

# Hemoglobin, after Anemia PPT

**Objectives:** To teach the students how to use finger-stick hemoglobin determinations to evaluate the existence and extent of anemia.

To teach or reinforce care in handling sharps.

**Material:** Spent, stoppered medication vials with removable stoppers, cleaned and dried, at least 10; Heparin, small amount; Exam gloves; Syringes and needles (5-10 cc/19-20gauge); Sterile blood lancets; Sharps container; SKALA standards; SKALA paper or ordinary laboratory filter paper; Village Medical Manual, Volume 1, Appendix 2.

**Preparation:** Draw at least 10-20 ml of blood from a volunteer; put it in at least two of the medication vials with a few drops of heparin and let it sit undisturbed for 4 hours. The blood will not clot, but the red will go to the bottom and the clear portion will go to the top. Then mix up one of the vials by tipping it back and forth, not shaking it. Draw it up into a syringe and place varying amounts of this in some empty vials labeled with letters, recording for your own purposes how much is in each: 0.25 ml, 0.5 ml, 0.75 ml, 1 ml, 1.25 ml, 1.5 ml, and 2 ml. The amounts in the vials should be random as far as the students are concerned, not consecutive<sup>1</sup>. Then draw the clear, upper part off of the other vials and make up the amount in each of the unknowns to a total of 2.5 or 3 ml.

## Student steps:

1. Put on exam gloves
2. Clean your partner's finger or ear lobe; rub the earlobe hard to encourage blood flow.
3. Finger stick or earlobe stick your partner and put a drop on a piece of filter paper, being careful to touch only the drop, not the skin, with the paper.
4. Compare the colors to the color standards.
5. Take a drop of blood from each of the unknown vials.
6. Test each vial and record the percent hemoglobin.

## Guidelines:

1. Students must be sure to touch the filter paper on a hanging drop and not touch the paper to the skin.
2. They must wait until the blood is totally dry before comparing colors, but they need to read it as soon as it is dry, not 30 minutes later.
3. They must not believe the result of the red part of the spot if there is a gray, wet ring around it where the watery part of the blood separated out.

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<sup>1</sup> In other words, the vial labeled "a" should not necessarily have the most or the least in it. The instructor needs to know the order from the least to the greatest, but the students should not have hints.