

# Memo

**To:** Reference Laboratory Clients  
**From:** Allina Medical Laboratories, Reference Laboratory Services  
**Date:** November 12, 2008  
**Re:** Hematology Reference Ranges

Effective November 11, 2008, Allina Medical Laboratories Hematology Department began using validated reference ranges for all parameters. These ranges were compiled in 2005 from samples collected and processed in the Allina Metro / Regional Hospitals and AMC Clinics. These ranges will be on all patient reports generated from AML. For your reference, the chart below lists the Old and the New ranges.

A copy of the Ranges can also be found on our website at [www.allina.com/medicallaboratories](http://www.allina.com/medicallaboratories).

<b>HEMATOLOGY REFERENCE RANGES</b>				
			<b>Reference Range</b>	
<b>TEST</b>	<b>Age/Sex</b>	<b>Units</b>	<b>Old</b>	<b>New</b>
<b>WBC</b> (newborn defined as 0-28 days)	<b>0-3 D</b>	<b>10<sup>3</sup>/cumm</b>	9.0-30.0	<b>9.0-35.0</b>
	<b>4-9 D</b>			<b>5.0-21.0</b>
	<b>10-14 D</b>		5.0-15.0	<b>5.0-20.0</b>
	<b>15-30 D</b>		6.0-11.0	<b>5.0-19.5</b>
	<b>1-6 M</b>			<b>6.0-17.5</b>
	<b>7-24 M</b>		4.0-12.0	<b>6.0-17.0</b>
	<b>25-60 M</b>			<b>5.5-15.5</b>
	<b>5-8 Y</b>		4.5-11.0	<b>5.0-14.5</b>
	<b>9-12 Y</b>			<b>4.5-13.5</b>
	<b>13-18 Y</b>		4.5-11.0	<b>4.5-13.0</b>
<b>ADULT</b>		4.5-11.0	<b>4.5-11.0</b>	

<b>TEST</b>	<b>Age/Sex</b>	<b>Units</b>	<b>Old</b>	<b>New</b>
<b>RBC</b>	<b>1 day</b>	<b>10<sup>6</sup>/cumm</b>	3.9-5.5	<b>4.00-6.60</b>
	<b>1 week</b>		3.9-5.5	<b>3.90-6.30</b>
	<b>2 week</b>		3.9-5.5	<b>3.60-6.20</b>
	<b>1 mo</b>		3.9-5.5	<b>3.00-5.40</b>
	<b>2 mo</b>			<b>2.70-4.90</b>
	<b>3-6 mo</b>		3.1-4.5	<b>3.10-4.50</b>
	<b>0.5- 2 Y</b>		3.7-6.0	<b>3.70-5.30</b>
	<b>2-6 Y</b>		4.1-5.3	<b>3.90-5.30</b>
	<b>6-12 Y</b>		4.2-5.1	<b>4.00-5.20</b>
	<b>12-18 Y- M</b>		4.4-5.5	<b>4.50-5.30</b>
	<b>&gt;18 Y- M</b>		4.3-5.7	<b>4.30-5.90</b>
	<b>12-18 Y-F</b>		4.1-5.2	<b>4.10-5.10</b>
	<b>&gt;18 Y-F</b>		3.9-5.0	<b>4.00-5.20</b>
<b>HGB</b>	<b>1 day</b>	<b>gm/dl</b>	13.5-22.0	<b>14.5-22.5</b>
	<b>1 wk</b>		13.5-22.0	<b>13.5-19.5</b>
	<b>2 wk</b>		13.5-22.0	<b>12.5-20.5</b>
	<b>1 mo</b>		13.5-22.0	<b>10.0-18.0</b>
	<b>2 mo</b>			<b>9.0-14.0</b>
	<b>3-6 mo</b>		10.0-14.0	<b>9.5-13.5</b>
	<b>0.5- 2 Y</b>			<b>10.5-13.5</b>
	<b>2-6 Y</b>		10.5-13.5	<b>11.5-15.5</b>
	<b>6-12 Y</b>		12.0-14.0	<b>11.5-15.6</b>
	<b>12-18 Y- M</b>		12.8-16.0	<b>13.0-16.0</b>
	<b>&gt;18 Y- M</b>		13.5-17.5	<b>13.5-17.5</b>
	<b>12-18 Y-F</b>		12.2-14.8	<b>12.0-16.0</b>
	<b>&gt;18 Y-F</b>		12.0-15.5	<b>12.0-16.0</b>
<b>HCT</b>	<b>1 day</b>	<b>%</b>	42-60	<b>45-67</b>
	<b>1 wk</b>		42-60	<b>42-66</b>
	<b>2 wk</b>		42-60	<b>39-63</b>
	<b>1 mo</b>		42-60	<b>31-55</b>
	<b>2 mo</b>			<b>28-42</b>
	<b>3-6 mo</b>		28-42	<b>29-41</b>
	<b>0.5- 2 Y</b>		33-40	<b>33-49</b>
	<b>2-6 Y</b>		33-45	<b>34-40</b>
	<b>6-12 Y</b>		35.8-43	<b>35-45</b>
	<b>12-18 Y- M</b>		37.3-47.3	<b>36-51</b>
	<b>&gt;18 Y- M</b>		38.8-50	<b>37-53</b>
	<b>12-18 Y-F</b>		36.3-43.4	<b>33-51</b>
	<b>&gt;18 Y-F</b>		34.9-44.5	<b>33-51</b>

TEST	Age/Sex	Units	Old	New
MCV	1 day	fl	98-120	95-121
	1 wk		98-120	88-126
	2 wk		98-120	86-124
	1 mo		98-120	85-123
	2 mo			77-115
	3-6 mo		77-110	74-108
	0.5- 2 Y		74-89	70-86
	2-6 Y		74-89	75-87
	6-12 Y		77-91	77-95
	12-18 Y- M		81-92	78-98
	>18 Y- M		81-95	80-100
	12-18 Y-F		80-92	78-102
	>18 Y-F		82-98	80-100
MCH	1 day	pg		31-37
	1 wk			28-40
	2 wk			28-40
	1 mo			28-40
	2 mo			26-34
	3-6 mo			25-35
	0.5- 2 Y			23-31
	2-6 Y			24-30
	6-12 Y			25-33
	12-18 Y			25-35
	>18 Y			26-34
MCHC	1 day	gm/dl		29-37
	1 wk			28-38
	2 wk			28-38
	1 mo			29-37
	2 mo			29-37
	3-6 mo			30-36
	0.5- 2 Y			30-36
	2-6 Y			32-36
	6-12 Y			32-36
	12-18 Y			32-36
	>18 Y			32-36
	PLATELETS	1 wk	10 <sup>3</sup> /cumm	140-440
Peds Onc.				
>29d			140-440	140-440
MPV	All ages	fl		6.5-11.0

<b>TEST</b>	<b>Age/Sex</b>	<b>Units</b>	<b>Old</b>	<b>New</b>
<b>RDW-CV</b>	<b>All ages</b>	<b>%</b>		<b>11.5-15.5</b>
<b>RDW-SD</b>	<b>All ages</b>			<b>39.0-47.0</b>
<b>Neutrophil</b>	<b>0-3 D</b>	<b>%</b>	<b>32-62</b>	<b>32-62</b>
	<b>4-9 D</b>		<b>32-62</b>	<b>19-49</b>
	<b>10-14 D</b>		<b>32-62</b>	<b>14-34</b>
	<b>15-30 D</b>		<b>32-62</b>	<b>15-35</b>
	<b>1-6 M</b>		<b>15-35</b>	<b>13-33</b>
	<b>7-24 M</b>		<b>15-35</b>	<b>15-35</b>
	<b>25-60 M</b>		<b>15-35</b>	<b>23-45</b>
	<b>5-8 Y</b>		<b>29-66</b>	<b>32-54</b>
	<b>18Y</b>		<b>28-78</b>	<b>33-64</b>
	<b>ADULT</b>		<b>50-70</b>	<b>42-72</b>
<b>Neutrophil Absolute</b>	<b>0-3 D</b>	<b>#</b>	<b>6.0-26</b>	<b>6.0-26.0</b>
	<b>4-9 D</b>		<b>6.0-26</b>	<b>1.5-10</b>
	<b>10-14 D</b>		<b>6.0-26</b>	<b>1.0-9.5</b>
	<b>15-30 D</b>		<b>6.0-26</b>	<b>1.0-9.0</b>
	<b>1-6 M</b>		<b>1.0-8.5</b>	<b>1.0-8.5</b>
	<b>7-24 M</b>		<b>1.5-8.5</b>	<b>1.5-8.5</b>
	<b>25-60 M</b>		<b>1.5-8.5</b>	<b>1.5-8.0</b>
	<b>5-8 Y</b>		<b>1.5-8.0</b>	<b>1.8-8.0</b>
	<b>18Y</b>		<b>1.8-8.0</b>	<b>1.5-8.0</b>
	<b>ADULT</b>		<b>1.7-7.0</b>	<b>1.7-7.0</b>
<b>Lymphocyte</b>	<b>0-3 D</b>	<b>%</b>	<b>26-36</b>	<b>19-29</b>
	<b>4-9 D</b>		<b>26-36</b>	<b>26-36</b>
	<b>10-14 D</b>		<b>26-36</b>	<b>36-45</b>
	<b>15-30 D</b>		<b>26-36</b>	<b>43-53</b>
	<b>1-6 M</b>		<b>42-72</b>	<b>41-71</b>
	<b>7-24 M</b>		<b>46-76</b>	<b>45-76</b>
	<b>25-60 M</b>		<b>44-74</b>	<b>35-65</b>
	<b>5-8 Y</b>		<b>23-64</b>	<b>28-48</b>
	<b>18Y</b>		<b>20-40</b>	<b>25-48</b>
	<b>ADULT</b>		<b>25-45</b>	<b>20-44</b>
<b>Lymphocyte Absolute</b>	<b>0-3 D</b>	<b>#</b>	<b>2.0-11</b>	<b>2.0-11.0</b>
	<b>4-9 D</b>		<b>2.0-11</b>	<b>2.0-17</b>
	<b>10-30 D</b>		<b>2.0-11</b>	<b>2.5-16.5</b>
	<b>1-6 M</b>		<b>4.0-13.5</b>	<b>4-13.5</b>
	<b>7-24 M</b>		<b>1.5-7.0</b>	<b>4-10.5</b>
	<b>25-60 M</b>		<b>1.5-7.0</b>	<b>2.0-10.0</b>
	<b>5-8 Y</b>		<b>1.5-6.5</b>	<b>1.5-7.0</b>
	<b>18Y</b>		<b>1.2-5.2</b>	<b>1.2-6.5</b>
	<b>ADULT</b>		<b>0.9-2.9</b>	<b>0.9-2.9</b>

<b>TEST</b>	<b>Age/Sex</b>	<b>Units</b>	<b>Old</b>	<b>New</b>
<b>Monocyte</b>	<b>0-9 D</b>	<b>%</b>	<b>0-6</b>	<b>5-7</b>
	<b>10-30 D</b>		<b>0-6</b>	<b>7-11</b>
	<b>1M-16Y</b>		<b>0-5</b>	<b>3-7</b>
	<b>ADULT</b>		<b>0-11</b>	<b>0-11</b>
<b>Monocyte Absolute</b>	<b>0-9 D</b>	<b>#</b>	<b>0-1.8</b>	<b>0.4-1.8</b>
	<b>10-30 D</b>		<b>0.05-1.1</b>	<b>0.1-1.1</b>
	<b>1M-16Y</b>		<b>0-0.8</b>	<b>&lt;0.8</b>
	<b>ADULT</b>		<b>0.3-0.9</b>	<b>&lt;0.9</b>
<b>Eosinophil</b>	<b>1-6 M</b>	<b>%</b>	<b>0-2</b>	<b>0-2</b>
	<b>6M-18Y</b>		<b>0-3</b>	<b>0-3</b>
	<b>&gt;18Y</b>		<b>0-7</b>	<b>0-7</b>
<b>Eosinophil Absolute</b>	<b>1-6 M</b>	<b>#</b>	<b>0.02-0.85</b>	<b>&lt;0.9</b>
	<b>6M-18Y</b>		<b>0.0-0.65</b>	<b>&lt;0.7</b>
	<b>&gt;18Y</b>		<b>0.05-0.5</b>	<b>&lt;0.5</b>
<b>Basophil</b>	<b>0-6yr</b>	<b>%</b>	<b>0-1</b>	<b>&lt;1.0</b>
	<b>&gt;6yr</b>		<b>0-3</b>	<b>&lt;3.0</b>
<b>Basophil Absolute</b>	<b>0-6yr</b>	<b>#</b>	<b>0-0.6</b>	<b>&lt;0.2</b>
	<b>&gt;6yr</b>		<b>0-0.1</b>	<b>&lt;0.3</b>
<b>Band Cells</b>	<b>0-3 D</b>	<b>%</b>	<b>0-6</b>	<b>10-18</b>
	<b>4-9 D</b>		<b>0-6</b>	<b>7-15</b>
	<b>10-14 D</b>		<b>0-6</b>	<b>6-14</b>
	<b>15-30 D</b>		<b>0-6</b>	<b>4-12</b>
	<b>1-6 M</b>		<b>0-6</b>	<b>4-12</b>
	<b>7-24 M</b>		<b>0-5</b>	<b>5-11</b>
	<b>25-60 M</b>		<b>0-5</b>	<b>5-11</b>
	<b>5-8 Y</b>		<b>0-11</b>	<b>5-11</b>
	<b>18Y</b>		<b>0-11</b>	<b>5-11</b>
	<b>ADULT</b>		<b>0-11</b>	<b>5-11</b>
<b>Band Cells</b>	<b>0-3 D</b>	<b>#</b>	<b>&lt;3.5</b>	<b>&lt;3.5</b>
	<b>4-9 D</b>		<b>&lt;1.0</b>	<b>&lt;1.0</b>
	<b>10-14 D</b>		<b>&lt;1.0</b>	<b>&lt;1.0</b>
	<b>15-30 D</b>		<b>&lt;1.0</b>	<b>&lt;1.0</b>
	<b>1-6 M</b>		<b>&lt;1.0</b>	<b>&lt;1.0</b>
	<b>7-24 M</b>		<b>&lt;1.0</b>	<b>&lt;1.0</b>
	<b>25-60 M</b>		<b>&lt;1.0</b>	<b>&lt;1.0</b>
	<b>5-8 Y</b>		<b>&lt;1.0</b>	<b>&lt;1.0</b>
	<b>18Y</b>		<b>&lt;1.0</b>	<b>&lt;1.0</b>
	<b>ADULT</b>		<b>&lt;1.0</b>	<b>&lt;1.0</b>

<b>TEST</b>	<b>Age/Sex</b>	<b>Units</b>	<b>Old</b>	<b>New</b>
<b>Meta Myelocytes</b>	<b>All ages</b>	<b>#</b>		<b>&lt;0.1</b>
<b>Myelocytes</b>	<b>All ages</b>	<b>#</b>		<b>&lt;0.1</b>
<b>Pro Myelocytes</b>	<b>All ages</b>	<b>#</b>		<b>&lt;0.1</b>
<b>Blasts</b>	<b>All ages</b>	<b>%</b>		<b>None Seen</b>
<b>Reticulocytes</b>				
	<b>0-3 D</b>	<b>%</b>		<b>3-7</b>
	<b>ADULT</b>	<b>%</b>	<b>0.5-1.5</b>	<b>0.5-1.5</b>
<b>Retic Absolute</b>	<b>All ages</b>	<b>#</b>		<b>0.03-0.08</b>
<b>Retic IRF</b>	<b>All ages</b>	<b>%</b>		<b>5-25</b>
<b>Sed Rate (ESR)</b>				
	<b>0-50-M</b>	<b>mm/hr</b>		<b>&lt;15</b>
	<b>&gt;50 M</b>			<b>&lt;20</b>
	<b>0-50-F</b>			<b>&lt;20</b>
	<b>&gt;50F</b>			<b>&lt;30</b>
<b>Spinal Fluid- Lymph CSF</b>				
	<b>1 yr</b>	<b>%</b>		<b>5-35</b>
	<b>&gt;1 yr</b>			<b>40-80</b>
<b>Spinal Fluid-Mono CSF</b>				
	<b>1 yr</b>	<b>%</b>		<b>50-90</b>
	<b>&gt;1 yr</b>			<b>15-45</b>
<b>Spinal Fluid - WBC CSF</b>				
				<b>&gt;5.0</b>

If you have any questions in regards to this information, please contact your Allina Medical Laboratories Account Representative.