

# Surveillance, Risk Assessment and Policy (SRAP) Subgroup

## Cost Utility Analysis of HIV, HCV, and HBV Screening of Blood Donations

Project funded by the ISBT TTID Working Party

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# Transfusion Transmitted Infectious Diseases

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# Update

- The tool is complete and accessible at:

<http://www.isbtweb.org/working-parties/transfusion-transmitted-infectious-diseases/>

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**Surveillance, Risk Assessment & Policy**

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**Cost Utility Analysis Webtool for HIV, HBV and HCV**

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**Access webtool here**

<https://interactive.basecase.com/home#!/summary?id=14143>

# Activities in last year

- Extensive QC of the underlying model and the web interface
- Switch to QALYs
- Addition of new part of Results reporting
- Alliance of Blood Operators (ABO) project
  - Complex issues related to disclosure of results have not been resolved

This tool allows you to perform analysis of blood donation screening strategies for the following test combinations:

- HIV Ab + HCV Ab + HBsAg
- HIV Combo + HCV Combo + HBsAg
- All Mini Pool Multiplex NAT
- All Individual Donation Multiplex NAT
- Do nothing (HIV, HCV, HBV)

You can estimate the cost-effectiveness of screening in for the data you will need, before you start entering data. **data, you will need to register an account.** Please see name, and organization to bcuster@bloodsystems.org. marinus.van.hulst.transfusion@gmail.com for information

This application will guide you through the analysis steps are:

Select a country from the list to the right that best match country will appear. These values can be replaced with the default values, you can re-select the country in the

- If you can't provide data for a particular strategy, compare
- Select the 'Next Step >>' in the lower right of each entry or results page
- On the 'Results' page you will be able to select the compare

This tool was developed by the Surveillance, Risk Assessment and was funded by the ISBT TTID WP and Blood Systems Research Institute

## Predefined Country Scenarios

Scenarios	Save
USA data	
Ghana data	
Brazil data	
South Africa data	
Thailand data	

- Introduction
- Risk Model and Donor Population
- Recipient Patient Epidemiology
- Infectious Window Periods
- Screening Costs
- Methodology
- HIV+ Recipient
- HBV+ & HCV+ Recipient
- HBV & HCV Disease Treatment Costs
- Results

and Infections Diseases Working Party (TTID WP) and BaseCase, and



# Infectious Window Periods

If you are interested in Minipool NAT for your setting, please specify a pool size on the right side of the table below. Optionally, you may also adjust the window periods of the tests. However, unless you have specific data on the windows periods of the tests available in your setting, it is better to use the pre-loaded data.

<u>HIV Ab</u>	<input type="text" value="20.3"/> days
<u>HBsAg</u>	<input type="text" value="38.3"/> days
<u>HBsAg (late stage)</u>	<input type="text" value="24"/> days
<u>HCV Ab</u>	<input type="text" value="65"/> days
<u>HIV Combo (Ab,p24)</u>	<input type="text" value="15"/> days
<u>HCV Combo (Ab,Ag)</u>	<input type="text" value="12.5"/> days
<u>HIV ID-NAT, Ab</u>	<input type="text" value="6"/> days
<u>HBV ID-NAT, HBsAg</u>	<input type="text" value="21"/> days
<u>HBV ID-NAT, HBsAg (late stage)</u>	<input type="text" value="12.9"/> days
<u>HCV ID-NAT, Ab</u>	<input type="text" value="5"/> days

### Multiplex Minipool NAT

For the pool size you select the window periods will automatically be estimated.

<u>Pool Size</u>	<input type="text" value="12"/>
<u>HIV MPNAT, Ab</u>	9.59 days
<u>HBV MPNAT, HBsAg</u>	28.75 days
<u>HCV MPNAT</u>	6.97 days
<u>HBV MPNAT, HBsAg (late stage)</u>	13.03 days

[Advanced Inputs](#)

■ HIV Ab + HCV Ab + HBsAg    
 ■ HIV Combo + HCV Combo + HBsAg    
 ■ All Mini Pool (x) Multiplex NAT    
 ■ All Individual Donation Multiplex NAT



# Reporting Options - Update

1. Infections remaining, costs (testing and disease) and QALYs
2. Incremental cost effectiveness ratios (ICERs)
3. ICER / GNI per capita
  - Ratio  $\leq 1$  – Cost effective
  - $1 < \text{Ratio} < 3$  – Context dependent
  - Ratio  $> 3$  – Not cost-effective
4. Cost-effectiveness plane, also known as the Efficiency Frontier

Download report

Please select the screening strategies you would like to compare for your setting. Results can be viewed in three different ways by selecting the tab for ICERs, Cost-Effectiveness Plane or Totals.

Infections remaining, costs and QALYs	ICER	ICER / GNI per capita			CE Plane
Screening Strategies	HIV	HCV	HBV	Costs	QALYs
HIV Ab + HCV Ab + HBsAg	28.702	163.943	6.128	\$4,996,625	5,019.2
HIV Combo + HCV Combo + HBsAg	21.208	35.151	6.128	\$9,822,247	5,216.6
All Mini Pool (x) Multiplex NAT	12.353	17.858	3.886	\$19,341,662	5,322.4
All Individual Donation Multiplex NAT	7.918	13.779	3.295	\$29,319,910	5,370.0
Do Nothing (HIV, HCV, HBV)	417.460	1,103.443	405.372	\$4,541,873	0.0

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Infections remaining, costs and QALYs	ICER	ICER / GNI per capita			CE Plane
	AB+HBsAg	Combo+HBsAg	MP Multi NAT	ID Multi NAT	Compared to:
	0.0	0.1	0.4	0.6	Do Nothing
		3.3	6.4	9.4	AB+HBsAg
			12.2	17.3	Combo+HBsAg
				28.5	MP Multi NAT

- HIV Ab + HCV Ab + HBsAg
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- All Individual Donation Multiplex NAT





# Risk Based Decision Making Project

## Health Economic and Outcomes

Objective: To compare the cost-utility of the same interventions in a list of countries with similar HDIs

Participants: Australia, Canada, Denmark, Finland, France, Netherlands, UK, USA (two other countries have been approached)

- Are patterns of similar cost-effectiveness/utility ratios evident?
- What aspects may exhibit substantial differences?
- Are there broader patterns with respect to blood safety for HIV, HBV, and HCV that can be discerned?

# Acknowledgments

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- Peter Tomasulo
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## Other collaborators

- Gijs Hubben

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