



Learning Objectives

- Give 3 examples of how Complete Blood Count results are used in the care of oncology patients.
- Give 2 examples of how practiced Scatter-Plot interpretation improves oncology patient care while providing timely and reliable results to the clinician.
- Identify 2 keys to begin more advanced hematology Scatter-Plot interpretation.







- Hold the results wait for slide confirmation
 - "Catch the false negatives"
 - Manufacturer says to
- % or absolute cut off = manual diff
 - Blasts counted as Monos...
- Manual WBC's and PLT's

Routine CBC's

- Infections viral or bacterial
- Anemia inherited or acquired
 - (acute or chronic)
- Thrombocytopenia
- Leukemias

CBC's in Oncology

- Chemotherapy and Radiation Treatments act by interfering with cell division:
 - Neutropenia
 - Thrombocytopenia
 - Anemia
- Treatments to counteract above side effects:
 - Neupogen/Neulasta
 - Plt Transfusion
 - Pro-Crit/Aranesp, RBC Transfusion















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RBC	4.66		10^6/uL	LYMPH#	1.79	10^3/uL				-	
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NRBC's - Ex	ample 2 continued
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Instrument gives no reliable differential information othe than the NRBC's. WBC corrected for 30% NRBC's However	Extended Differential WBC Item Data Unit IG# 10^3/uL IG% % NRBC# 10^3/u NRBC% 30.3 * /100WB

NRBC'S – Example 2 continued Patient's Manual Diff WBC/BASO Neu % = 15 WBC/BASO Nands % = 1 WBC/BASO Lymph % = 40 Value Mono % = 1 Value Atyp Lym% = 43 VRBC's = 72/100 WBC's

Micromegakaryocytes = 19/100 WBC's Micromegakaryocyte nuclear fragments 15/100 WBC's

Further WBC correction needed, however – initial correction is done by the analyzer so the final correction is not as drastic. NRBC count higher on manual

NRBC count higher on manual diff because the instrument is counting the MMKC's as WBC's.













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Item WBC RBC HGB HCT MCV MCV MCV RCW-SI RDW-CV NPV RET# IRF NRBC# NRBC%	Data 4.64 3.94 - 11.9 - 36.4 - 92.4 + 30.2 32.7 49 55.6 + (16.3 + 9.6	Unit 10^3/uL 10/6/uL g/dL % fL pg p/dL 10/3/uL fL % 10/12/L % 10/3/uL /100wBC	Item NEUT#& L'MPH# MONO# BASO# BASO# EO# BASO% EXT%& EO% BASO% Extende WBC Item IG# IG%	Data 2.85 1.19 0.44 0.13 0.00 - 61.5 25.6 9.5 2.8 0.0 - d Differd Data 0.03 + 0.6 0.6	Unit 10^3/uL 10^3/uL 10^3/uL 10^3/uL % % % % mtial Unit 10^3/uL %	RBC/RET		₹ RET ₹ RET
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HGB	10.3	g/dL	MONO#	0.28	* 10^	3/uL				
HCT	30.7	%	EO#	0.01	* 10^	3/uL				
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EO#	0.01 *	10^3/uL	LYMP#&	1.37 *	10^3/uL				2.4.1
BASO#	0.00 *	10^3/uL	HFLC#	0.01	10^3/uL				
IG#	0.00 *	10^3/uL	NEUT%&	32.1	70				Sector Contractor
NEUT%	32.1 *	%	LYMP78S	22.7	78				
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WBC/BASO Count Positive Sample No. Func. Pat. 10 Error Name Main Graph. Moc/NBAC/REC/PLT/Cumulative[0=Flags Service HPC Body Fluid Research(No) Image: Service Data Nick Name: MBC/RASO Nick Name: MBC/RASO Sampling Data Scattergram Sensitivity MBC/RASO Sampling Data Scattergram Sensitivity	DIFF Sampling Data DIFF Sampling Data DIFF-X 139.4 DIFF-V 45.7 DIFF-W 254.6 NEUT-X 139.4 UNMPH-X 95.1 NEUT-X 139.4 UNMPH-X 95.1 NEUT-Y 45.7 UNMPH-X 95.1 Analyzed Data WEC# Before Revised NBBC Delta-WEC Delta-WEC Delta-WEC LD driver 46.88 DIFF-W 224.6 DIFF-W 254.6 DIFF-W 254.6
CH O CH 0	Patient has Multiple Myeloma – significant rouleaux seen on slide. WBC smear estimate matched Diff Channel Count.

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Pat. II Action Main Graph WBC/NRBC RBC/PLT Cumulative Q-Flags Service HPC Research(W) Research(R) Titems Plag(s) Titem Data Unit NBC Differential Flag(s) Titem Data Unit NBC Differential Flag(s) UIT DIFF WBC/NRC UNA UNIT NBC Differential Flag(s) UIT DIFF WBC/NRC UNA UNIT NBC Differential NCC 4 41 10A3/uL MBC/NRC BIT DIFF WBC/NRC WSC 0104 * 10A3/uL NOOM State NEUTX& 80.0 * % RBC/RET NET Mass 0.0 * % RET NBC / 10A3/uL RET RBC / PLT NEUTX Mass 0.0 * % RET	Positi	ve Samp	le No.	de frences				Toron Contraction	
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Main Graph WBC/NRBC RBC/PLT Cumulative Q-Flags Service HPC Items WBC bifferential Flag(s) Research(w) Research(w) Research(w) Research(w) Items Data Unit Data Unit Bats:7 Bag(s) WBC bifferential WBC bifferential Unit Flag(s) Bats:7 Bats:7 WBC bifferential Unit Data Unit Bats:7 Lists:7 WBC bifferential WBC bifferential Bats:7 Lists:7 Lists:7 WCV 99.3 fL BAS:0# 0.04 * 10A3/uL NCV 89.3 fL BAS:0# 0.04 * 10A3/uL RDW-CV 31.6 - g/dL Lists:8 Nonox 5.4 * % RDW-CV 7.1 + % BAS:0% 0.4 * % RDW-CV 10A3/uL EXEnded Differential RBC/RET NRBC/# 10A3/uL Extended Differential RBC/RET NRBC/# 10A3/uL Tem Data Unit NRBC/# 10A3/uL FL Data Unit NRBC/# 10A3/uL FL PLT <c(s)7< td=""> NRBC/# 10A3/uL FL PLT</c(s)7<>		Action	Name						
Items WBC bifferential Flag(s) WBC & 0.13 * 0A3/uL Item Data Unit Item Data Unit WBC & 4.11 10A5/uL EUT#& 7.30 * 10A3/uL HGB 12.6 g/dL 10A5/uL HGB 12.6 g/dL 0.00 * 10A3/uL HCT 39.9 % MCV 28.2 pg MCH 28.2 pg/LT PLT 67 * 10A3/uL BASO# 0.04 * 10A3/uL RDW-CV 17.11 + % BASO# 0.04 * % RDW-CV 7.11 + % BASO% 0.04 * % RET% 10A12/L NRBC# 10A3/uL	Main	Graph	WBC/NRBC	RBC/PLT	Cumulati	ive Q-Flag	s Service HPC	Research(W) Re	search(R)
Item Data Unit Item Data Unit WBC 0 13 * 1043/uL Item 1042 Item Item <t< td=""><td>Items</td><td></td><td></td><td>WBC Dif</td><td>ferentia</td><td>1</td><td>Flag(s)</td><td>DIFF</td><td>WBC/BAS</td></t<>	Items			WBC Dif	ferentia	1	Flag(s)	DIFF	WBC/BAS
NBC 121 10A3/UL IVMP##8 0.73 (b) 10A3/UL HGB 12.6 g/dL g/dL 10A3/UL Left Shift? HCT 39.9 % 0.49 * 10A3/UL Left Shift? MCV 89.3 fL E0/W #8 0.77 * 10A3/UL BASO# 0.04 * 10A3/UL E0/W *8 8.4 * % PLT 67 * 10A3/UL E0/W *8 8.4 * % PDW-SD 57.7 * fL E0/W *8 8.4 * % RDW-SD 57.7 * fL E0/W *0.00 * % RDW-CV 17.1 * % BASO% 0.4 * % MPV fL Extended Differential W8C 11d# 10A12/L W8C NR8C# 2.6 * /100Web Item Data Unit Unit NR8C# 2.6 * /100Web FL 0.53 * 10A3/UL	Item	Data	Unit	Item	Data 7 30 1	Unit * 1043/w	Blasts?	£	2
HGB 12.6 g/dL MONO# 0.49 * 10/3/uL HCT 39.9 % 0.04 * 10/3/uL HCT 39.9 % MCV 89.3 fL NCH 28.2 pg MCH 28.2 pg NCH 28.6 g/dL LVMP% 8.4 * % PLT 67 * 10/3/uL RDW-SD 50.7 * fL EXBOW-CV 10/4/L RET% 10/12/L NRBC# 10/12/L NRBC# 10/3/uL HPC PLT	RBC &	9.13	10/6/uL	LYMP#&	0.77	* 10/3/uL	Imm Gran? Left Shift?		
HCT 39.9 % MCV 28.2 pg MCHC 31.6 - g/dL PLT 67 * 10A3/uL RDW-SD 50.7 + fL RDW-CV 7.11 + % RTW fL RET# NRBC# NRBC# NRBC# NRBC# 2.6 * 10A3/uL TEE NRBC 1043/uL TEE NRBC 1043/uL NRBC 1043/uL	HGB	12.6	g/dL	MONO#	0.49	* 10^3/uL	Lere birrer		- iii
MCV 89.3 fL BASO# 0.04 * 1003/uL MCH 28.2 po MCH 31.6 - g/dL g/dL PLT 67 * 1003/uL MCHC 50.7 + fL RDW-SD 50.7 + fL RDW-V 17.1 + % MPV fL RET# 10A12/L WRC# 2.6 * /100WBC IC# 0.53 * 10A3/uL HPC PLT C(S)7 PLT C(S)7 PLT C(S)7	HCT	39.9	%	EO#	0.00	* 10^3/uL			-
MCH 28.2 pg McDi & 00.0 is MCHC 23.6 - g/dL LVMPX& 8.4 is PLT 67 * 10A3/uL CVMPX& 8.4 * % MONO% S.4 * % RDW-SD 50.7 + fL E0% 0.0 * % BASO% 0.4 * % REC/RET MPV fL Extended Differential REC/RET NRBC# 10A12/L wgc Item Data Unit Item Data Unit NRBC# 2.6 * /100wgc Item Data Unit PLT C(S)? HPC PLT C(S)? PLT C(S)? PLT	MCV	89.3	fL	BASO#	0.04	* 10^3/uL			
NRBC# RDW-CV 10A3/uL RDW-SD NNRO% SO.7 + 1 EO% SO.4 + % X RECV RDW-CV F1.1 + % RET% BASO% 0.4 + % X RBC/RET MPV fL RET% Extended Differential ICM RBC/RET NRBC# NRBC% 2.6 + /100WBC Item Data Unit IC% Unit S.8 + % HPC PLT C(S)7 PLT C(S)7 PLT C(S)7	MCHC	28.2	pg a (d)	I VMP%8	8 4	* % * %			
RDW-SD 50.7 + fL EC% 0.0 * % RDW-CV 17.1 + % BASC% 0.4 * % RDW-CV 17.1 + % BASC% 0.4 * % RPV fL Extended Differential RET% 10A12/L WBC NRBC% 2.6 * /100WBC Item Data Unit IC% 5.8 * % HPC PLT C(S)? PLT C(S)? PLT C(S)?	PLT	67	* 10^3/uL	MONO%	5.4	* %		TMT	PET
RDW-CV 17.1 + % [BASO% 0.4 * % REC/RET MPV fL Extended Differential RET% 10A12/L wBC Tree * * NRBC% 2.6 * /100wBC Item Data Unit IG# 0.53 * 10A3/UL Ic% 5.8 * % PLT C(S)? HPC PLT C(S)? PLT C(S)?	RDW-SD	50.7	+ fL	E0%	0.0	* %		2012	×
MPV fL Extended Differential RET# 10/12/L WBC WBC NRBC# 2.6 10/3/uL Item Data Unit NRBC# 10/3/uL Item Data Unit Data Unit IG# 0.53 10/3/uL RET HPC PLT C(S)7 PLT C(S)7 PLT C(S)7	RDW-CV	17.1	+ %	BAS0%	0.4	* %	RBC/RET	-	
NRBC# 10/31/Ll UREC Unit NRBC# 10/3/uL Item Data Unit Unit IG# 0.533 * 10/3/uL TCM RBC HPC PLT C(S)? PLT C(S)? PLT	MPV		I TL	Extende	d Differ	ential			
TDE % Item Data Unit NRBC# 10/3/uL IG# 0.53 * 10/3/uL IC# NRBC% 2.6 * /100wBC IC# PLT RBC HPC PLT C(5)? PLT C(5)?	RET#		10A12/L	WBC	a prinei	enerar			
NRBC# 10A3/uL Icem Data Onic NRBC% 2.6 * /100wBC IG# 0.53 * 10A3/uL IC# IC# 0.53 * 10A3/uL RBC PLT HPC PLT C(5)? PLT C(5)? PLT	TRE		×	Ttom	Data	Lind a			
NRBC% 2.6 * //100wBC IG% 5.8 * % PLT C(S)?	NRBC#		10^3/uL	TG#	0.53	* 10A3/uL			
HPC PLT C(S)?	NRBC%	2.6	* /100WBC	IG%	5.8	• %			
PLT C(S)?							PLT	RBC	PLT
				нес			PLT C(S)? PLT Abn Dst	Λ	
Item Data Unit				Item	Data	Unit		Λ	(\land)







