



Nevada Ryan White Part B CAREWare Guidance Documents Lab Results Primer

SCOPE OF COVERAGE

Directly applicable to all Ryan White Part B funded service providers.

PURPOSE OF PRIMER

In order to assist providers in understanding the variety of ways that lab results are reported.

BACKGROUND

Lab results are a required document for consumers who apply for benefits in the Ryan White HIV/AIDS Programs in Nevada. HIV Viral Load and CD4 T-Cell lab results are required for initial and annual enrollment for all consumers. All lab results are required to be entered into the Encounters tab and Lab Results subtab within CAREWare. Please review the 15-21 CAREWare User Guide for additional information on how to do that.



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Component	Latest Ref Rng	3/13/2017 10:24 AM	3/13/2017 10:24 AM	3/13/2017 10:24 AM	3/13/2017 10:24 AM	3/13/2017 10:24 AM
Sodium	135 - 145 mmol/L			138		
Potassium	3.6 - 5.5 mmol/L			4.0		
Chloride	96 - 112 mmol/L			104		
Co2	20 - 33 mmol/L			30		
Anion Gap	0.0 - 11.9			4.0		
Glucose	65 - 99 mg/dL			84		
Bun	8 - 22 mg/dL			9		
Creatinine	0.50 - 1.40 mg/dL			0.75		
Calcium	8.5 - 10.5 mg/dL			9.4		
AST(SGOT)	12 - 45 U/L			23		
ALT(SGPT)	2 - 50 U/L			16		
Alkaline Phosphatase	30 - 99 U/L			77		
Total Bilirubin	0.1 - 1.5 mg/dL			0.7		
Albumin	3.2 - 4.9 g/dL			4.1		
Total Protein	6.0 - 8.2 g/dL			6.7		
Globulin	1.9 - 3.5 g/dL			2.6		
A-G Ratio				1.6		
Cd4 -T4 Helper Cells	490 - 1600 cells/uL				439 (L)	
Cd8 -T8 Suppressor Cells	150 - 1050 cells/uL				267	
Cd3 Ct	660 - 2200 cells/uL				649 (L)	
Cd4-Cd8 Ratio	0.80 - 6.17 ratio				1.64	
Interpretation					See Note	
Cholesterol,Tot	100 - 199 mg/dL		196			
Triglycerides	0 - 149 mg/dL		144			
HDL	>=40 mg/dL		30 (A)			
LDL	<100 mg/dL		137 (H)			
HIV-1 RNA PCR log						<1.3
HIV PRNA PCR Copy/MI						<20
HIV RNA PRC Interp	Not Detected					Not Detected
GFR If African American	>60 mL/min/1.73 m 2	>60				
GFR If Non African American	>60 mL/min/1.73 m 2	>60				

In CAREWare for this individual – the HIV Viral Load number was put in as **<1.3** which is connected to the HIV logarithmic scale number. Using the logarithmic scale number is incorrect. The purpose of the logarithmic scale is to turn large numbers into more manageable numbers for data presentation. For example, 10,000,000 (ten million) can also be written as 7.0 log₁₀. Remember to use to actual Copy number, the assay would be listed as PCR.



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RNA HIV-1 RNA,QN,RT PCR VL BOTH			
COLLECTION DATE	01/25/2017	08/15/2016	04/05/2016
Order Date	12/19/2016	08/15/2016	04/05/2016
Result Date	01/25/2017	08/16/2016	04/10/2016
Ordering Physician	CHARLES KRASNER	KRASNER, CHARLES	KRASNER, CHARLES
HIV-1 RNA by PCR	19	<20 (copies/mL)	<20 (copies/mL)
log10 HIV-1 RNA	1.2	TNP (log10copy/mL)	TNP (log10copy/mL)

This lab result is more unusual because the sensitivity of the test was able to capture 19 viral load copies. CAREWare had the correct entry at =19. The client's medical provider might explain that the individual can consider themselves viral

RNA, Real Time PCR (Non-Graph)			
HIV-1 RNA by PCR	20	copies/mL	03
The reportable range for this assay is 20 to 10,000,000 copies HIV-1 RNA/mL.			
log10 HIV-1 RNA	1.301	log10copy/mL	

The reportable viral load for this individual would be =20 with PCR listed as the assay.

HIV-1 RNA QUANT REAL-TIME PCR 40085

Stage: Final

This test was performed using the COBAS(R) AmpliPrep/ COBAS(R) TaqMan(R) HIV-1 test kit version 2.0. (Roche Molecular Systems, Inc.)

PATIENT COMMENTS:

Test	Result	Units	Flag Reference Range
HIV-1 RNA ULTRAQUANT LOG	1.68	Copies/mL	A <1.30 NEG

This test was performed using the COBAS(R) AmpliPrep/ COBAS(R) TaqMan(R) HIV-1 test kit version 2.0. (Roche Molecular Systems, Inc.)

PATIENT COMMENTS:

HIV-1 RNA Quant	48	Copies/mL	A <20 NEG
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The HIV Viral Load would be entered in CAREWare for this client as =48 with Other listed as the assay.



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MOLECULAR IMMUNOLOGY			
Date	02/10/2017		
Day of Stay	Fri		
Time	08:49:00		
Procedure		Units	Ref Range
HIV-1 RNA Quant Copies i	97 ✓	COPIES/ML	
HIV-1 RNA Quant Logs	1.99	Log copies/mL	
02/10/2017 08:49:00 HIV-1 RNA Quant Copies:			
HIV VL Method: Reverse Transcription-Polymerase Chain Reaction (RT-PCR)			
Note: Reference Range = Not Detected			

The HIV Viral Load would be =97 in CAREWare with PCR selected as the assay.

Tests: (5) RNA, Real Time PCR (Non-Graph) (550430)	
HIV-1 RNA by PCR	1140 copies/mL
The reportable range for this assay is 20 to 10,000,000 copies HIV-1 RNA/mL.	
log10 HIV-1 RNA	3.057 log10copy/mL

The HIV Viral Load would be =1140 in CAREWare with PCR selected as the assay

HIV-1 RNA, QUANTITATIVE REAL-TIME PCR		
HIV-1 RNA Quant	<20 NEG	<20 NEG copies/mL
HIV-1 RNA Log	<1.30 NEG	<1.30 NEG copies/mL
HIV-1 RNA not detected.		
This test was performed using the COBAS(R) AmpliPrep/ COBAS(R) TaqMan(R) HIV-1 test kit version 2.0. (Roche Molecular Systems, Inc.)		

Another way you might see the HIV Viral Load is looking at the RNA Quant number. This means the quantity of HIV RNA per milliliter of blood specimen collected.



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Hiv-1 Rna Ultra Quant, Blood

Ordered by Joseph Tyler Lonergan, MD

Resulted on 12/16/15

Component Results

	Value	Std Range
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HIV-1 RNA

Ultra Quant, Plasma **Not Detected**

Linear Detection Range = 20-10,000,000 copies/mL.

UCSD uses the FDA approved Roche HIV-1 v 2.0 assay for detection by Real Time PCR.

Result status: Final result

This lab result is different in that the value is Not Detected – so the indication on what would be entered into CAREWare will come from looking at the detection range of 20 to ten million. Since the lower end of the range is 20, undetectable will be <20.

RNA HIV-1 RNA,QN,RT PCR VL BOTH

NAME	VALUE
F HIV-1 RNA by PCR	<20 (copies/mL)
	HIV-1 RNA not detected

LAB
BN

The reportable range for this assay is 20 to 10,000,000 copies HIV-1 RNA/mL.

This lab result shows the HIV viral load as <20.



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Component	Your Value	Standard Range	Flag
HIV Ag/Ab Combo Assay	Reactive	<i>Non Reactive</i>	A
Screen is POSITIVE for p24 antigen and HIV 1/O/2 antibodies. The specimen will be sent for HIV-1/HIV-2 antibody differentiation confirmation by immunoassay.			

This lab result is a qualitative immunoassay that detects the presence of a specific HIV antigen (Ag) and HIV antibodies (Ab). This is not a test that indicated quantitative viral load. This can be used for Proof of Diagnosis along with a document of detectable HIV RNA or a different assay that is not the HIV Ag/Ab Combo Assay.

Component Results			
Component	Your Value	Standard Range	Flag
HIV 1/2 Ab Diff	See Below		
INTERPRETIVE INFORMATION: HIV-1/2 Ab Diff, Supplemental This assay should not be used for blood donor screening, associated re-entry protocols, or for screening Human Cell, Tissues, and Cellular and Tissue-Based Products (HCT/P).			
HIV Antibody	Positive	<i>Negative</i>	A
HIV 2 Abs, EIA	Indeterminate	<i>Negative</i>	A
HIV Interp	Pos HIV-1 Ab		A

1 This lab result is a qualitative immunoassay that detects the presence of a specific HIV antibody (Abs). This is a lab test that tests for the presence of HIV-1 and HIV-2 antibodies. This can be used for Proof of Diagnosis along with a document of detectable HIV RNA or a different assay that is not the "HIV 1/2 Ab Diff."

HIV PANEL			
Observations	Result	Reference / UoM	Date/Status
HIV-1 RNA Quant ¹	● 41	<20 NEG copies/mL Abnormal (applies to non-numeric results)	02/20/2017 04:37 am
HIV-1 RNA Log ¹	● 1.61	<1.30 NEG copies/mL Abnormal (applies to non-numeric results)	02/20/2017 04:37 am
Vendor note: This test was performed using the COBAS(R) AmpliPrep/ COBAS(R) TaqMan(R) HIV-1 test kit version 2.0. (Roche Molecular Systems, Inc.)			

The quantitative HIV Viral Load for this lab is =41.



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	1 2/22/2017 1735	2 2/22/2017 0214	3 2/21/2017 0740	4 2/20/2017 1938	5 2/20/2017 1649	6 2/20/2017 1303
IMMUNOCHEMISTRY						
Vitamin B12 -True ...		1106 A				
Ferritin		1092.1 A				
Folate -Folic Acid		12.7				
THYROID TESTING						
TSH		0.910				
HEPATITIS TESTING						
Hepatitis A Virus ...			Negative *			
Hepatitis B Surfac...			Negative *			
Hepatitis B Core A...			Negative *			
Hepatitis C Antibody			Negative *			
INFECTIOUS DISEASE						
HIV 1/2 Ab Diff				See Below *		
HIV 2 Abs, EIA				Negative		
HIV Ag/Ab Combo Assay						Reactive *
HIV Antibody				Negative		
HIV Interp				HIV Abs Neg *		
HIV PRNA PCR Copy/MI				2,400,000		
HIV RNA PRC Interp				Detected *		
HIV-1 RNA PCR log				6.4		
Influenza A 2009, ...	Not Detected *					
Influenza virus A RNA	Negative *					
Influenza virus B RNA	Negative *					
SEROLOGY						
Syphilis, Treponem...		Non Reactive *				
Stat C-Reactive Pr...					2.64 A	

This combination document can be used as Proof of Diagnosis and current viral load. The Proof of Diagnosis is determined from a detectable viral load of 2,400,000 (two-million, four-hundred-thousand) and an immunoassay of the HIV Ag/Ab Combo Assay. You might notice that the individual is negative for the HIV Antibody test – this means that this sample was collected soon after infection and the body has not yet produced antibodies specific to HIV.

LYMPHOCYTE SUBSET PANEL 1			
%CD3 (Mature T Cells)	67		57-85 %
Absolute CD3+ Cells		116 L	840-3060 Cells/uL
%CD4 (Helper Cells)		1 L	30-61 %
Absolute CD4+ Cells		3 L	490-1740 Cells/uL
%CD8 (Suppressor T-Cells)		62 H	12-42 %
Absolute CD8+ Cells		112 L	180-1170 Cells/uL
Helper/Suppressor Ratio		0.02 L	0.86-5.00 Cells/uL
%CD16+CD56 (NK Cells)	21		4-25 %
Absolute NK Cells		35 L	70-760 Cells/uL
%CD19 (B Cells)	12		6-29 %
Absolute CD19+ Cells		20 L	110-660 Cells/uL
Absolute Lymphocytes		174 L	850-3900 Cells/uL

The result to be entered into CAREWare is the Absolute CD4+ Cells value of =3.



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Helper T-Lymph-CD4 CD4

NAME	VALUE	REFERENCE RANGE	LAB
F Absolute CD 4 Helper	543	359-1519 (/uL)	PDLCA
F % CD 4 Pos. Lymph.	36.2	30.8-58.5 (%)	SE

The result entered into CAREWare is the Absolute CD 4 Helper value of =543

Tests: (1) Helper T-Lymph-CD4 (505008)

Order Note: Clinical Information: SRC:TH

SRC:RT

*Absolute CD 4 Helper [L]	20 x1000	359-1519
% CD 4 Pos. Lymph. [L]	1.5 %	30.8-58.5
WBC	4.4 x10E3x1000	3.4-10.8
RBC [L]	3.23 x10E6x1000	4.14-5.80
Hemoglobin [L]	9.2 g/dL	12.6-17.7
Hematocrit [L]	27.4 %	37.5-51.0
MCV	85 fL	79-97
MCH	28.5 pg	26.6-33.0
MCHC	33.6 g/dL	31.5-35.7
RDW	13.8 %	12.3-15.4
Platelets	379 x10E3x1000	150-379
Neutrophils	53 %	
Lymphs	29 %	
Monocytes	13 %	
Eos	4 %	
Basos	0 %	

The result for this lab result may seem odd but the result to be entered into CAREWare for CD4 is the Absolute CD 4 Helper value of =20. The x1000 is not necessary. You can tell that 20 is the correct answer because it is tagged with a [L] meaning it is a low result outside of the range; if it was 20,000 then it would be tagged with a [H].



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Helper T-Lymph-CD4 CD4		
COLLECTION DATE	02/03/2017	07/06/2016
Order Date	02/03/2017	07/06/2016
Result Date	02/05/2017	07/09/2016
Ordering Physician	DANKO, REKA	SPADONE, IVY
Immature Grans (Abs)	0.0 (0.0-0.1 x10E3/uL)	0.0 (0.0-0.1 x10E3/uL)
Immature Granulocytes	0 (%)	0 (%)
Baso (Absolute)	0.1 (0.0-0.2 x10E3/uL)	0.0 (0.0-0.2 x10E3/uL)
Hemoglobin	15.7 (12.6-17.7 g/dL)	15.2 (12.6-17.7 g/dL)
MCV	102 H (79-97 fL)	101 H (79-97 fL)
Eos (Absolute)	1.0 H (0.0-0.4 x10E3/uL)	0.6 H (0.0-0.4 x10E3/uL)
Absolute CD 4 Helper	1642 H (359-1519 /uL)	1190 (359-1519 /uL)
% CD 4 Pos. Lymph.	33.5 (30.8-58.5 %)	34.0 (30.8-58.5 %)

The results entered into CAREWare can be both of the Absolute CD 4 Helper entries. The first one on 02/03/17 for =1,642 and for 07/06/16 for =1,190.

CD4/T-HELPER CELL PROFILE			
Result Date: 04/13/16 09:41 AM			
Analyte	Result Value	Ref. Range	Units
WHITE BLOOD CELL COUNT	5.8	3.8-10.8	k/uL
LYMPHOCYTES	31.3		%
Lymphocytes	1888	850-3800	Cells/uL
CD4+,CD3+(Helpers)	675	490-1740	Cells/uL
CD4,CD3+(%Helpers)	38	30-61	%
CD8+,CD3+(Suppressors)	722	180-1170	Cells/uL
CD4/CD8 Ratio	0.94	0.86-5.00	ratio

Figure 2 – These results indicates the CD4+/CD3+ (Helpers) rather than the CD4+ alone. CD3s represent the total number of T lymphocytes. All T Cell Lymphocytes (immune cells) have CD3 receptors on them but they can either have CD4 receptors or CD8 receptors. The result entered into CAREWare would be =675.