

Definitions of Transplantability Score and calculated combined PRA

A donor pool, based on 5000 recently HLA typed deceased donors registered in Scandiatransplant, has been made. The pool forms the basis of the Transplantability Score and calculated combined PRA.

	Calculated PRA (cPRA)	Transplantability Score (TS)
HLA information used in calculation	HLA antibody specificities defined on the patient. HLA-A, B, C, DRB1 and DQB1	HLA antigen typing and defined acceptable HLA mismatches on the patient. HLA-A, B, C, DRB1, DRB3, DRB4, DRB5, DQA1, DQB1, DPA1 and DPB1 antigens
ABO used in calculation	No	Yes
Result based on the donor pool	Percentage of donors which the patient has antibodies against.	Percentage of donors which are ABO identical/compatible and have HLA split level antigens that are acceptable to the recipient
Describes the probability of finding a suitable donor	No, ABO is not included	Yes, dependent on the size of the donor pool



1. cPRA

It gives you a combined Class I + II PRA, which is the percentage of donors that the patient has antibodies against regardless of ABO.

A 'real' cell panel often represents as many antigens as possible, thus the distribution of antigens is not comparable to the real population. As the calculated combined PRA is based on a large donor pool it doesn't have that disadvantages.

Furthermore, a *combined* PRA gives you a probability of the risk of a positive crossmatch. A patient could have a Class I PRA = 50% and Class II PRA = 38%, but a combined PRA = 86%.

Example: PRA = 80%

The patient has antibodies against 80% of the donors

- ➔ $0,80 \times 5000 = 4000$ donors
- ➔ Will not have antibodies against 1000 donors, but then ABO has not been taken into consideration!

a. All, cPRA based on antibody summary

This calculation is based on all antibodies listed in the 'HLA antibody summary', both historical identified and current antibodies. Only antibodies set as acceptable (not clinical relevant) are not included.

Calculation is updated each time new antibody screen test results are add in YASWA (both manually entered and automatically transferred)

b. 1 year, cPRA based on antibodies defined within the latest year

This calculation is based on all antibodies specified in HLA antibody screen tests within the latest year.

Calculation is updated each time you enter the patient record in YASWA or when data is extracted

c. Sample, cPRA based on antibodies defined on a specific sample

This calculation is based on antibodies defined in a specific sample examples 'Latest sample', which is the most recent result and 'Latest sample before termination from waiting list', which is latest result before termination/transplantation.

Calculation is found on each sample and done every time a HLA antibody screen test result is added/updated on a recipient in YASWA (both manually entered and automatically transferred).

2. TS

The TS is based on acceptable HLA mismatches and ABO.

It gives you the percentage of donors which are ABO identical (TS, ABO identical) or compatible (TS, ABO compatible) and have HLA split level antigens that are acceptable to the recipient.

Compared to the PRA based evaluations the calculation has the advantage of taking both HLA as well as ABO into consideration, resulting in a more realistic estimate of finding a suitable deceased donor kidney for the individual patient and especially for patients with rare ABO types.

Example: TS = 2%

The patient could get at suitable graft from 2% of the donors

$$\rightarrow 0,02 \times 5000 = 100 \text{ donors}$$

If you want to look at the probability of getting the patient transplanted, one must look at a certain donor pool size/time period.

\rightarrow With around 600 donors per year in Scandiatransplant:

$(TS/100) \times \text{number of donors per year} = \text{number of donors matching within 1-year (2024)}$

$(2/100) \times 600 = 12 \text{ matching donors per year}$

a. Estimated TS based on antibodies specified within the latest year

This calculation uses all antibodies specified in HLA antibody screen tests within the latest year and sets all antigens which the recipient has no antibodies against as acceptable mismatches.

Calculation is updated each time you enter the patient record in YASWA or when data is extracted

b. Estimated TS based on antibodies specified in latest antibody screen test

This calculation uses antibodies defined in latest sample and sets all antigens which the recipient has no antibodies against as acceptable mismatches.

Calculation is updated each time a new antibody result is inserted or the most recent result is updated.

c. Calculated TS based on defined acceptable mismatches

This calculation is done directly on the acceptable mismatch defined by the tissue typing lab, thus only available on recipients with a STAMP/LAMP record.

Calculation is done when acceptable mismatches are defined and updated.