cruzi%20transmission%20occurs%2C%20or%20occurred,%2C%20Peru%2C%20Uruguay%20and%20Venezuela.
[25] "Chagas Disease." World Health Organization. World Health Organization, April 13, 2022. https://www.who.int/news-room/fact-sheets/detail/chagas-disease-(american-trypanosomiasis)#:~:text=Overview,cruzi.
[26] Bern, Caryn, Louisa A. Messenger, Jeffrey D. Whitman, and James H. Maguire. "Chagas Disease in the United States: A Public Health Approach." *Clinical Microbiology Reviews* 33, no. 1 (2019). https://doi.org/10.1128/cmr.00023-19.
[27] Gómez-Ochoa SA, Rojas LZ, Echeverría LE, Muka T, Franco OH. Global, Regional, and National Trends of Chagas Disease from 1990 to 2019: Comprehensive Analysis of the Global Burden of Disease Study. Glob Heart. 2022 Aug 24;17(1):59. doi: 10.5334/gh.1150. PMID: 36051318; PMCID: PMC9414802.
[28] Bern, Caryn, Louisa A. Messenger, Jeffrey D. Whitman, and James H. Maguire. "Chagas Disease in the United States: A Public Health Approach." *Clinical Microbiology Reviews* 33, no. 1 (2019). https://doi.org/10.1128/cmr.00023-19.

Mexico.[29] Immigrants from Latin America represented 6.9% of the U.S. population as of 2018[30]. The United States was the top non-endemic country with the largest estimated number of Chagas disease cases in 2019 (63,000) and California was the state with the highest number (13,600).[31]

Recipients of a solid organ transplant from a *T. cruzi* infected donor are at risk of donor-derived infection, with recipients of a heart transplant carrying the highest risk due to the parasite's affinity for the heart muscle and the associated cardiac complications.[32] Acute T. cruzi infection causes substantial morbidity and mortality in the posttransplant setting if not recognized and treated early.[33] Severe complications from active infection also include meningoencephalitis and death.[34] In a study of organ donors that were seropositive for *T. cruzi* from 2001-2011, 13 of 14 were either born in Latin America, or their mothers were.[35] Out of 32 recipients transplanted from a *T. cruzi*-seropositive donor from 2001-2011, 75% of heart recipients, 20% liver recipients, and 13% kidney recipients developed a donor-derived infection.[36]

Since 2008, there have been five proven or probable transmissions of *T. cruzi* adjudicated by the Committee. There have been 17 *T. cruzi* cases reported to the DTAC with no deaths.

The American Society of Transplantation recommends that all donors and recipients that have a personal or maternal history of residence in an endemic region be screened for *T. cruzi* with a serological assay.[37] They also recommend that heart transplants not take place from seropositive donors, and all other allografts be performed only at programs where screening, timely diagnosis, and treatment are possible.[38] Despite these recommendations, preventable transmissions continue to occur. The proposal will allow the identification of infected donors and avoid transmissions.

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[29] Gómez-Ochoa SA, Rojas LZ, Echeverría LE, Muka T, Franco OH. Global, Regional, and National Trends of Chagas Disease from 1990 to 2019: Comprehensive Analysis of the Global Burden of Disease Study. Glob Heart. 2022 Aug 24;17(1):59. doi: 10.5334/gh.1150. PMID: 36051318; PMCID: PMC9414802.

[30] Pérez-Nievas, S., Cordero, G., & Mallet-García, M. L. (2021). A Tale of Two Countries: The Sociopolitical Integration of Latino Immigrants in Spain and in the United States. American Behavioral Scientist, 65(9), 1131–1145. https://doi.org/10.1177/0002764221996750.

[31] Gómez-Ochoa SA, Rojas LZ, Echeverría LE, Muka T, Franco OH. Global, Regional, and National Trends of Chagas Disease from 1990 to 2019: Comprehensive Analysis of the Global Burden of Disease Study. Glob Heart. 2022 Aug 24;17(1):59. doi: 10.5334/gh.1150. PMID: 36051318; PMCID: PMC9414802.

[32] La Hoz RM, Morris MI. Tissue and blood protozoa including toxoplasmosis, Chagas disease, leishmaniasis, Babesia, Acanthamoeba, Balamuthia, and Naegleria in solid organ transplant recipients- Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice. Clin Transplant. 2019 Sep;33(9):e13546.

[33] Chin-Hong PV, Schwartz BS, Bern C, Montgomery SP, Kontak S, Kubak B, Morris MI, Nowicki M, Wright C, Ison MG. Screening and treatment of chagas disease in organ transplant recipients in the United States: recommendations from the chagas in transplant working group. Am J Transplant. 2011 Apr;11(4):672-80. doi: 10.1111/j.1600-6143.2011.03444.x. Epub 2011 Mar 14. PMID: 21401868.

[34] Colin J Forsyth et. Al. "US Chagas Diagnostic Working Group, Recommendations for Screening and Diagnosis of Chagas Disease in the United States" The Journal of Infectious Diseases, Volume 225, Issue 9, 1 May 2022, Pages 1601–1610, https://doi.org/10.1093/infdis/jiab513.

[35] Huprikar S, Bosserman E, Patel G, et al. Donor-derived Trypanosoma cruzi infection in solid organ recipients in the United States, 2001-2011. Am J Transplant. 2013 Sep;13(9):2418-25.

[36] Ibid.

[37] La Hoz RM, Morris MI. Tissue and blood protozoa including toxoplasmosis, Chagas disease, leishmaniasis, Babesia, Acanthamoeba, Balamuthia, and Naegleria in solid organ transplant recipients- Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice. Clin Transplant. 2019 Sep;33(9):e13546.

[38] Ibid.

Overview of Proposal

The DTAC proposes universal antibody testing of deceased donors for *Strongyloides* and antibody screening of *T. cruzi* for deceased donors born in countries currently classified as endemic for Chagas disease by the CDC. If an antibody test screen is positive for *T. cruzi*, the Committee proposes requiring confirmatory testing. The Committee proposes separate data fields for Chagas confirmatory testing and a new question on whether the donor was born in a country currently classified as endemic for *T. cruzi* under the 'infectious diseases' tab in the OPTN Donor Data and Matching system.

Strongyloides Antibody Screening

The Committee proposes the requirement of universal *Strongyloides* antibody screening to increase patient safety and reduce donor derived transmissions. Universal screening is being proposed versus targeted screening due to the movement of an estimated 30 to 100 million infected individuals and the lack of clear endemicity.[39] Testing is readily available and accurate for OPOs. Only 24% of 47 OPOs responding to a 2021 survey reported screening for this prevalent disease.[40] There is a high rate of prevention of disease transmission if treatment is provided and the therapy used is benign.[41] The Committee proposes that results do not need to be required pre-recovery since organs can still be utilized with a positive screening test due to the availability and effectiveness of treatment.

T. cruzi Antibody Screening and Confirmatory Testing

The Committee proposes the requirement of Chagas screening if a donor was born in a country currently classified as endemic for Chagas disease by the CDC. The OPTN will maintain a list of these countries on the OPTN website. Chagas is a fatal disease with a high mortality rate in transplant recipients. Only 37% of 47 OPOs responding to a 2021 survey reported testing for *T. cruzi*.[42] The screening testing for Chagas does not have adequate sensitivity and specificity, so a confirmatory test is required.[43] The CDC uses an algorithm to confirm a positive screening test, but as proposed OPOs would also have the option to ensure that confirmatory testing is completed using two different FDA cleared, approved, or licensed antibody diagnostic tests. Four assays have been U.S. Food and Drug Administration (FDA) cleared for diagnostic use.[44]

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[39] Puthiyakunnon S, Boddu S, Li Y, Zhou X, Wang C, Li J, Chen X. Strongyloidiasis--an insight into its global prevalence and management. PLoS Negl Trop Dis. 2014 Aug 14;8(8):e3018. doi: 10.1371/journal.pntd.0003018. PMID: 25121962; PMCID: PMC4133206.

[40] Theodoropoulos NM, Greenwald MA, Chin-Hong P, Ison MG. Testing deceased organ donors for infections: An organ procurement organization survey. Am J Transplant. 2021 May;21(5):1924-1930. doi: 10.1111/ajt.16552. Epub 2021 Mar 11. PMID: 33621430.

[41] Requena-Méndez A, Buonfrate D, Gomez-Junyent J, Zammarchi L, Bisoffi Z, Muñoz J. Evidence-Based Guidelines for Screening and Management of Strongyloidiasis in Non-Endemic Countries. Am J Trop Med Hyg. 2017 Sep;97(3):645-652. doi: 10.4269/ajtmh.16-0923. Epub 2017 Jul 27. PMID: 28749768; PMCID: PMC5590585.

[42] Theodoropoulos NM, Greenwald MA, Chin-Hong P, Ison MG. Testing deceased organ donors for infections: An organ procurement organization survey. Am J Transplant. 2021 May;21(5):1924-1930. doi: 10.1111/ajt.16552. Epub 2021 Mar 11. PMID: 33621430.

[43] Kelly EA, Bulman CA, Gunderson EL, Irish AM, Townsend RL, Sakanari JA, Stramer SL, Bern C, Whitman JD. Comparative Performance of Latest-Generation and FDA-Cleared Serology Tests for the Diagnosis of Chagas Disease. J Clin Microbiol. 2021 May 19;59(6):e00158-21. doi: 10.1128/JCM.00158-21. PMID: 33762363; PMCID: PMC8316041.

[44] Colin J Forsyth, Jennifer Manne-Goehler, Caryn Bern, Jeffrey Whitman, Natasha S Hochberg, Morven Edwards, Rachel

The Committee proposes screening test results must be available prior to transplant. This is specifically essential when transplanting a heart from a donor positive for *T. cruzi.* Mortality rates are high if a heart is transplanted from a donor with a positive Chagas screening test and a negative confirmatory test has not been received.[45] This may delay allocation, so the Committee requests feedback on the amount of time it takes to receive results of a screening test for *T. cruzi.*

If a donor's birthplace is unknown, the Committee proposes that the donor is not required to have a Chagas screening test conducted. This is in response to balancing risk and minimizing delays for organ allocation time.

NOTA and Final Rule Analysis

The Committee submits this proposal under the authority of the National Organ Transplantation Act (NOTA), which states that the OPTN shall "adopt and use standards of quality for the acquisition and transportation of donated organs"[46] and under the authority of the OPTN Final Rule, which states, "An OPTN member procuring an organ shall assure that laboratory tests and clinical examinations of potential organ donors are performed to determine any contraindications for donor acceptance, in accordance with policies established by the OPTN."[47] This proposal would assure that *Strongyloides* and *T. cruzi* testing of deceased donors is performed to determine if any additional measures should be taken to prevent transmission of parasitic infectious diseases for those who accept these donor organs.

Implementation Considerations

Member and OPTN Operations

Operations affecting Transplant Hospitals

Modifications to deceased donor testing may require modifications to medical record systems, particularly for transplant specific modules.

Transplant hospitals must also educate staff on changed criteria and risk discussion.

Operations affecting Organ Procurement Organizations

OPOs will need to set up agreements or modify testing protocols to obtain lab testing for *Strongyloides* and Chagas. OPOs will need to modify their donor screening questions and documentation for identifying donors that were born in endemic countries for Chagas. Confirmatory tests will be needed for donors if a positive Chagas screening test is obtained.

Marcus, Norman L Beatty, Yagahira E Castro-Sesquen, Christina Coyle, Paula Stigler Granados, Davidson Hamer, James H Maguire, Robert H Gilman, Sheba Meymandi, US Chagas Diagnostic Working Group, Recommendations for Screening and Diagnosis of Chagas Disease in the United States, ***The Journal of Infectious Diseases***, Volume 225, Issue 9, 1 May 2022, Pages 1601–1610, https://doi.org/10.1093/infdis/jiab513.

[45] Bern C, Messenger LA, Whitman JD, Maguire JH. Chagas Disease in the United States: a Public Health Approach. Clin Microbiol Rev. 2019 Nov 27;33(1):e00023-19. doi: 10.1128/CMR.00023-19. PMID: 31776135; PMCID: PMC6927308.

[46] 42 USC §274(b)(2)(E).

[47] 42 CFR §121.6(a).

This may involve programming changes to their medical record systems and changes to data collection and reporting. Additional testing may require additional communication with transplant programs. OPOs will need to educate staff on the revised screening questions. Operational and documentation changes will be needed as well.

Operations affecting Histocompatibility Laboratories

This proposal is anticipated to minimally affect the operations of Histocompatibility Laboratories. Since there are no changes in histocompatibility testing, any changes would affect labs that perform infectious disease testing and/or archive donor blood specimens for OPOs.

Operations affecting the OPTN

This proposal would require implementation in the OPTN Computer System; specifically, the OPTN Donor Data and Matching System. The OPTN Donor Data and Matching System alignment will include updating the mobile DonorNet® application to display the new fields.

This proposal requires the submission of official OPTN data that are not presently collected by the OPTN. The OPTN Contractor has agreed that data collected pursuant to the OPTN's regulatory requirements in §121.11 of the OPTN Final Rule will be collected through OMB approved data collection forms. Therefore, after OPTN Board approval, the forms will be submitted for OMB approval under the Paperwork Reduction Act of 1995. This will require a revision of the OMB-approved data collection instruments, which may impact the implementation timeline.

Potential Impact on Select Patient Populations

This proposal is expected to enhance patient safety for recipients of all deceased donor organs by reducing transmissions from donors to recipients through enhanced infectious disease testing.

Projected Fiscal Impact

Projected Impact on Histocompatibility Laboratories

There is no impact on Histocompatibility Laboratories.

Projected Impact on Organ Procurement Organizations

There may be costs associated with donor screening for *Strongyloides* and Chagas. Additional cost may be added for confirmatory testing following positive Chagas screening results. Staff training and updated protocols may be a one-time cost.

Projected Impact on Transplant Hospitals

There is minimal impact on transplant hospitals.

Projected Impact on the OPTN

This proposal would require a medium size effort to implement information technology changes. Additional hours relate to monitoring, compliance, and communication to members. The OPTN

estimates 415 hours for development, 830 for implementation, and 70 for ongoing efforts as far as resource estimates.

Post-implementation Monitoring

Member Compliance

At OPOs, site surveyors will continue to review a sample of deceased donor medical records, and any material incorporated into the medical record by reference, for documentation of either:

- Results of required *Strongyloides* testing
- Results of Chagas tests, if applicable
    - Evidence of the candidate being born in a country endemic to Chagas
    - Confirmatory Chagas testing, if needed

Policy Evaluation

This policy will be formally evaluated at approximately one- and two-years post-implementation. The following metrics, and any others subsequently requested by the Committee, will be evaluated as data are available and sample size allows. Comparisons will be made pre/post policy when applicable:

1. Volume of proven/probable *Strongyloides* or Chagas donor derived disease transmission events (PDDTE) of recipient cases reviewed by the OPTN Ad Hoc DTAC that were submitted through the OPTN Improving Patient Safety Portal
2. Number/percent of deceased donors with a positive *Strongyloides* or Chagas screening test result reported on the DDR, and the associated overall distribution of *Strongyloides* or Chagas infectious disease test results for deceased donors

Conclusion

The policy change to require universal deceased donor antibody screening for *Strongyloides* and targeted *T. cruzi* screening for deceased donors born in countries currently classified as endemic for Chagas by the CDC is in response to donor derived patient safety events reviewed by the Committee. This proposal seeks to limit infectious disease transmission through organ transplantation while addressing patient safety concerns after determining *Strongyloides* and *T. cruzi* are the two most common causes of donor derived parasitic infections reviewed by the DTAC. This proposal aims to reduce preventable recipient morbidity and mortality from these infections.

Considerations for the Community

The Committee requests feedback on the following questions:

- Should Chagas screening results be required pre-transplant?
- Should Chagas screening results be required pre-transplant only if the heart is being allocated?
- What barriers are in place for OPOs to access Chagas and Strongyloides antibody and Chagas confirmatory testing?
- Do patients support increased testing of deceased donor organs to prevent disease transmission?

Policy Language

Proposed new language is underlined (example) and language that is proposed for removal is struck through (~~example~~). Heading numbers, table and figure captions, and cross-references affected by the numbering of these policies will be updated as necessary.

2.9 Required Deceased Donor Infectious Disease Testing

The host OPO is responsible for ensuring that *all* of the following infectious disease testing is completed in Clinical Laboratory Improvement Amendments (CLIA) certified laboratories, or in laboratories meeting equivalent requirements as determined by the Centers for Medicare and Medicaid Services (CMS):

1. Blood and urine cultures
2. Infectious disease testing for all potential deceased organ donors using FDA licensed, approved or cleared tests, as listed below:
    a. HIV antibody (anti-HIV) donor screening test or HIV antigen/antibody (Ag/Ab) combination test
    b. HIV ribonucleic acid (RNA) by donor screening or diagnostic nucleic acid test (NAT)
    c. Hepatitis B surface antigen (HBsAg) donor screening test
    d. Hepatitis B core antibody (total anti-HBc) donor screening test
    e. Hepatitis B deoxyribonucleic acid (DNA) by donor screening or diagnostic nucleic acid test (NAT)
    f. Hepatitis C antibody donor screening test (anti-HCV)
    g. Hepatitis C ribonucleic acid (RNA) by donor screening or diagnostic nucleic acid test (NAT)
    h. Cytomegalovirus (CMV) antibody (anti-CMV) donor screening or diagnostic test
    i. Epstein-Barr Virus (EBV) antibody (anti-EBV) donor screening or diagnostic test
    j. Syphilis donor screening or diagnostic test
    k. Toxoplasma Immunoglobulin G (IgG) antibody test
    l. Strongyloides antibody donor screening test

    Donor samples for all required HIV, HBV, and HCV testing must be obtained within 96 hours prior to organ procurement.

3. Infectious disease testing for all potential deceased lung donors using an FDA licensed, approved, cleared, or emergency use authorized, lower respiratory specimen test for SARS-CoV-2 (COVID-19) by nucleic acid test (NAT):

    Lower respiratory specimen test results for SARS-CoV-2 by nucleic acid test (NAT) must be available pre-transplant of lungs.

4. Infectious disease testing using an FDA licensed, approved, or cleared screening test for Chagas antibody for all potential deceased donors whose donor history reflects the donor's birthplace was in a country classified as endemic for Chagas by the CDC. The OPTN maintains a list of countries currently classified as endemic for Chagas by the CDC.

Chagas screening antibody testing results must be available pre-transplant. Within 72 hours of receipt of a positive Chagas screening antibody test, the host OPO must submit a sample for confirmatory testing. Confirmatory testing requires submission through the CDC or at least two different tests performed that are FDA licensed, approved, or cleared antibody diagnostic tests.

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