Basic Physical Examination Standards

PHYSICAL EXAMINATION STANDARDS are used by health care professionals to review the body of a patient for signs of disease. The medical history and the physical examination aid the health care professional with diagnosis. Normal variations in physical examination standards include accommodations for patient age when reviewing vital signs and body systems.

Objective:

Describe the normal physical examination findings for adults and the standards that may vary by patient's age.

Key Terms:

apical pulse
body mass index
brachial pulse
distension
extremities
integument
peripheral pulses
reactive pupils

Exam Standards and Patient Age

If a male patient has a fever, has not been eating well, and is not sleeping at night, how might you go about diagnosing this patient? What if this patient cannot communicate due to his age (infant or elderly person with dementia)? Patient groups add an extra dimension to the process of examination and diagnosis. Normal findings or standards can vary by age group.

NORMAL PHYSICAL EXAMINATION FINDINGS FOR ADULTS

During a physical examination, the patient's vital signs are taken and recorded. Vital signs include blood pressure readings, respirations, heart rate, temperature, and pulse oximetry.

Blood pressure is the pressure the blood exerts on walls of the arteries as the heart contracts and relaxes. The normal value for an adult is 120/80.

The respiration measurement is the number of breaths a person takes in a minute. The normal value is 12 to 20 breaths per minute. In contrast, heart rate is the number of times the heart beats in a minute. The normal value is 60 to 100 beats per minute. Another variable is body temperature or the temperature of the core of the body. The normal value range (for oral temperature; other locations have different normal values) is 96.8°F to 99.5°F. Pulse oximetry is a measure of how much oxygen is attached to the hemoglobin molecules in blood. It is expressed as a percentage, and the normal value is above 90 percent.

Body System Review

During a physical exam, an assessment of the body systems is conducted. Body system review includes observations of height and weight, ear, nose, and throat, neurological, cardiovascular, respiratory, gastrointestinal, musculoskeletal, and integumentary systems.

- To review height and weight, a body mass index can be used. The **body mass index** is a device used to calculate ideal weight based on height.
- When the ears are observed, hearing should be equal in both ears. The ear canals should be free of cerumen or earwax.
- The nasal septum should be straight, and the patient should be able to breathe easily through one open nostril when the other one is occluded.
- The throat should be pink (not red), moist, and free of drainage.

Neurological System Review

A neurological system review includes observing pupils. Pupils should be equal in size, round, and reactive. **Reactive pupils** are pupils that constrict when a light shines into them. The patient should be alert and oriented, knowing his or her name as well as the location and the day and date. Eyes should move together as they follow the examiner's finger side to side and up and down. A freely swinging lower leg should kick out when the kneecap is struck lightly.

Cardiovascular System Review

Cardiovascular observations include **extremities**: arms, hands, legs, and feet. Extremities should be pink and warm. The **apical pulse** (the pulse heard with a stethoscope placed over the heart) should consist of two sounds and should be regular, strong, and even. **Peripheral pulses** (those felt with the fingers on the neck, armpit, bend of the elbow, wrist, groin, back of the knee, ankle, and foot) should be equal in rate and rhythm to the apical pulse.

Respiratory System Review

When observing the respiratory system, respirations should be deep, even, and regular. Breath sounds heard through a stethoscope when the patient breathes in and out deeply should be clear in all lobes of the lungs. Skin, especially at the lips and fingertips, should be pink, not gray or blue.

Gastrointestinal System Review

Gastrointestinal observations include the abdomen. The abdomen should be soft, free of tenderness, and free of **distension**—swelling and tightening of the skin. Gurgling bowel sounds should be heard in each quadrant of the abdomen with a stethoscope. Bowel movements should be regular, soft, formed, and brown.

Musculoskeletal System Review

Musculoskeletal observations include hand grips (which should be equal) and foot strength (which should be equal). Patient gait should be steady and even. Finally, **integument** is the protective outer covering of the body—mainly the skin. Skin should be warm, dry, and free of rashes, abrasions, discolorations, growths, or other abnormalities.

STANDARDS THAT VARY BY AGE

There are normal variations based on age. In physical examination standards, variations include accommodations for patient age when reviewing vital signs and body systems.

Vital Signs

When gathering vital signs, blood pressure is usually not measured in routine pediatric examinations. Another variation is that blood pressure rises with increasing age, regardless of hypertension risk factors. Respiration standards vary in that children up to age 12 breathe more rapidly than is normal for adults.

FIGURE 1. There are expected variations in physical examination standards.

Heart rate standards vary in that children's heart rates are more rapid than those of adults. Temperature standards can also vary in that readings depend on the kind of thermometer: forehead, ear, under the tongue, in the armpit, or rectal. The very young and the very old may not be able to hold a thermometer

under their tongues, making a different route necessary. Also, older adults may not develop fevers in response to infections the way younger adults do.

Body Systems

There can be variances in standards for body systems. For example, in the area of height and weight, young people get taller at regular intervals, whereas the elderly can lose height.

Ear, Nose, and Throat

When observing the ear, nose, and throat, young children cannot tell examiners they hear them from each ear, but watching their behavior is an indication. Older adults are more likely to be hard of hearing and to have problems with earwax.

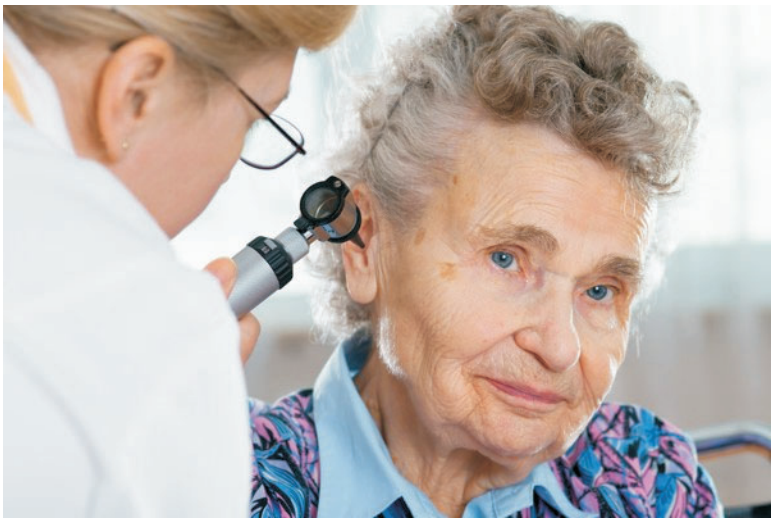

FIGURE 2. Older adults are more likely to be hard of hearing.

Neurological

Standards can vary by age with neurological observations. Older adults can appear not to be oriented properly for several reasons other than dementia. The examiner should ensure the patient can hear him or her. Urinary tract and other infections often manifest with signs and symptoms of confusion and dementia.

Cardiovascular

Cardiovascular variances for age include taking of the **brachial pulse** (the pulse on the inner side of the upper arm) for babies.

Respiratory

Respiratory observations include the possibility of "grunting" in infants, which can indicate a problem. It is, however, usually harmless. Likewise, a stooped posture in the elderly can diminish the breath sounds you hear.

Gastrointestinal

Physical exam standards for the gastrointestinal system vary for the age of the patient when considering stools. Normal stools for infants and children vary by age, diet, and several other factors. Older adults are more prone to diarrhea and constipation than younger people. The elderly may become needlessly concerned that they are constipated and needlessly medicate themselves if bowel habits are not exactly regular.

FURTHER EXPLORATION...

ONLINE CONNECTION: Pediatric Vital Signs

Use the following website http://www.emedicinehealth.com/pediatric_vital_signs/article_em.htm to gain a better understanding of how vital signs may differ for pediatric patient groups. Research other websites to learn more on the topic. With the help of some friends, family members, and their younger siblings, collect and record some data on respiration and heart rate. It would be best if you collected data from at least 10 children. Record your data on an Excel spreadsheet, taking care to note the age and measurements of the children. Does your data support the information you found online? Why or why not? Create a short presentation of your data and the supporting research.

Musculoskeletal

Regarding the musculoskeletal system, medications for different conditions can affect gait in older patients. It should not be assumed that the problem must be musculoskeletal. It is important to ensure that patients who use walkers, canes, or other assistive devices are doing so properly.

Integumentary

Integumentary observations take into account that older skin is more fragile and susceptible to breakdown. Immobility contributes to skin breakdown, especially on the backs of the ears, elbows, lower back, hips, and heels. In addition, more irregularities show up with age. Yet the young and the old need their skin protected from irritation that comes with urinary and fecal incontinence.

Summary:

During a physical examination, the patient's vital signs are taken and recorded. Vital signs include blood pressure readings, respirations, heart rate, temperature, and pulse oximetry. During a physical exam, an assessment of the body systems is conducted. The body systems review includes observations of height and weight; ear, nose, and throat; and neurological, cardiovascular, respiratory, gastrointestinal, musculoskeletal, and integumentary systems.

There are normal variations in physical examination standards, including accommodations for patient age when reviewing vital signs and body systems.

Checking Your Knowledge:

1. List and explain what is assessed when vital signs are reviewed.

2. List and explain what body systems are reviewed during a physical exam.
3. Give an example of a pediatric variation of a vital sign.
4. Give an example of a body system variation for a senior citizen.
5. Define the term "body mass index," and explain how it is used.

Expanding Your Knowledge:

Take a video while demonstrating how you would assess lung sounds on an older adult with poor posture. You will need to use a family member or friend as a model. Explain how you would position the patient to best hear lung sounds. Review the video, and make improvements as necessary.

Web Links:

Pediatric Assessment
http://www.nursing.twsu.edu/advhealth/lesson/8/physicalassessment.pdf

Normal Variations
http://quizlet.com/5842509/principles-and-perspectives-normal-variations-in-physical-examination-flash-cards/

Physical Diagnosis in Older Adults
http://www2.kumc.edu/coa/education/AMED900/PhysiologicAging/PhysicalDiagnosisinOlderAdults.htm