GUIDELINES FOR PREVENTION OF TRANSMISSION OF INFECTIOUS DISEASES FROM ORGAN DONORS TO RECIPIENTS.

OBLIGATORY SCREENING OF THE DONOR

The following tests should be run before organs are offered. The decision to accept or reject an organ from a donor with a positive test must be taken by the responsible surgeon.

Test	Interpretation of positive reaction	Comment 1	Comment 2
HBsAg+*	The **liver** can be given to HBsAg+ recipients who are HDV-negative*.	HBsAg+ recipients are given entecavir or tenofovir from the time of transplantation.	HBIG prophylaxis has no value.
	The **liver** can be given to HBsAg-negative recipients in urgent cases.	The recipient must be given entecavir or tenofovir from the time of transplantation.	HBIG prophylaxis has no value.
	Non-liver organs can be given to all recipients in urgent cases.	HBsAg-negative recipients should preferably exhibit anti-HBs. For HBsAg-negative/anti-HBs+ recipient: Either careful monitoring and antiviral treatment at earliest sign of HBV recurrence or prophylaxis with entecavir or tenofovir at time of transplantation. For HBsAg-/anti-HBs-negative recipient: Both HBIG and entecavir or tenofovir should be given.	Prophylactic antiviral treatment recommended when HBV DNA level in donor is high.
Anti-HBc+*	The **liver** can be given to all recipients who are HDV-negative*	The recipient must be given entecavir or tenofovir from the time of transplantation.	HBIG prophylaxis is recommended only when recipient is HBsAg+.
	Non-liver organs can be given to all recipients.	If the donor is anti-HBs- negative, recipients without HBV markers should receive a single dose of HBIG prior to revascularization and short-term entecavir or tenofovir treatment may be considered	
Anti-HBs+	If anti-HBc+: see above.		
	If anti-HBc-negative **all organs** can be used.	No prophylactic treatment is indicated.	Anti-HBs reactivity is most probably due to previous immunization of the donor.
Anti-HCV+	**All organs** can be used. Priority should be given to recipients who are HCV RNA+.	Antiviral treatment against HCV should be initiated soon after transplantation if the result of HCV-RNA of the donor is positive.	
Anti-HIV+	Organs cannot be used, with the exception of urgent organ need in HIV+ recipients.		

** Organs should only be used if co-infection with HDV is very unlikely or excluded by anti-HDV or HDV-RNA*

It is recommended that recipients give an informed consent to the use of organs from donors with signs of viral hepatitis

Samples taken before donation, but analyzed later

Test	Interpretation of positive reaction	Comment 1
Anti-EBV IgG+	Increased risk for EBV complications in D+/R-.	Particularly important for pediatric recipients. In adults: 95% seropositive. All seronegatives at risk of post-transplant lymphoproliferative disease (PTLD).
Syphilis antibody+	Indication for treatment and/or special follow-up.	
Toxoplasma IgG+	Prophylaxis should be given to heart recipients that are Toxoplasma IgG- (high risk of infection), and should be considered for other organ recipients that are Toxoplamsa IgG-.	Trimethoprim-sulfamethoxazole is effective against Toxoplasma. Seroprevalence in adults: 10-15%.
IGRA test+ (only taken in donors with risk for latent tuberculosis)	If no history of ongoing tuberculosis in the donor, a positive test indicates latent infection or previously treated infection.	Medical history important for interpretation of reactive IGRA test. If untreated latent infection in the donor, treatment of the recipient should be considered, especially for lung recipients. If no treatment is given, clinical monitoring is important.
Anti-HSV IgG+	HSV-specific prophylaxis should be considered for all HSV-1 and HSV-2 seronegative recipients who are receiving organs from seropositive donors but who are not receiving anti-viral medication for CMV prevention that has activity against HSV.	

ACTIVE INFECTIONS IN DONOR:

- Septicaemia/Candidemia: Individual assessment – organs may be accepted if the causing agent and its antibiotic/antifungal resistance is known, and adequate antimicrobial treatment has been given. The necessary length of treatment of the donor, and post-tx of the recipient, will in each case depend on the causative agent and the clinical conditions.
- Multiresistant bacteria: Individual assessment – organs may be accepted if antibiotic resistance is known, and adequate antimicrobial treatment has been given.
  - If only colonization with MRSA, VRE and multiresistant gram-negativ bacteria, transplantation can be performed if colonized site is sealed off from donor organ.
  - If lungs are colonized with MDR bacteria, lungs should not be used.
  - If urine is colonized with MDR bacteria, kidneys should not be used.
- Multi-system organ failure due to overwhelming sepsis, gangrenous bowel: Not accepted
- Active tuberculosis: Normally not accepted but can be considered in urgent cases
- Disseminated mold fungal infection: Not accepted.
- Active disseminated viral infection due to Herpes viruses (HSV, CMV, VZV, EBV), measles: Not accepted
- Unknown CNS infection, or non-treatable encephalitis: Not accepted

RESPONSIBILITIES:

The transplantation coordinator:

- is responsible for adequate tests being requested and performed according to the protocol, and that the results are forwarded to the surgeon in charge of grafting.

The surgeon in charge of grafting:

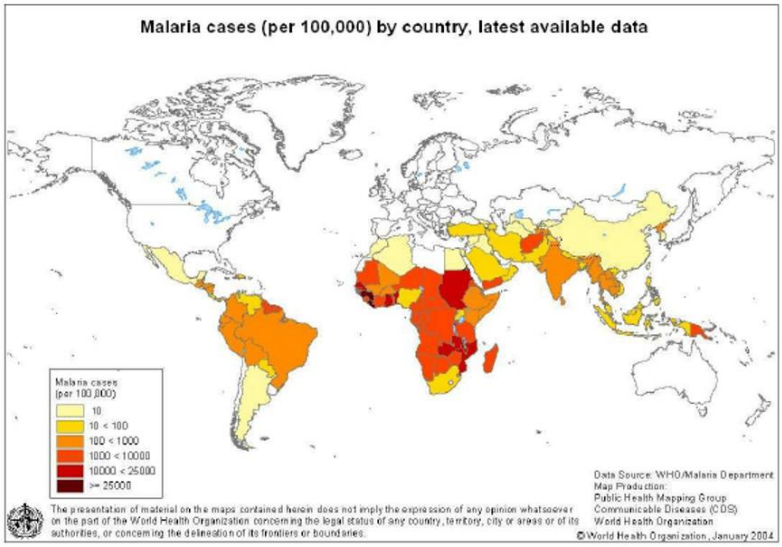
- is responsible for the acceptance and the use of the organ, and thus for knowing the results of the performed tests.
- is responsible for judging if a test could be postponed until after grafting or a mismatch could be accepted for the specific recipient.

STORING OF SERUM: Adequate material (sera) for testing and storage in the recipient centre must accompany each organ. Recipient centres should store donor and recipient (pre-transplant) serum (10 years).

OTHER INFECTIOUS DISEASES

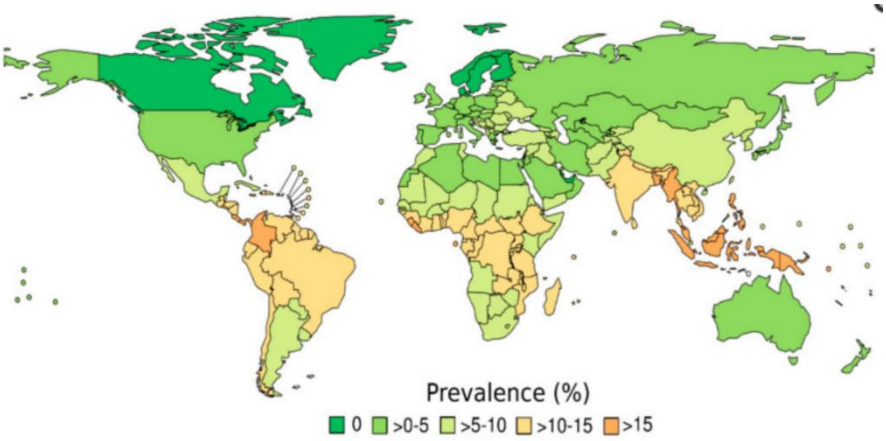
Other infections pose risks for complications after transplantation and may be of relevance in certain situations. This issue has become more relevant in the last decade due to immigration from and travels to regions where certain infections are endemic.

Hemmorrhagic fever	Travelers or residents returning from an area with ongoing outbreak should be deferred from donation of any organ for two months after return**.**
HTLV-I/II	An oncogenic virus with long latency. Anti-HTLV-I/II testing of donors from geographic areas with high prevalence of HTLV-I/II infections (*Japan, South America, the Caribbean, the Melanesian islands, Papua New Guinea, the Middle East, and in West, Central, and Southern Africa)* is recommended. If positive, organs are not accepted.
West Nile virus	Donors living or coming from regions with ongoing outbreak should be tested with PCR to rule out viremia. Organs from asymptomatic donors might be used before the results of the test is available. Organs from donors with sign of acute infection should not be used.
Q fever (Coxiella burnetii)	The risk is too low to justify testing. Exclusion of donors may rarely be considered on the basis of possible recent exposure and clinical picture.
Lymphocytic choriomeningit virus	The risk is too low to justify testing.
Malaria	All donors with recent stay (last 6 months) in any malaria-endemic region (see map below) should be screened for active malaria by microscopy or PCR. All donors with residency or long term stay in Sub-Saharan Africa during the past five years should be screened for asymptomatic malaria by PCR. In the case of a positive malaria-test, donor (if possible), and recipient should receive adequate treatment.



Leishmaniasis	Given the limited data (occasional case reports) on donor-derived visceral leishmaniasis and the low sensitivity of diagnostic tests to detect asymptomatic leishmaniasis, screening of donors from endemic areas cannot be recommended. Known untreated infection is a contraindication for organ donation.

Strongyloides stercolaris	Donors originating from or frequently visiting areas with >5% prevalence (see map below) should be screened for Strongyloides infection using serology. If IgG is positive (results will be obtained after transplantation), the recipient should receive treatment to prevent hyperinfection due to *S. Stercoralis.*



Chaga´s disease	Donors originating from or with long-term stay (>3 months) in countries with risk for transmission of *Trypanosoma cruzi** should be tested for *Trypanosoma cruzi* IgG. Positive tests should be confirmed by another serologic method due to sub-optimal specificity of single tests. Recipients receiving organs from a seropositive donor should be monitored by regular PCR for *T. cruzi* post-transplant. Heart and intestine from donors with chronic Chagas and/or a known positive IgG should not be accepted. Countries with the highest estimated risk for transmission of *Trypanosoma cruzi* are Bolivia (highest risk), Paraguay, Argentina, Honduras and El Salvador. Other countries at risk are Ecuador, Guatemala, Mexico, Brazil, Venezuela and Nicaragua. (References given in minutes from Inf. Prevention group meeting May 2022).
Zika virus	Donor with recent travel history to Latin America or other affected areas without any symptom of viral infection - the risk for Zika infection is low and this low risk should balance the harm by declining the organs.

These recommendations were proposed by the Scandiatransplant working group in August 2022. It is a revision of previous recommendations

Addendum May 2023

Covid-19 in deceased organ donation

All donors should be tested with SARS –CoV-2 RT-PCR (PCR) in upper respiratory airways at time of procurement. Lung donors should be tested with PCR from BAL at least within 72 hours but ideally as close to organ recovery as possible.

For donors previously known to have had a positive Covid-19 test and with negative PCR at time of procurement:

1. If no end-organ failure or thrombosis due to Covid-19 AND Covid-19 is not a contributory cause of death, transmittance of infection is unlikely, and the donor should be considered for organ acceptance

For donors with positive PCR at time of procurement:

1. No end-organ failure or thrombosis due to Covid-19 AND Covid-19 is not a contributory cause of death:
    a. Transmission of infection is unlikely, and donors should be considered for organ acceptance except lungs and intestines:
        i. Lungs should not be accepted.
        ii. Theoretically transmission of infection may be possible through intestinal transplantation, and potential risks vs benefits should be balanced carefully.

2. End-organ failure or thrombosis due to Covid-19 OR Covid-19 is a contributory cause of death:
    a. Organ donation not suitable.