UT Southwestern Aging and Geriatrics Education (UT-SAGE) Tips For Integration Into the Teaching of Introductory Physical Exam and History Taking Skills for First and Second Year Medical Students

SAGE TIP:
Vital Signs and the Older Patient

The normal ranges for blood pressure, heart rate, temperature and respiratory rate do not change for geriatric patients. However there are important changes:

Blood Pressure: Due to stiffening of the arteries there is a tendency for the systolic blood pressure to rise with aging with less rise in the diastolic blood pressure. This means the *pulse pressure* (systolic-diastolic) widens. About 20% of the elderly have *orthostatic hypotension* (a drop in blood pressure with standing of more than 20mmHg systolic or 10mmHg diastolic).
Pulse: Resting heart rate stays the same, but maximum heart rate (eg, with exercise) goes down with age. A rough formula for this is 220-age. Premature atrial and ventricular beats (also known as *ectopy*) are very common with aging and can make it seem like the patient has an irregular rhythm when you take their pulse.
Respiratory Rate and Pulse Ox: Resting respiratory rate is generally unchanged with normal aging, but due to decline in lung function the ability to respond to stress (eg, a pneumonia) is changed. Another reading often reported with vital signs is the *pulse oximetry*, a non-invasive measure of the percentage of hemoglobin that has oxygen bound to it (normally, 96-99%). For reasons you will learn in physiology, the normal elderly patient will often have a pulse oximetry reading which is lower by a few percentage points.
Temperature: Temperature in the older patient may be on the lower end of the normal range due to decrease in metabolic rate, loss of muscle mass, and other factors. Most importantly, older patients are less able to raise their temperature (have a fever) due to impaired thermoregulation when they do become ill.

SAGE TIP:
HEENT Exam and the Older Patient

Head Exam: Fat pads around the eyes can atrophy, making the eyes recede. Eyelid skin can become loose and hang in folds, occasionally obstructing vision (*senile ptosis)*
Eyes: Presbyopia (eye's inability to focus on close objects) occurs due to loss of elasticity of the lens and is considered a part of normal aging. The eyes produce fewer secretions with aging and dry eyes are common. You may see a grayish-white ring at the edge of the cornea called *arcus senilis* frequently in older patients (picture in Bates, page 216). Look for opacities of the lens on exam as cataracts are common.
Oral Exam: Tooth loss is not a normal part of aging, but is frequent due to cumulative effects of dental caries and periodontal disease. About one-third of geriatric patients have lost all their teeth, and over half wear dentures. Examination of the mouth with the dentures removed is key to a thorough oral exam. Dry mouth is a common complaint in the elderly, as many medications can affect the amount of saliva.
Ears: Be sure to examine the ears for impacted ear wax (*cerumen)* which is common and easily fixed. Hearing loss is normal with aging, and is called *presbycusis*. Higher pitched sounds are affected first. If you are talking with an older patient with hearing loss and having a hard time hearing you, get closer to the patient, face the patient so they can read your lips to help, and use a lower than usual pitched voice if you can. Don't shout or yell as understanding what you are saying may be difficult.
Neck Exam: Lymph nodes tend to atrophy and may be harder to feel or absent on cervical exam.

SAGE TIP:
Cardiovascular Exam And the Older Patient

Inspection: Increased tortuosity, uncoiling, and lengthening of the aorta with age can result in the carotid artery buckling or kinking in the neck (on the right) and appear as a pulsating mass.

Auscultation: Due to arthrosclerosis, you might hear bruits over the carotids. Premature atrial and ventricular beats (also known as *ectopy*) are very common with aging and can make it seem like the patient has an irregular rhythm when you listen to their heart. An S_3 (third heart sound after S_2) can be normal in younger patients, but after the age of 40 it is almost always pathologic (eg, congestive heart failure). An S_4 (fourth heart sound, just before S_1) is heard more frequently in older patients due to the stiffening of the ventricles. More than half of patients over the age of 85 will have a systolic murmur heard at the right upper sternal border from *aortic valve sclerosis* which occurs as the aortic valve cusps thicken and become fibrotic with normal aging. Aortic sclerosis does not impede blood flow, but sounds similar to the murmur of *aortic stenosis,* a pathologic murmur which does impair blood flow. You might be able to tell the difference by examining the carotid pulsation in the neck as aortic stenosis causes a diminished and delayed carotid upstroke.

SAGE TIP:
Pulmonary and Thorax Exam and the Older Patient

With aging, due to skeletal changes including *kyphosis* (increased curving of the thoracic spine) the anteriorposterior diameter of the chest increases (barrel chest). The chest wall becomes stiffer, and the diaphragm's strength is reduced by about 25% in older adults. This makes the speed of breathing out to go down and cough to be less forceful. As you will learn in more detail in physiology, these changes apparent on physical exam contribute to a decline in lung functioning and measured values of oxygen in the blood. For example, *pulse oximetry*, a non-invasive measure of the percentage of hemoglobin that has oxygen bound to it (normally, 96-99%) which is often reported with vital signs, can be lower in a normal older patient by a few percentage points.

SAGE TIP:
Skin and Lymphatic Exam and the Older Patient

Skin Exam: Probably no other feature is associated with aging more than changes in skin in hair. With normal aging and primarily due to the cumulative effects from exposure to the sun, the skin wrinkles, looses elasticity, and thins. These changes are more than cosmetic as the skin serves as an important barrier to infection. You can see numerous types of skin changes more frequently with age, for example *cherry angioma* (Bates, page 141) and "liver spots" or "age spots" (*solar lentigos*) in sun exposed areas, and *seborrheic keratoses* (Bates, page 142). Scalp hair loses its pigment causing graying and also thins. Hair loss occurs throughout the body (pubic, axillae, limbs).

Lymphatic Exam: Lymph nodes tend to atrophy and be replaced with fat and may be hard to feel or absent on exam. Thus, an enlarged lymph node in an older patient should be taken very seriously is more likely to be pathologic.

SAGE TIP:
Older Women's Examination

Breast Exam: With aging, the glandular tissue in the female breast is replaced by fat; breasts also atrophy and become more pendulous. Due to these changes, it can be easier to pick up a breast mass in an older women. The ducts around the nipple can become palpable (feel like strings).
Pelvic Exam: For older patients with arthritis of the hip or other mobility problems, the traditional lithotomy position may not be comfortable or possible. Having an assistant raise and support the legs or having the woman in the left lateral position with knees brought up might be a more comfortable position. There are many changes in the post-menopausal woman that can be seen on physical exam. Ovaries are usually non-palpable by about 10 years after menopause. There is decrease in pubic hair, vaginal narrowing/shortening, and vaginal mucosal thinning and drying due to loss of vaginal lubrication. Together, these changes can cause *dyspareunia* or pain with sexual intercourse. *Pelvic organ prolapse* is very common finding on physical exam and can be a contributor to urinary symptoms.

SAGE TIP:
Older Male Examination

Genital Examination: There are several changes that become apparent in the older male patient on physical exam. Pubic hair decreases. The penis can decrease in size. The testicles can drop lower in the scrotum and mild atrophy is common. Inability to have an erection is a problem for up to half of all older men.
Rectal Examination: The incidence of *benign prostatic hyperplasia* (BPH) and *prostate cancer* increases greatly with age so examination of the prostate on rectal exam is an important part of the older male exam.

SAGE TIP:
Abdominal Examination in the Older Patient

Abdominal Exam: There is a tendency for fat to accumulate or redistribute to the lower abdomen and hips, producing a "potbelly" in many. Also, in an older patient with abdominal pathology, the signs of peritoneal examination (eg, guarding, rebound) can be less reliable and even absent. During auscultation, listen for abdominal bruits (from *atherosclerosi*s). Palpate for a widened aorta as can been seen with *abdominal aortic aneurysms,* which are more common with age.

SAGE TIP:
Musculoskeletal Examination

Height: Older people loose height due to thinning of the intervertebral discs and *osteoporosis.* You will see *kyphosis (*increased curvature of the thoracic spine) on examination of the back.
Range of Motion: Range of motion of the joints decreases, mainly due to osteoarthritis.
Muscle Bulk/Strength: Muscle decreases in bulk, and there is mildly diminished strength. Due to muscle bulk decline, the joints might look very prominent. Hands may look thin/bony due to atrophy of the interosseus muscles.

SAGE TIP:
Neurological Exam of the Older Patient

Gait and mobility: Examination of gait and mobility is the most important part of the neurological exam in the older patient. The "Get Up and Go" test is an easy way to do this—have a patient seated in a chair with an arm rest. Have them get up from the chair, walk 10 feet and turn around and sit back down. Normal is less than 10 seconds, abnormal is more than 20 seconds. More important than the time, you can observe their overall gait, postural stability/balance, stride length, and if they have to use their arms to get up from the chair.
Sensation: Frequently, you will find diminishing or a loss of vibration sense in the feet/ankles.
Reflexes: Ankle reflex can be diminished or absent; gag reflex may also be diminished or absent. "Primitive" reflexes, such as grasp and snout reflexes can return and can be of no consequence.

SAGE TIP:
Mental Status Exam

Memory: Dementia is **not** considered a normal part of aging, though the incidence of dementia rises sharply with age. It does take more time for an older person to retrieve and process data and to learn new material, but they are able to. Recent memory (eg, the name of someone you just met) can decline with normal aging. Long-term memory does not decline with normal aging. Motor responses and speech can be slowed some also. You will learn in future courses and clerkships about how to separate normal changes of aging, dementia, depression, and delirium from each other.

History Skills Clinic

SAGE TIP:
Social and Spiritual History and the Older Patient

Taking a comprehensive social history becomes even more important in the older patient. The ability of a patient to live independently in the community is greatly affected by the social support network around the patient. Basic questions to ask include who lives with the patient, who can the patient rely upon for help if needed, and who would the patient want to make decisions for them if he/she became unable. About 70% of older people will need assistance of others at some point prior to their death. Of all older adults who need assistance, about 80% of the care is provided by family or friends and ***not*** institutions such as nursing homes.
Caregiver Burden: These caregivers (often children or spouse of the older patient) can experience significant caregiver burden which adversely affects the caregiver's own health, including higher levels of depression. Part of addressing the social needs of your older patient is addressing the caregiver's feelings of burden as caregiver burnout is common. Acknowledgement of how hard of a job caregiving is and a compliment from the physician such as, "You're doing a great job caring for your father," can go a long way along with giving the caregiver "permission" to take time to care for themselves.
Financial Status: You must also ask your patients about the ability to afford the treatments you prescribe. Poverty increases with age, with nearly a quarter of older Americans having family incomes below 150 percent of the poverty line (eg, less than $20,000 per year for a couple). Medical expenses are a large part of an older individual's living expenses. If you account for the added costs of increased medical expenses, close to one-third of American seniors live in poverty.
Spirituality and Aging: Longitudinal cohort studies have found a significant increase in spirituality from late middle to older adulthood with a strongest effect in women. Religious faith is a key coping mechanisms to the losses that come with aging (eg, loss of spouse and loss of functional abilities).
