Blood smear making technique and tips

Many clinics now have their own analysers and only require a smear exam and or differential. If you send a smear without an EDTA sample, we need a good, well spread smear to allow us to give you accurate estimations, observations, and differentials.

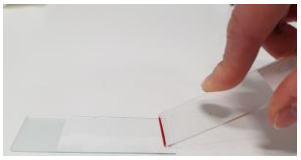
We receive some beautiful smears, but we also see some not so good smears.

It takes a while to learn to make a good smear, but once you have the technique sorted, you will never make a bad smear again. Practice makes perfect.

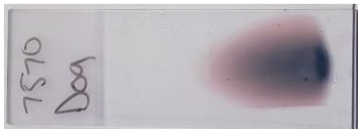
Tips for a good smear.

1. Make sure you have a good quality slide for spreading which has cut not ground glass ends. (available from laboratory)
2. Gently mix the blood.
3. Make a drop of about 5mm in diameter.

4. Place the drop at the end of the slide.
5. With the hand not holding the spreader, press down on the far end of the slide so it does not move while you spread the blood.
6. Place the spreader in front of the drop. Making sure that the spreader is touching the slide.
7. Drag the spreader back into the blood. Wait for the whole drop of blood to spread along the edge of the spreader to within 1 mm of the edge of the slide.



8. Then push forward at a reasonable speed. Push – do not lift!
9. Label the smear.



Tip: With most bloods, a 45° angle is used to spread the blood. For thinner blood use a greater angle and for thick blood a lower angle.

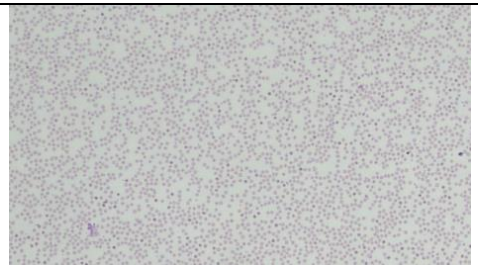
Make sure you have a good grip on the spreader.

- Make yourself comfortable.
- Never press down on the top of the spreader. It may snap.
- Practice moving the spreader backwards and forward on the bench, not lifting the sides.

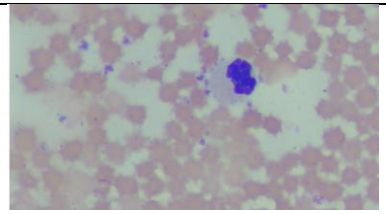
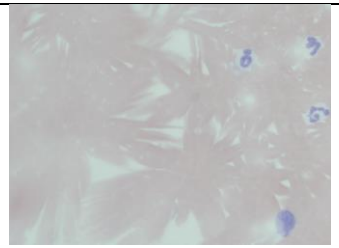
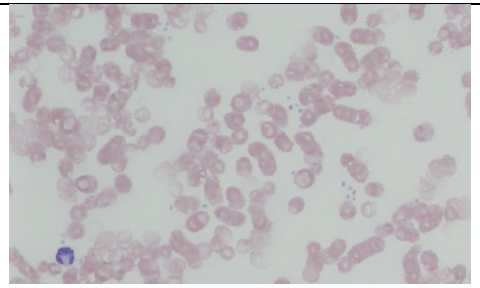
There are many handy videos if you ask Mr. Google 😊

Make sure all the above happens in a timely matter. We do not want the drop of blood to dry out before it gets spread. 😊

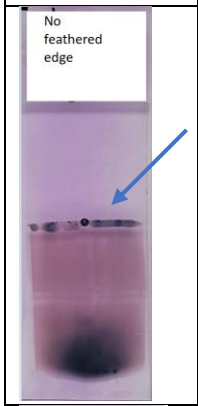
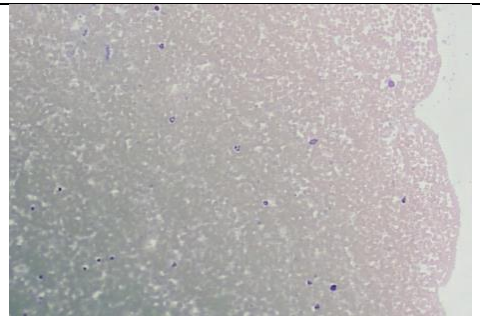
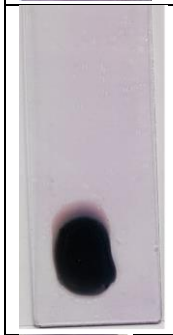
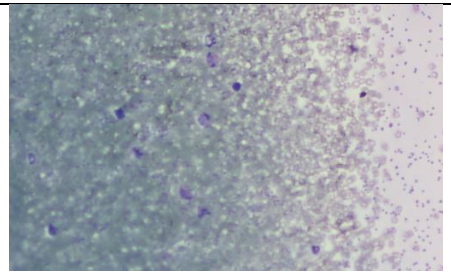
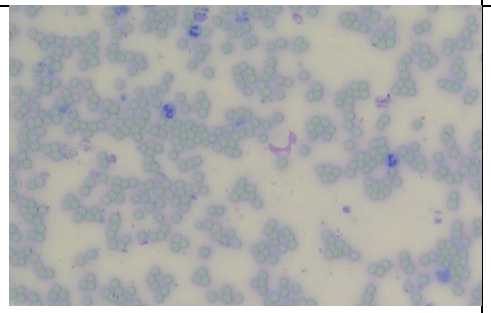
Blood smear making technique and tips

Photo / Example	Photo / Example	What can go wrong	Issue	Reason	How to fix
		Smear too thin. No white cells in the body of the smear.	All the white cells are bunched together cramped by red cells in the drop of blood.	Too big a drop of blood. Not all of it spread across the smear	Use a smaller drop of blood (5mm diameter) Use the whole drop.
		Blood goes off the edge of the slide. Smear too thin. No white cells in the body of the smear.	If low white cell count, it will take ages to find enough cells to get to 100 cells for a differential.	Too big a drop of blood. Very thin, anaemic blood	Hold spreader at higher angle and push fast. Use a smaller drop of blood (5mm diameter) Use the whole drop.
	 This is the same blood and the smear made in the lab.	No white cells in the body of the smear	Can appears to have a very low white cell count (but may not be!)	Too small a drop of blood used.	Drop needs to be about 5mm in diameter.

Blood smear making technique and tips

Photo / Example	Photo / Example	What can go wrong	Issue	Reason	How to fix
		 Red cell artifact Red cell crystals Ghost cells	With artifacts, we need to take in consideration how fresh is the blood? Can this be true poikilocytosis or not. etc. Impossible to make comment on red cell morphology.	Blood was not allowed to dry before placed in the container .	Always leave the smear to air dry before placing into the container
		Red cell clumping. Unable to seen individual red and white cells.	Differential will not be accurate. Immature cells may be missed. White cells look smaller when cramped by red cells	Smear picked up at an angle before it dried. Everything runs together.	Leave to air dry
Crooked smear			These are fine as long as it has a feathered edge	Not holding spreader properly	Get a good grip. Be in control! 😊

Blood smear making technique and tips

Photo / Example	Photo / Example	What can go wrong	Issue	Reason	How to fix
		No feathered edge. Solid line of blood at the end	Often all the white cells get pushed into the tail, and if there is no tapering off, there is no thin enough area. Red and White cells are all bunched together	Spreader was lifted or stopped and pulled back, before all the blood was spread,	Keep pushing. Blood will spread naturally into a feathered edge.
		Short, thick smear	High red cell count. Red cells too close together. Squashes white cells, making it hard to identify abnormal cells.	Blood very thick	Hold Spreader at lower angle and push very slowly to allow a longer smear.
		Smear looks blue	These smears are useless because staining is extremely poor	Prolonged exposure to formalin by sending smear in the same bag as a formalin sample.	Histology samples and blood, or cytology smears should be couriered in separate bags.