Age Specific Care and Phlebotomy
According to Erickson, at each stage of development there are certain tasks that must be accomplished for the person to experience normal psychological development.

- **Infancy**: Birth - 18 Months Trust vs. Mistrust
- **Toddler**: 18 Months - 3 Years Autonomy vs. Shame and Doubt
- **Preschool**: 4 - 6 Years Initiative vs. Guilt
- **Middle Childhood**: 7 - 12 Years Industry vs. Inferiority
- **Adolescence**: 13 - 18 Years Identity vs. Role Confusion
- **Young Adulthood**: 19 - 40 Years Intimacy vs. Isolation
- **Middle Adulthood**: 40 - 65 Years Generativity vs. Stagnation
- **Late Adulthood**: 65 Years and Older Ego Integrity vs. Despair
Phlebotomy Applications

- Basic knowledge of human growth and development

- Age specific interpersonal skills include:
  - Psychological needs
  - Social needs
  - Appropriate tone of voice, eye contact, and active listening skills

- Technical expertise - physical skills
## Age Specific Groups

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Neonate/Infant Psycho-Social Needs

- Total dependence on parents/adults
- Older infant has fear of strangers and separation from parent
- Parent may hold child and provide comfort
- Pacify with bottle/pacifier or distract with toys

- Primary interaction will be with parent
  - Introduce yourself
  - Gentle, comforting tone of voice
  - Compassionate expression and body language
  - Clearly explain the procedure
  - Older infants - talk slowly and make eye contact
Neonate/Infant - Fears/Safety

- Try not to separate from parent unless absolutely necessary
- **Do not** perform Venipuncture on infants less than 6 months of age unless absolutely necessary
- For heel sticks follow recommended procedures to the letter
- Collect minimum amount of blood necessary
Neonate/Infant Phlebotomy

Blood should be collected from the heel of a neonate or infant under the age of one (unless the child is walking before one year of age; then a finger stick should be performed). The correct area to use for the procedure is the lateral or medial plantar surface of the heel.

Toes are never a correct choice for blood collection. Bone in the toe of an infant could be very easily punctured and an adequate specimen could not be collected from this site.

- Heel stick-not used for Blood cultures, coagulation or cardiac enzymes.
  - Plantar surface: outside “V”, NCCLS guideline states incision <2.0mm to avoid hitting bone.
  - Blood volume collection kept to a minimum; small children can become anemic if too much blood is taken.
  - Heel warmer
- Finger stick: heel toughens-up when infant starts walking.
  - Tip ring or middle finger used.
  - Gently massaged from base to tip, DO NOT SQUEEZE
- Veinipunctures: Blood cultures, coagulation, etc..
  - Butterfly
  - Assistance from parent or caregiver with immobilizing the arm
Blood collection on Babies

- The recommended location for blood collection on a newborn baby or infant is the heel. The diagram below indicates in green the proper area to use for heel punctures for blood collection:
Blood Collection on Babies

- Pre-warming the infant's heel (42 C for 3 to 5 minutes) greatly increases the flow of blood for collection. However, do not use too high of a temperature warmer, because baby's skin is thin and susceptible to thermal injury.

- Clean the site to be punctured with an alcohol sponge. Dry the cleaned area with a dry cotton sponge. Hold the baby's foot firmly to avoid sudden movement.
Blood Collection on Babies

- Using a sterile blood lancet, puncture the side of the heel in the appropriate regions shown above in green. Do not use the central portion of the heel, because you might injure the underlying bone, which is close to the skin surface. Do not use a previous puncture site. Make the cut across the heel print lines so that a drop of blood can well up and not run down along the lines.

- Wipe away the first drop of blood with a piece of clean, dry cotton. Since newborns do not often bleed immediately, use gentle pressure to produce a rounded drop of blood. Do not use excessive pressure or heavy massaging because the blood may become diluted with tissue fluid.
Blood Collection on Babies

- Fill the capillary tube(s) or micro collection device(s) as needed.

- PKU collection: One free flowing drop of blood should be added to each circle to completely fill in spot, never add repetitive drops to the same circle, test will be rejected.

- When finished, elevate the heel, place a piece of clean, dry cotton on the puncture site, and hold it in place until the bleeding has stopped.

- Be sure to dispose of the lancet in the appropriate sharps container. Dispose of contaminated materials in appropriate waste receptacles. Remove your gloves and wash your hands.
Neonate/Infant-Phlebotomy

- **Minimum Volume**
- **Neonate: Routine Labs**
  - CBC-Hemoglobin and hematocrit very high at birth and decrease rapidly
  - Retic Count
  - Chemistry including CRP and Therapeutic Drug Monitoring
  - PKU (infant screening program used to detect early signs of any inherited metabolic disorders.)

- Urinalysis-checking for non-glucose reducing substances (clinitest)
- Serology (RPR, TORCH)
- Blood Cultures, RSV, Rotavirus
- Cord Blood
- Minimum Sample requirements:
  - CBC, Retic-0.250 ml (first line capiject);
  - chemistry-1-2 full Pedi serum tubes
Neonate/Infant-Phlebotomy

- **Infant: Routine Labs**
  - Same as Neonate with the addition of Lead level
  - Sample volumes should be kept to a minimum
  - First Hepatitis B Vaccination should be initiated by the age of two months
  - DPT, Polio and Hib (H. Influenzae type B) immunizations are initiated at 2 months. Second Hepatitis B vaccination is should be administered one month after first dose was given, usually at two to three months of age.
  - The second Polio, DPT and Hib are given at four months.
  - Third DPT and Hib immunization is at six months. Third Hepatitis B vaccination is also given four months after first dose, usually in this time frame
Toddlers 1-3 Years Psycho-Social Needs

- Try not to separate from parent unless absolutely necessary.
- Parent may assist by holding, explaining to and comforting the child
- Friendly, cheerful and empathetic manner.
- Speak before you touch, use child’s name
- Explain procedure in soothing tone using age appropriate terms, children this age fear pain
- Emphasize cooperation
- Praise child during procedure
- Encourage parent to praise child after procedure
Childproof area, no supplies in reach

Be prepared, have all supplies needed to avoid delay

NEVER say “This will not hurt”, rather use age appropriate terms and it’s ok for them to say “ouch”

Distract with a toy or other object

If appropriate, keep child informed on how much longer it will be

Band-Aids are not appropriate, child can remove and may swallow and choke.
Toddlers 1-3 Years: Phlebotomy

- Collection similar to Neonate and Infants
- Capillary collection:
  - Tip of ring or middle finger
  - Gently massaged from base to tip, DO NOT SQUEEZE
  - The side of the finger should not be used for capillary blood collection, on a young child
- Puncturing the side of the finger could result in bone penetration because the flesh is only half as thick on the side of the finger as it is on the pad.
- Minimum blood volume collected
- Butterfly preferred: Toddler may appear compliant at first, but quickly resist when the needle is inserted into the vein.

- Childproof collection area:
- Toddlers are very curious, may attempt to pick up supplies within close proximity.
- No band aids (may pull off and ingest)
- Immunizations during this time period include MMR (Measles, Mumps, Rubella) at fifteen months, fourth DPT and third Polio vaccine at eighteen months. The fourth and final Hib vaccine is given between twelve and fifteen months of age. A Varicella immunization is also recommended at twelve to fifteen months of age.
• Order of Draw for Specimens Collected by Skin Puncture

• If more than one type of specimen is required from a skin puncture collection, the following order of draw should be followed. (Note: The order of draw is not the same as it is for specimens collected by venipuncture.)

1. Lavender top tubes containing the anticoagulant EDTA
2. Tubes with other additives (such as heparin)
3. Tubes without additives

• Collecting the lavender top tube first is crucial if a platelet count or a complete blood count (CBC) that contains a platelet count will be performed on that specimen. If the lavender top tube is collected later in the draw, the platelet count may not be accurate because platelet clumps will begin to form very rapidly once the skin has been ruptured.

• Other tubes that contain additives should follow the EDTA tube to minimize the possibility of clotting that may occur during the collection procedure. If clots begin to form toward the end of the collection, the red top that requires the formation of a clot will not be adversely affected.
Finger Stick/Capillary Collection

- Capillary blood collection should be performed on the patient's non-dominant hand. The middle or ring finger are the safest and least painful fingers to use.

- The thumb has a pulse and therefore should not be used for capillary blood collection.

- The index finger is the most sensitive digit and is frequently calloused. It should not be used for capillary blood collection.

- The little finger must not be punctured because the tissue depth is insufficient to prevent bone injury.

- Select an area of the finger that will keep the hand in a natural position while the sample is being collected; avoid twisting the hand or arm into an awkward position.

- Make the puncture on the fleshy part of the distal phalanx. The puncture should be made across the fingerprint, not parallel to it, to prevent the blood from channeling down the fingerprint, making it difficult to collect the specimen into the container.

- These procedural steps should then be followed:

- Disinfect the finger with alcohol.
Finger Stick/Capillary Collection

- Allow alcohol to dry completely.
- Puncture selected location.
- Wipe away first drop of blood.
- Apply gentle pressure to finger to obtain a free-flowing drop.
  - If a free-flowing drop of blood is not obtained, the following may be done:
    - Keep the patient's hand below the level of his/her heart.
    - Gently apply pressure to finger below the top knuckle.
    - Warm the patient's hands with warm water, a heating pad, or warm towel prior to the finger stick.
    - Repeat the finger stick process on a different finger.

- Allow free-flowing drops to flow freely into the collector top and down the walls of tube
- If a drop becomes lodged inside of collector top, a gentle tap of the tube on a hard surface is sufficient to move it to the bottom
- Mixing an anticoagulated specimen during collection is essential for prevention of clot formation.
- In addition, mix anticoagulated specimens by gentle inversion after the closure is placed on the tube.
Finger Stick/Capillary Collection

Techniques that should NOT be employed include:

- Squeezing the finger tightly or "milking" the finger.
- “Scooping” motion-pressing device into skin to collect blood
  - Not to be confused with the accessories of micro collection devices commonly referred to as “scoops”.
- Pushing the collection device deep into the skin puncture site prior to activating the trigger, resulting in excessive skin compression and lessening the distance to the bone.
- Re-puncturing the patient’s finger in the same area as the initial puncture site.
Pre-School 4-5 Years Psycho-Social Needs

- Parent may be present to provide emotional support and to assist in obtaining child's cooperation.
- Approach in friendly, cheerful & empathetic manner, use child’s name.
- Explain procedure in soothing tone using age appropriate terms, children this age fear pain.
- NEVER say “This will not hurt”, This can cause the child to lose trust and could cause problems the next time the child has a blood test.
  - Instead use age appropriate terms and it’s ok for them to say “ouch”
  - Or they can make faces but that he/she needs to hold very still. Encourage the child to hug a favorite doll or blanket if he/she has one while you perform the blood collection.
- Keep child informed on how much longer it will be.
- Praise for bravery, say “Thank you”
Pre-School 4-5 Years - Fears/Safety

- Child proof collection area
- Fear of pain
- Avoid delays, have all equipment
- Assemble equipment out of child’s eye sight.
- Use your best judgment whether to encourage child to look away.
- Involve child in after care by allowing selection of bandaid and sticker.
- Intrusive procedures, such as throat swabs, rectal temperatures, blood drawing and IV starts are distressing and should be done in a treatment room.
- Fifth DTP, fourth Polio and second MMR are given prior to entry into school.
Pre-School - Phlebotomy

- Similar to Toddlers
  - Butterfly best choice
    - Prone to sudden movements
    - Anticipate resistance, be prepared
    - Co-worker secure arm or provide distraction

- Take caution
  - Uncooperative children may lead to accidental needle stick injuries.
  - don’t rush
School Age 6-12 Psycho-Social Needs

- Increased language skills and self-control.
- Move from security seeking behavior towards independence.
- Try not to embarrass the child.
- Must communicate with them as an individual using age appropriate words and appropriate eye contact.
- May want parent to hold hand.
- Explain the procedure and why blood is needed.
- Be prepared to answer questions.
School Age 6-12 - Fears/Safety

- Younger ages fear of pain, older ages may “act” brave.
- Younger ages may need distraction such as a toy or other object.
- Explain use of equipment if appropriate.
- Reassure the patient during the procedure.
- Let them know how much longer.
- Explain the importance of maintaining pressure after completion of procedure.
Adolescent 13-18 Psycho-Social Needs

- Maintain privacy.
- Concerned with the present more than the future.
- Conscious of appearance.
- Actively involved in anything concerning the body.
- Engage in behaviors to establish they are an adult.
  - May be hypersensitive or non-interactive
  - May act hostile to hide fear.
  - Important to assess the patient and use appropriate interpersonal skills.
- Take extra time for explanations and or preparation.
Adolescent 13-18 - Fears/Safety

- Embarrassed to show fear.
- Adolescent male has greater potential for fainting.
  - Periodically check for pre-syncope signs.
  - Be aware of sudden silence in a previously talkative patient or extremely talkative after previously silent.
- Keep up a running conversation to distract the patient.
- Stress importance of post-phlebotomy care.
Young Adult 19-35 Psycho-Social Needs

- Reflect on interests, goals and aspirations for the future.
- Focused on preservation and maintenance of health.
- May work and play too hard and sacrifice sleep, nutrition and exercise.
- May experience anxiety, stress and depression related to work, marriage, parenting and social expectations.
Young Adult 19-35 Psycho-Social Needs

- More involved with healthcare decisions, may ask questions which put you “on the spot”.

- Communicate in a professional manner.
  - Explain why you cannot answer certain questions
  - Do not patronize or talk down to the patient.
  - Clearly and honestly explain the procedure

- Avoid negative body language

- Eye contact critical, promotes sense of trust but be aware of cultural differences.
Young Adult 19-35 - Fears/Safety

- Can possess same fears as pediatric patient.
- Confidence and professionalism are essential to set patient at ease.
- Be aware of signs of syncope, especially in fasting or GTT patients.
- Stress importance of post-phlebotomy care.
Adulthood 36-65 Psycho-Social Needs

- Generativity vs. Stagnation
- Prepares for empty nest
- Adapts to aging process
- Older, wiser, and more likely to be at peace with society and self.
- Health problems may require prescription drugs.
- Interpersonal skills the same as the young adult.
- Physical signs include: Hair thins, skin wrinkles, and sags.
- Additional signs: Weight gain, changes in eye sight, hearing, memory or judgment and longer recovery time.
Adulthood 36-65 - Fears/Safety

- Rarely fearful of the procedure.
- Stress post-phlebotomy site care; ESPECIALLY for patients on anti-coagulant therapy.
- Site should always be checked before patient leaves.
Late Adult 65+ Psycho-Social Needs

- Aging process continues.
- Reduced attention span and memory.
- Experiences anxiety over loss, isolation, and changes.
- Reflect on their lives and come to accept death.
- Due to loneliness, may take more of your time.
- Challenges due to neurological and physical disabilities.
School Age - Adult (6-65) Phlebotomy

- Evacuated tube system used for blood collection.

- Fainting: decreased respirations, sudden sweating, or increased or decrease while talking are all reasons for close concern.
  - Have them sit or lie down, till able to move
  - Closely monitor
Late Adult 65+ Fears/Safety

- “Normal” older adults not a problem.
- Patients with physical or neurological problems can present very challenging problems.
- Ask for assistance if limbs must be manipulated or held still.
- Take GREAT care to select your equipment.
- Provide exceptional after care to prevent bruising.
- Band-Aids MAY NOT be appropriate for elderly patients with “paper thin” skin.
Late Adulthood: Phlebotomy

- Butterflies or Evacuated system
- Apply tourniquet with caution: avoid pinching skin, may be applied over clothing.
- Small veins easily collapse
- Prone to bruising
- Anti-coagulant: always apply adequate pressure when phlebotomy is complete.
- **Never** bandage any puncture site while wound is still bleeding.
- “Paper” skin - avoid Band-Aids.
- Hearing loss, speak clearly, take time to listen. Repeat answers as many times as it takes.
Reference


- Terry Kotrla, MS, MT(ASCP)BB
  Austin Community College