



To: All Regional Medical Laboratory, Inc. (RML) Clients

From: Regional Medical Laboratory, Inc.
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Date: July 6, 2020

Subject: Reference range update for WBC, PLT, and MCV

Regional Medical Laboratory performs periodic review of reference range limits in comparison with our patient population and with nationally recognized clinical guidelines to ensure reference limits are established to meet the healthcare needs of the patients we serve. RML utilized our data warehouse to analyze over 20,000 patient results that met the criteria established during this review.

Our analysis confirmed platelet counts vary by age, gender and ethnicity. It is universally accepted that the lower end of normal for the platelet count is never higher than $150 \times 10^9/L$. There is no clinical entity that utilizes a higher count as a criterion for disease or for establishment of thrombocytopenia. Therefore the low end of normal for women of all ages, and men up to age 50 is set at $150 \times 10^9/L$. However, both the filtered (presumed normal population) and non-filtered (including sick/non-normal) analyses suggest that men greater than 51 years of age should have a lower threshold for the normal range, thus for men aged 51 or greater, the lower end of the normal range is $140 \times 10^9/L$. This adjustment will reduce the number of "false positives" at the lower end of the platelet reference range thereby reducing the number of unnecessary work-ups.

With regard to the WBC ranges, the analysis found varying results for the low end of normal between $4 \times 10^9/L$ and $5 \times 10^9/L$. Total WBC counts at this lower end have no clinical significance in the absence of decreased absolute counts of individual WBC subsets, thus the low end of normal for all ages and genders be set at $4 \times 10^9/L$. This will reduce the number of "false positives" for the lower end of the WBC reference range.

MCV ranges were also adjusted using the data obtained with a similar age and gender analysis.

Summary of changes to reference ranges are in the tables below.

Platelets			Platelets		
Age range	New Low	New High	Age range	New Low	New High
F 16-20	150	450	M 16-20	150	400
F 21-30	150	450	M 21-30	150	400
F 31-40	150	450	M 31-40	150	400
F 41-50	150	450	M 41-50	150	400
F 51-60	150	450	M 51-60	140	400
F 61-70	150	450	M 61-70	140	400
F >70	150	450	M >70	140	400

MCV			WBC		
Age range	Low no change	New high	Age range	New low	High no change
F 16-20	80.1	97.7	F 16-20	4	11
F 21-30	80.3	98.7	F 21-30	4	11
F 31-40	80.9	100	F 31-40	4	11
F 41-50	81.7	101	F 41-50	4	11
F 51-60	82.8	101.5	F 51-60	4	11
F 61-70	83.2	102.1	F 61-70	4	11
F >70	83.2	103.5	F >70	4	11
M 16-20	81.0	95.3	M 16-20	4	11
M 21-30	81.5	97.1	M 21-30	4	11
M 31-40	81.6	98.1	M 31-40	4	11
M 41-50	82.5	99.4	M 41-50	4	11
M 51-60	83.3	100.9	M 51-60	4	11
M 61-70	83.7	101.2	M 61-70	4	11
M >70	83.7	103.1	M >70	4	11

This change will be effective _____ 2020. Updated reference ranges will post alongside patient results on both paper and electronic charts.

If you have any questions or concerns, contact Dr. Cindi Starkey 918-744-2553 or Sonya Bruening 918-744-2500 x18213.