VR Tutorial

Objectives

Main objective

- Learn the controls

Secondary objectives

- Learn that Complete Blood Count test must be performed on a hematology automaton
- Learn how to start an analyse with the hematology automaton

Context

The player takes on the role of an MLT working for the first time in a new generation medical analysis laboratory.

With the help of a robot assistant, the user will learn to perform a CBC analysis on a hematology machine.

The player is already equipped with all PPE.

Steps

Follow me

The player is in the laboratory and the robot asks him to follow him to the sample reception counter.

Grab sample bag

The robot explains to the player how-to pick-up objects and the player applies it by taking in hand a bag containing a sample to be analyzed.

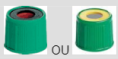
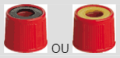
Ref 0 - sample bag

Get contents of bag

The robot explains to the player how he can perform actions to objects in his hand. The player performs this action by opening the bag.

Using his second hand, he can then retrieve the blood sample and the list of tests to be performed.

Ref 1 – Sample

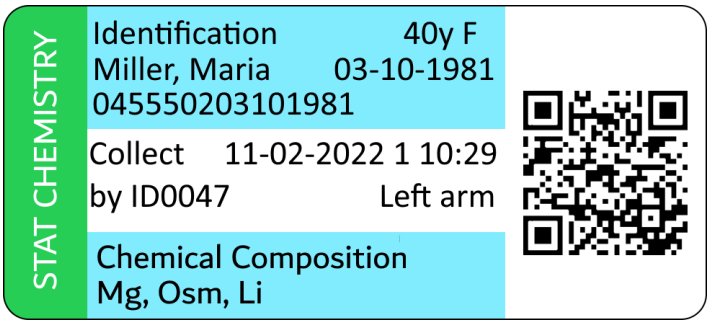
TUBE EDTA	TUBE CITRATE *(rempli impérativement jusqu'au repère)*	TUBE HEPARINE	TUBE SEC / GEL
		 OU	 OU
Prélever 1 tube pour chaque « cadre »	**Prélever 1 tube pour chaque « cadre »**	**Prélever 1 seul tube pour le « cadre » suivant**	**Prélever 1 seul tube pour le « cadre » suivant**
NFP / VS / Réticulocytes	TP, INR, TCA, Fibrinogène, Héparinémie, HBPM (Anti Xa), Anti-thrombine (AT3), Ddimères	**Biochimie :** Acide urique, Bilirubine, Créatinine, Urée, Cholestérol HDL-LDL Triglycérides, ApoA1 ApoB, Ionogramme simple (Na,K), Ionogramme complet (Na, K, Chlore, Réserve Alcaline, Protéines), Glycémie, Calcium, Phosphore, Magnésium, Fer et CST (cap.sat.transferrine)	**Hormonologie** : AC anti-thyroglobuline, AC anti-peroxydase, AC anti récep.TSH
Crosslaps			**Médicaments :** Lithium, Vancomycine
HBA1C	(faire purge si prélèvement avec épicrânienne)		**Protéines :** Préalbumine
Groupes sanguins Anticorps irréguliers (ACI) Coombs direct	PDF		**Prélever 2 tubes pour chaque « cadre »**
Folates érythrocytaires	**TUBE FLUORE** 	**Enzymes :** Amylase, Lipase, Transaminases (ASAT-ALAT), GammaGT, Phosphatases alcalines, CPK, LDH, Osmolarité mesurée	**Sérologies :** HIV, VHC, VHB (AgHbs, AC Hbs, AC Hbc totaux), VHA, Toxoplasmose, Rubéole, CMV, EBV, Lyme, BW, MNI. WRose
Paludisme : recherche d'hématozoaires		**Protéines :** CRP, Hapto, Albumine, Transferrine, Ferritine, Protéines totales, NT pro BNP, Orosomucoïde, IgGAM	**Marqueurs :** ACE, AFP, CA15-3, CA19-9, CA125
Ammoniémie (transport dans glace)	**Prélever 1 tube pour chaque « cadre »**	**Dosage de médicaments:** Digoxine, Tegretol, Depakine, Amikacine, Gentamicine	**Virologie :** Charge Virale VHC
Prélever 2 tubes pour chaque « cadre »	Glycémie (si délai d'envoi au laboratoire > 2H)	**Divers :** Myoglobine, Troponine, Procalcitonine, IgE totales B2microglobuline,Facteur Rhumatoïde, Folates sériques, Vit B12	**Protéines :** Electrophorèse, Immunoélectrophorèse
Charge virale VIH	Lactates (transport dans glace)	**Hormonologie :** Béta HCG, PSA, PSA Libre *Prélever 1 tube sec gel en plus*	**Prélever 1 tube pour chaque « cadre »**
Charge virale VHB	Alcoolémie	T3, T4, TSH, FSH, LH, Estradiol, Prolactine, Cortisol, Progestérone, Testostérone, SDHA, PTH	**Auto-immunité :** ACAN, ENA, DNA, ACC...AC antitransglutaminase AC anti phospholipides
			Vitamine : Vitamine D
			Sérologies : Mycoplasmes génitaux, Chlamydia
			Allergie : RAST, Phadiatop, Trophatop,... MAST

Ref 2 – Cap color

Add to database

The robot tells the player where the scanner is located to add the sample to the laboratory database.

The player passes the sample to the scanner to perform this task.



Ref 3 - Label

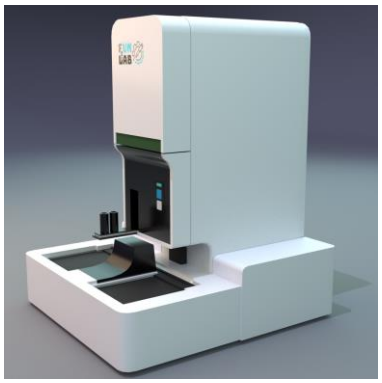
Check patient info

The player checks the contextual information about the patient

Go to automaton

The robot tells the player where the automaton is located to perform the requested test.

The player goes to this automaton with the sample.

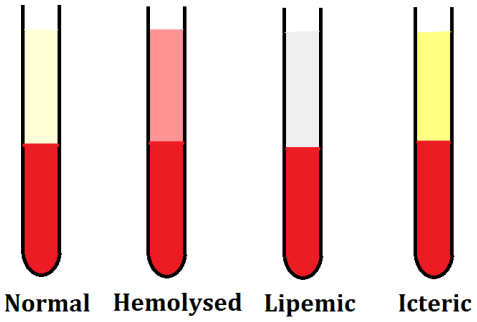


Ref 4 – XN 1000

Pré-analytics

Check sample

The player checks the sample for icteria, lipemia and hemolysis



Run control

???

Rack sample

The player puts the sample in a rack adapted to the automaton

Ref 5 – Rack

Load rack

The player loads the rack in the automaton

Analytics

Start test

The player selects the CBC test on the automaton screen and starts it.

Print results

The results are printed to the automaton screen: WBC is highlighted because its level is too high.

Test	Initial	Result	Flag	Units	Reference Interval
White Blood cell count	**WBC**		**14.2**	**Mille/mm^3**	**4.3 - 11.9**
Red Blood cell count	RBC	4.32		Millions/mm^3	4.00 - 5.20
Hemoglobin	Hb	12.3		G/100 ml	11.7 - 14.0
Hematocrit	Hct	40.0		%	35.2 – 45.4
Mean cell volume	MCV	92.3		fl	80.9 - 97.3
Mean cell hemoglobin	MCH	27.8		Pico g/GR	26.5 - 32.6
Platelets		300		Mille/mm^3	170 - 400

Technical validation

The user validates the results displayed on the screen.

Medical assessment

Select leukocytosis diagnostis. **HOW ???**

Post-analytics

Communicate results

Communicate results with doctor. **HOW ???**

Archive

Put sample in archive