



Confident Blood Smears

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Heartland
VETERINARY PARTNERS



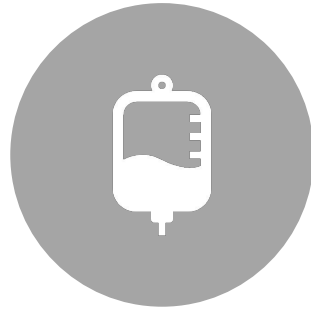
My Journey

Heartland
VETERINARY PARTNERS

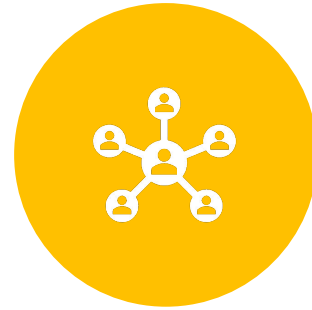
Objectives



UNDERSTAND TEACHING TECHNIQUES
FOR BLOOD SMEARS THAT TARGET A
VARIETY OF DIFFERENT LEARNERS



LEARN BLOOD SMEAR TECHNIQUE
ANALYSIS- RECOGNIZE WHAT IS GOING
WRONG



SHARE! NETWORK! TALK TO EACH
OTHER!



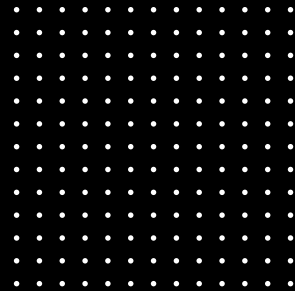
PERFORM BLOOD SMEAR



What are the barriers to making
blood smears?



Teaching Techniques



1. Description of methods
 - In lecture
 - On handout
2. Videos
3. Demonstrations
 - See one, do one, teach one

Inspire Confidence and Interest in Skill

- Simple, inexpensive tool that can give answers and insights to a patient's health or disease state.
- Underutilized skill
- But they can't visualize inclusions, parasites, and cell anomalies

Automated CBC machines work through the use of electrodes and impedance technology. Cell-specific algorithms allow cells to be differentiated and cell numbers and types are reported in minutes.



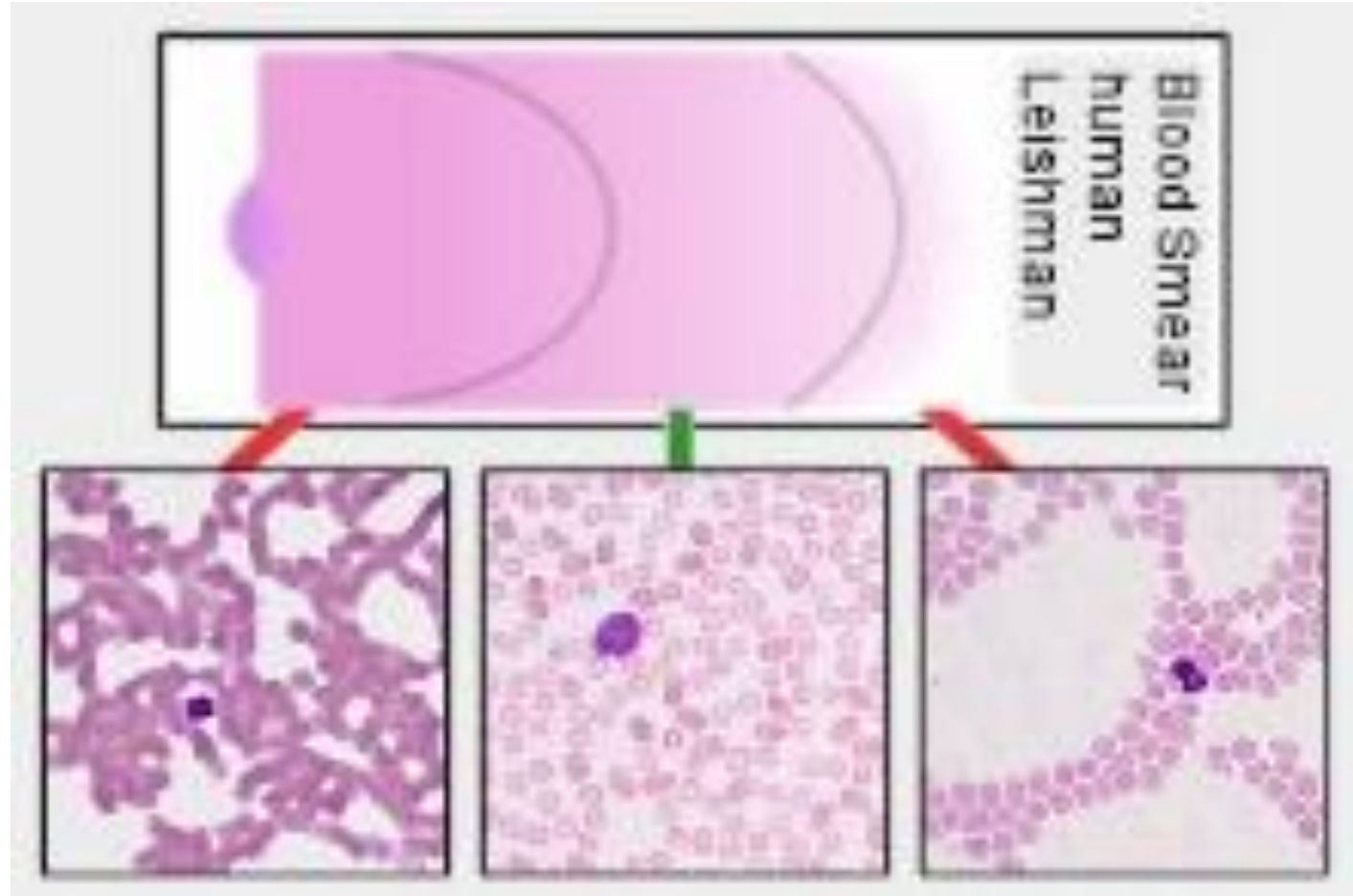
Blood Smear Parts and Importance of Techniques

1. Body
2. Monolayer
3. Feathered edge

Should be in a bullet shape

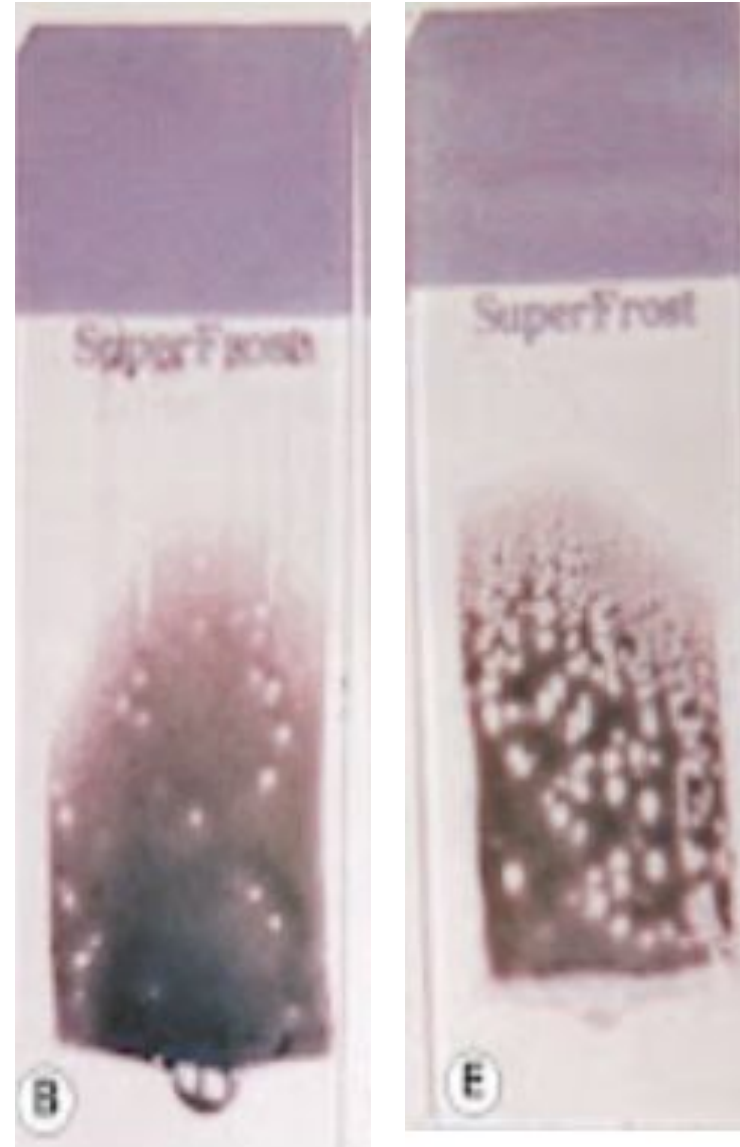
The proper technique creates this part

Parts of a Blood Smear



Slide and Sample Prep

- EDTA blood should be used for mammals as it best preserves cell morphology (how the cell looks). Heparin should be used for exotic species.
- Slide should be wiped clean with distilled water and kim wipe
- Completely dry slide before making a smear
- Use pencil to label the slide





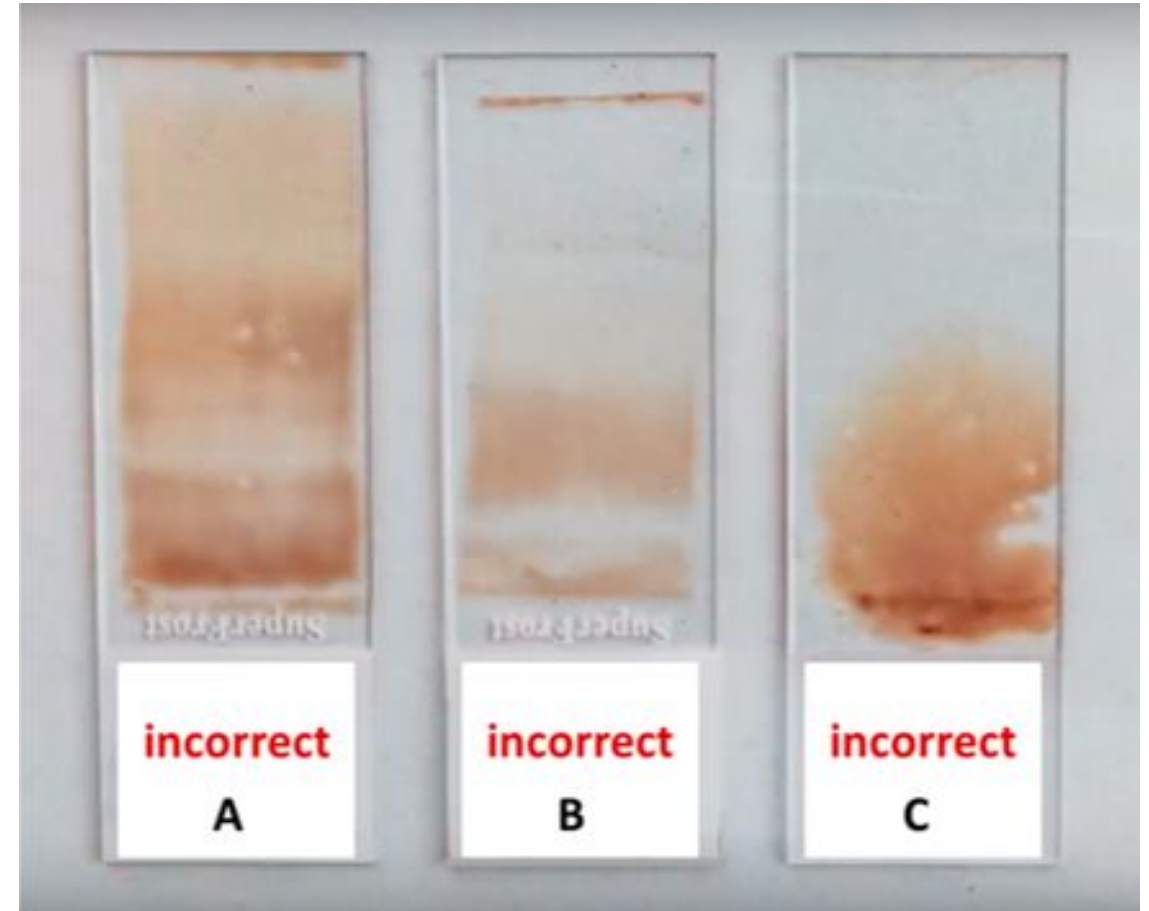
Blood Application

1. Gold standard is to use the back end of two cotton-tipped applicators to place a small drop of blood on one end of the bottom slide.
2. Pipette
3. Lid of blood tube
4. Specialized droppers
5. Hematocrit tube?

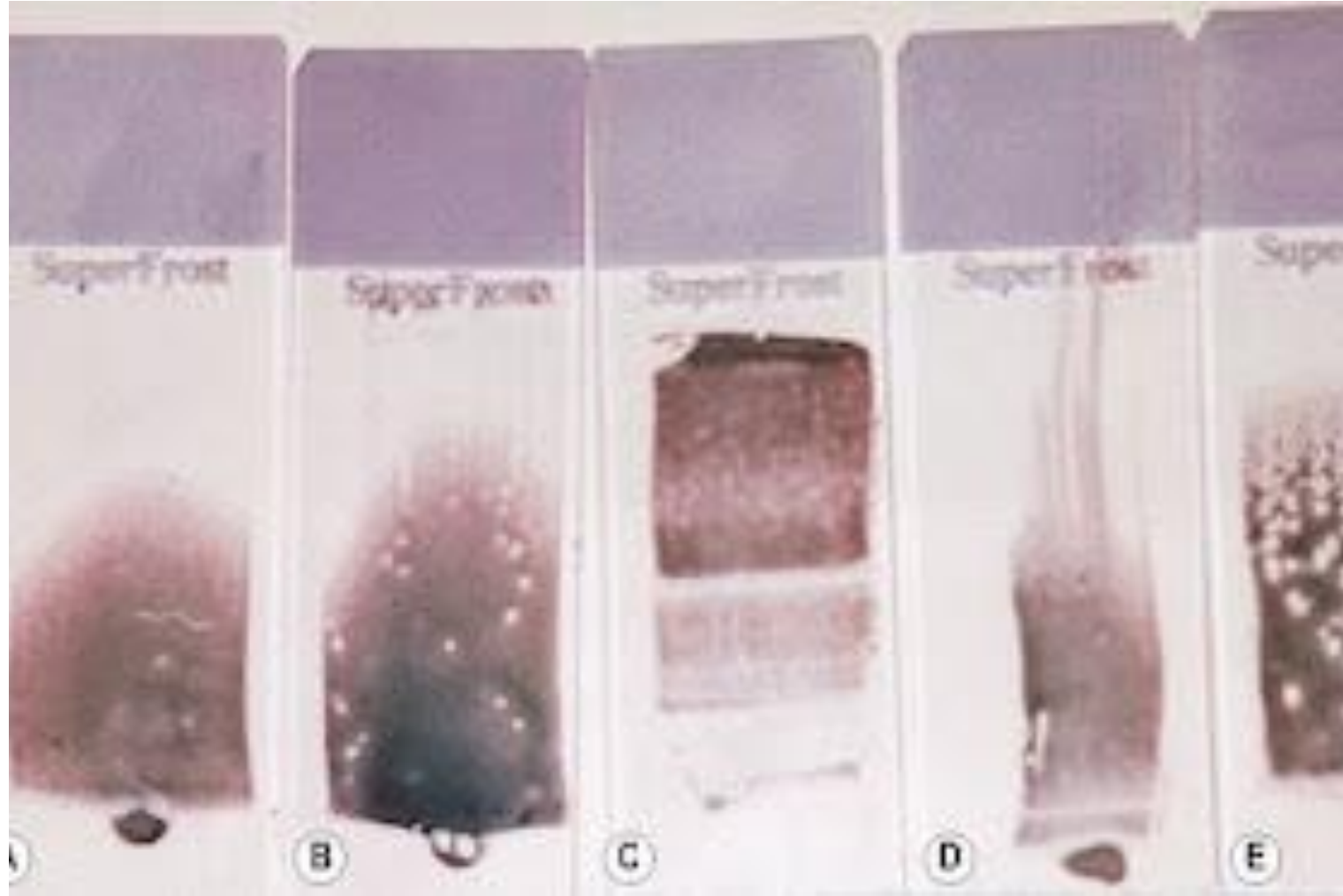


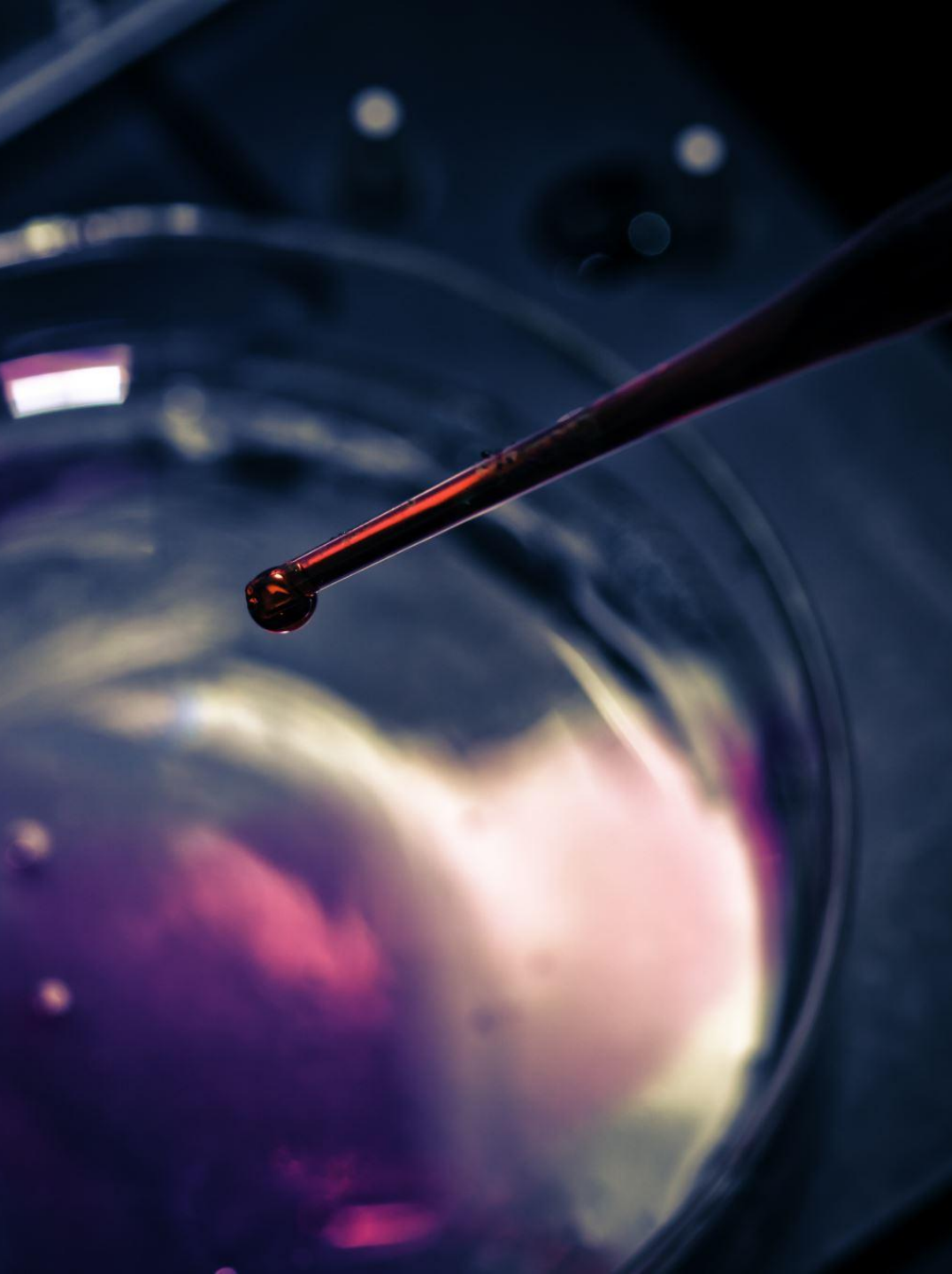
Technique Factors

1. Spreader slide **angle**
2. Spreader slide **pressure** on the bottom slide
3. **Speed** of spreader slide



Technique matters!





Tips To Keep in Mind

TIP 1: start with a SMALL drop of blood.

- The smaller the drop, the more control one will have over what happens to that blood. More blood can be added as the technique becomes more comfortable.

TIP 2: Stand up when creating a smear.

TIP 3. Run your spreader slide completely off the edge of the bottom slide

TIP 4: Know when to stop.

- This is not an activity to continue with when frustrated. If you are angry, walk away for a moment or try a new technique. Know when you have peeked. This is not a skill that should be practiced for hours at a time. Fifteen minutes two or three times per day.



Please Refer to Handouts

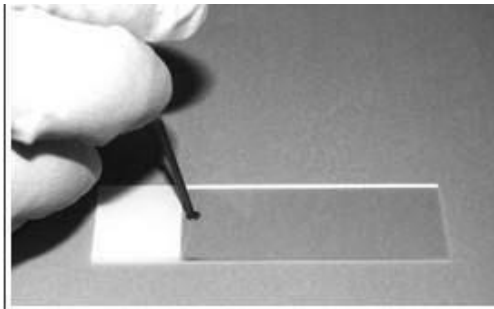


Method #1 The Basic Technique

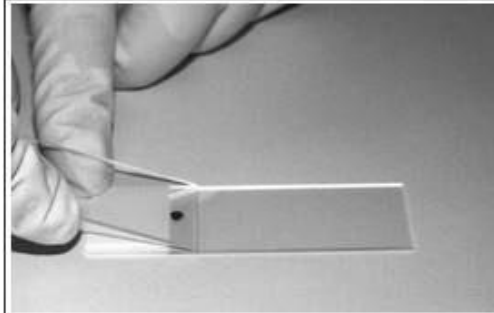
- Place a clean slide on a tabletop or flat, stable surface and wipe slides with Kim-wipe. The slide should be cleaned prior to the creation of the smear to remove any grease from manufacture or debris left on the slide.
- Use one slide as a “spreader slide”. This will be a slide used to “smear” blood across the bottom slide.
- The spreader slide should be at a ~30-40 degree angle.
- Back the spreader slide into the drop of blood until the drop of blood spreads across the edges of the spreader slide.
- Move the spreader slide forward in a steady, smooth motion.
- Keep moving forward until you run off the edge of the bottom slide.



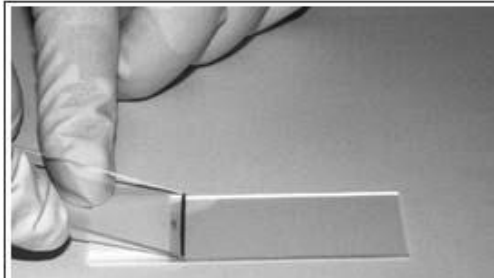
<https://youtu.be/rqXy45sRJkw>



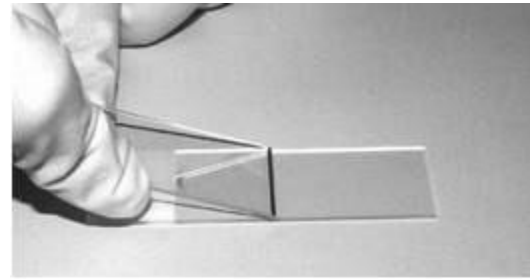
Step 1. Placing a small drop of venous blood on a glass microscope slide, using a glass capillary pipette. A wooden applicator stick can also be used for this purpose.



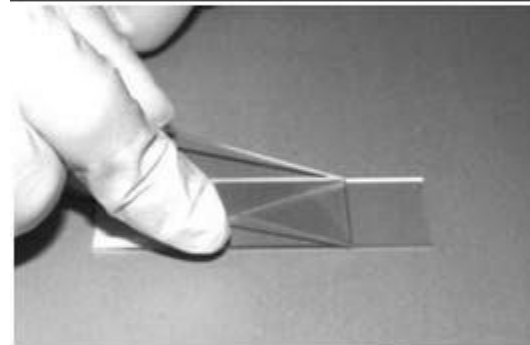
Step 2. A spreader slide has been positioned at an angle and slowly drawn toward the drop of blood.



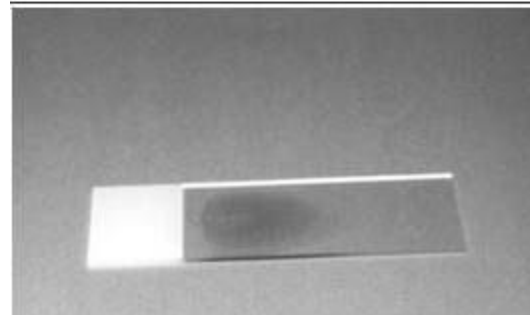
Step 3. The spreader slide has been brought in contact with the drop of blood and is being drawn away. Note layer of blood at the edge of the spreader slide.



Step 4. The spreader slide is further pulled out, leaving a thin layer of blood behind.



Step 5. The blood smear is nearly complete.

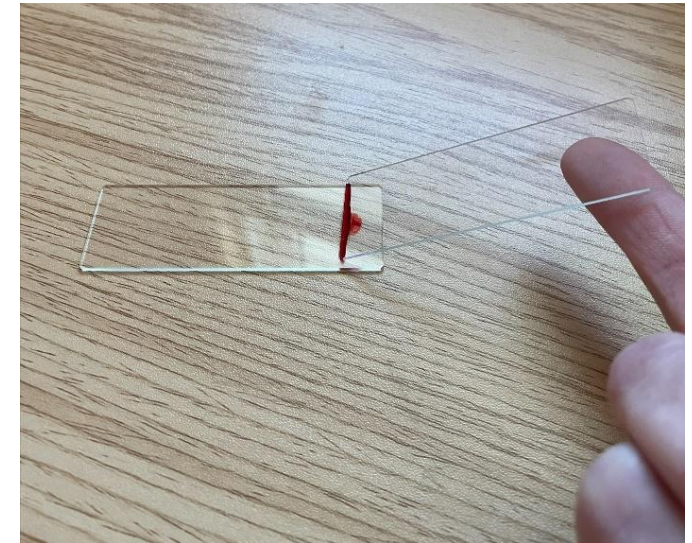
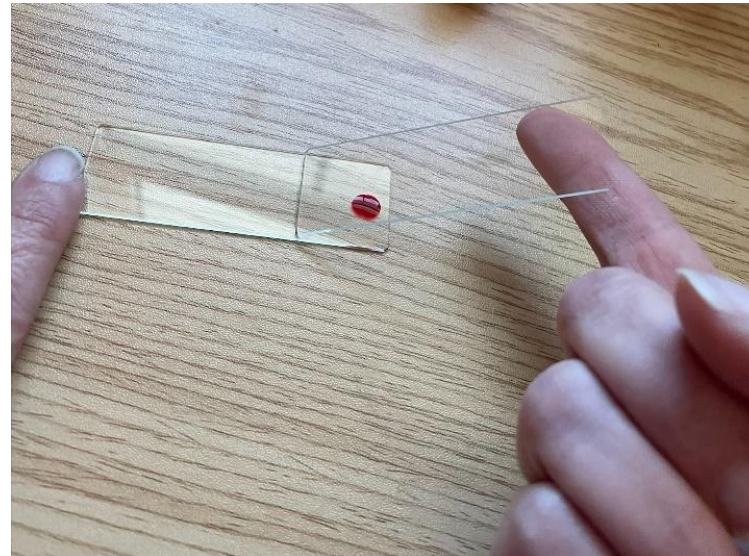
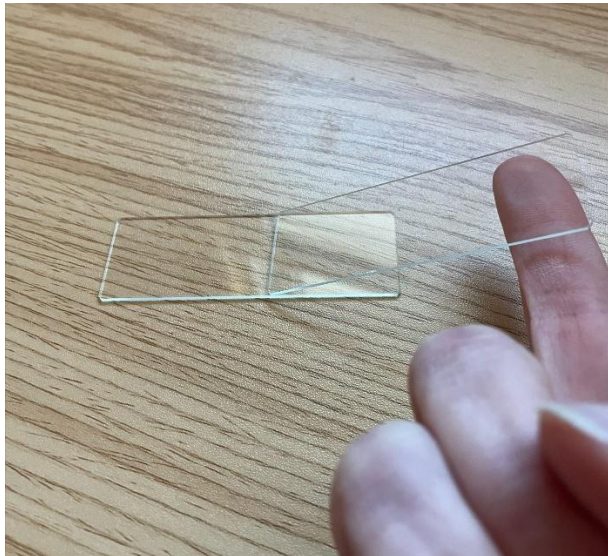
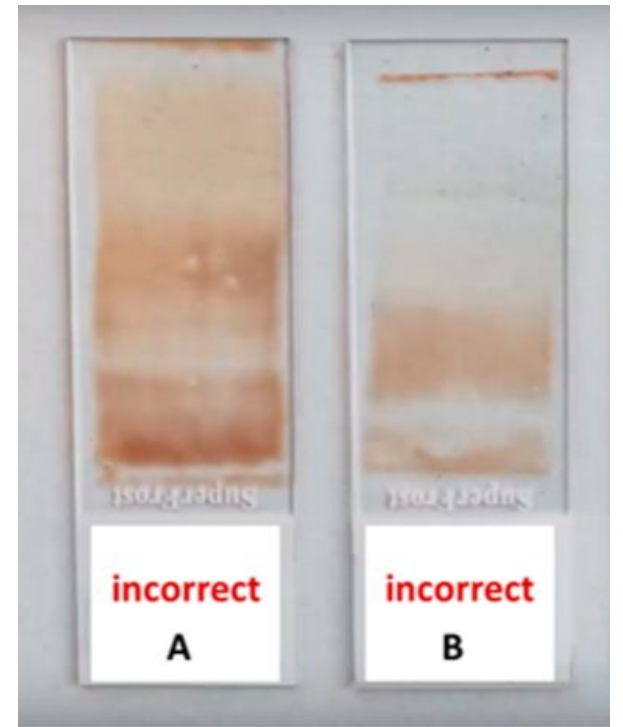


Step 6. End result. A glass slide with a well-formed blood film. After drying for about 10 minutes, the slide can be stained manually or placed on an automated slide stainer.

Method #2: One-finger method

Good when having a technical issue with the pressure

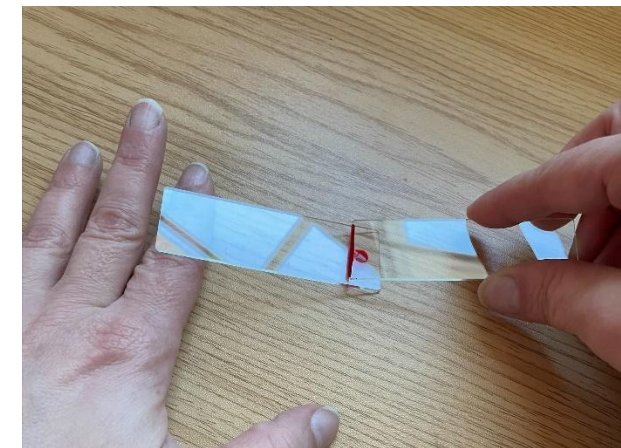
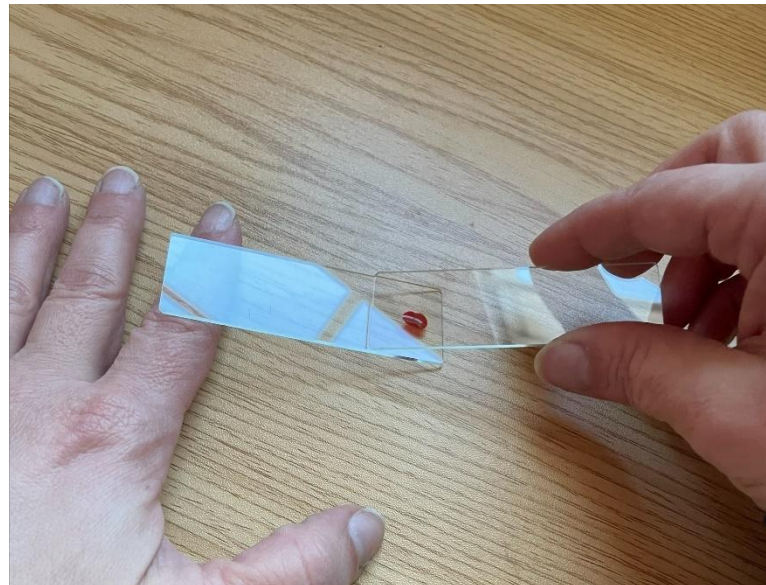
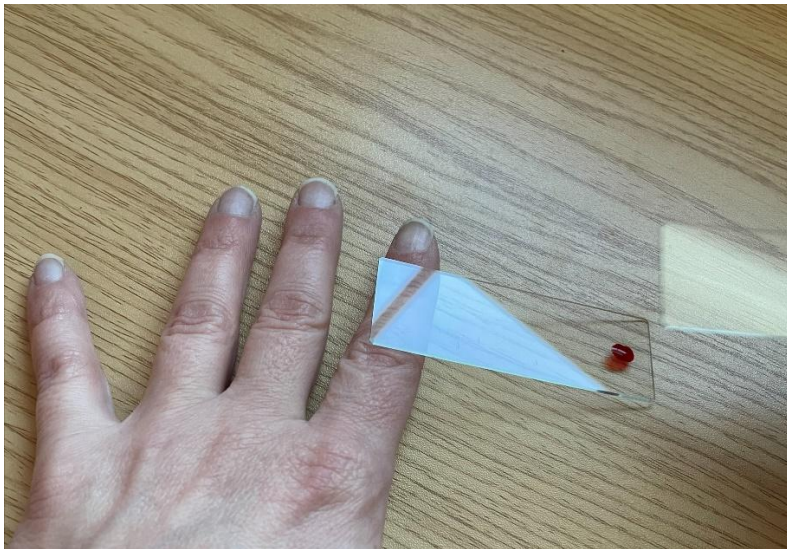
1. Let the spreader slide rest on your dominant hand.
 - a. You only need to worry about the angle of your spreader slide.
2. Add a small drop of blood to the sample slide.
 - a. Sample should be added on the side of the dominant hand that will be creating the smear.
 - b. A finger can be used to brace the sample slide and prevent it from shifting during smear creation.
 - c. Back up into the blood sample and choose an angle by moving the top spreader up or down.



Method #3- Inclined slop method

Good when having a technical issue with the angle

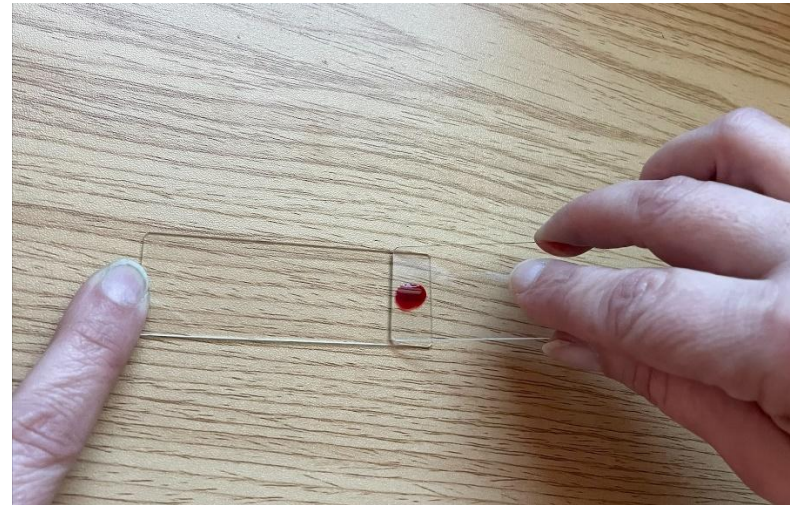
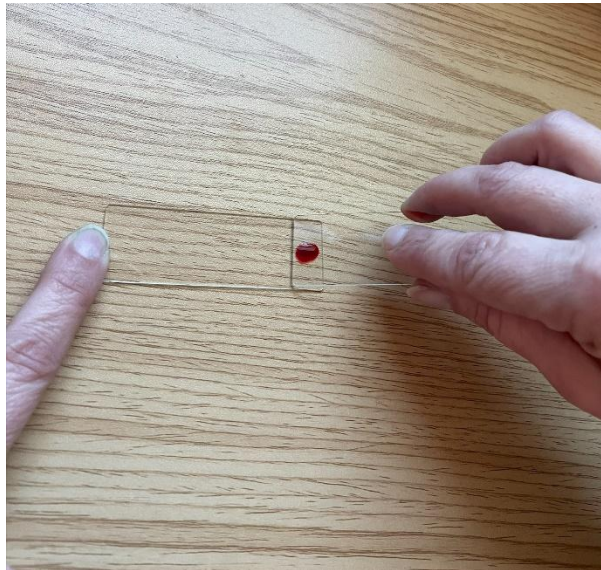
1. Rest the sample slide on top of the non-dominant hand pointer finger.
2. Place a drop of blood on the end of the sample slide closest to the table.
3. Back up the spreader slide into the drop of blood until it spreads across the spreader slide.

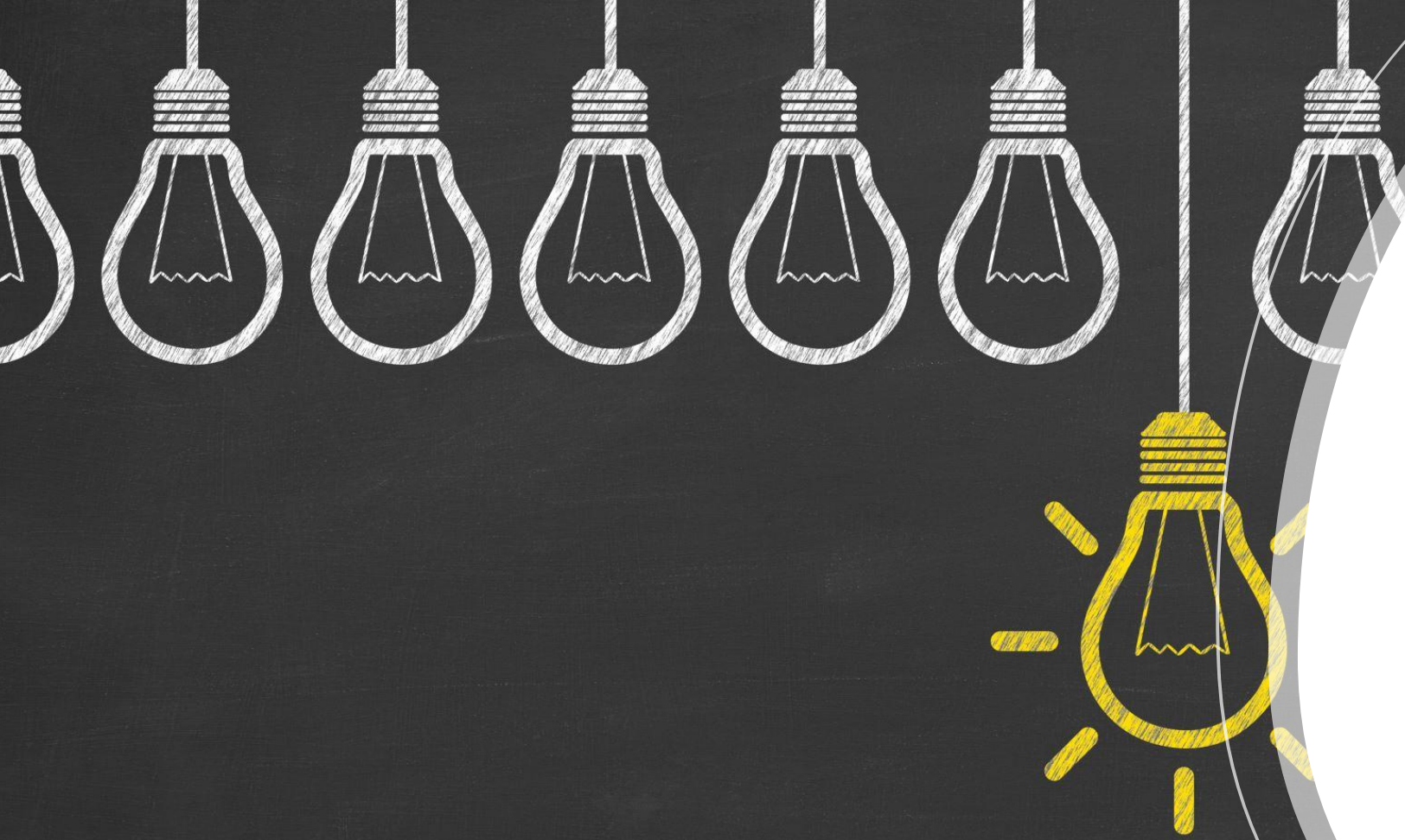


Method #4- Controlling pressure with pointer finer

Holding the spreader slide with the sample slide flat on a table- This is a good method when more pressure is needed.

1. Rest the sample slide on a flat surface
2. Hold the side of the spreader slide FIG 1 or rest your top finger on top of spreader slide FIG 2
3. Move the spreader slide off the end of the sample slide to create your smear





Conclusion

- Generate excitement and interest around the topic
- Incorporate methods to connect with all learning styles
- Attempt various methods as a group
- Encourage technique analysis through conversation



Questions?



Thank you!

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