Role of Physical Exam, General Observation, Skin Screening & Vital Signs

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Purpose Of The Physical Exam

• **Screening** for occult disease, assure **good health**, develop **relationship** w/patient

• Identify **cause** of **symptoms**, **guide** use of adjuvant **testing**

• Follow **known disease**, assist in adjusting treatment

• Part of **mystique & magic** of medicine – power of touch & observation

• ***Exam inextricably linked to the History***
Review Of Systems (ROS) & Connection to Clinical Care

• list of questions, arranged by organ system, designed to uncover dysfunction and disease
  – ? screening tool asked of every patient
  – ? asked only of patients who fall into particular risk categories
  – ? asked to better define the likely causes of a presenting symptom
Practical Approach To ROS

• Gain facility, so can apply right questions @ right time – grouped by organ system
• Helps to understand why these ?s, where they lead
• Example:
  – Patient w/cardiac RFs, **Cardiovascular ROS**
    • If positive for Chest Pain→Define w/”OLD CARTS”
      Onset, Location/radiation, Duration, Character, Aggravating factors, Relieving factors, Timing and Severity
Physical Exam – *One* Piece of the Clinical Puzzle
You Have To Put All The Elements Together Correctly…

Julia Kay - Artist
http://studiojuliakay.com/portraitproject/labels/Process:%20Left-handed.html
... To Get a Reasonably Accurate Picture
The Modular Exam:
Which Examination Components Do You Use????

It Depends on the Situation………

Bag of Tricks:
Special Exam Maneuvers

It Depends on the Situation………
What Parts Should I Examine?

50 yo w/Chest pain & Shortness of breath??

70 yo w/generalized weakness, falls & weight loss??

16 yo w/acute knee pain after soccer injury??
Which Exam, When?

• Components of exam performed depend on situation, what you’re looking for

• With time & experience, you’ll learn to:
  – Select “exam module(s)” vs comprehensive exam based on clinical situation
  – How to link modules together so that the exam flows well

• Recognize that History & ROS are also modular
  – based on patient, symptoms, epidemiology, etc

* Each aspect must be done well to have value!
Putting it all together: Using Medical Tools To Define the Patient’s Problem
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Moving on to the Physical Exam: General Rules about the Encounter

- Introduce yourself
- Wash your hands
- Set up for success
  - Quiet room, good lighting, warm space
  - Make sure you understand and are understood”
- Be respectful
  - Exchange of sensitive info isn’t “normal”
- Go slow & don’t cause pain
- Think and observe throughout
Become A Data Gathering Machine!

• Exam begins as soon as you see patient:
  • General appearance
    – Sad, happy, angry, pain, anxious
    – Patient’s Dress (neat, disheveled, work clothing)?
    – Gait → While walking to office
    – Accompanied? By whom?
  • Carrying things (books, bags, possessions)?
    – While waiting → reading, sleeping, snoring/apnea?
    – Etc.....
Patient’s Ability To Engage/Interact Normally
(*intuitive* mental status)

- Ability to pay attention, focus & respond appropriately
- Ability to understand you?
- Are you able to understand them?
- Answers to questions are appropriate:
  - Content
  - Emotional response

*Above assessment done during all daily interactions – you just don’t think about it! – if all ok, no further evaluation

* When abnormal --> requires more sophisticated approach to define & characterize --> formal mental status exam
Vital Signs

• There’s a reason they’re not called Casual Signs!
• Pulse, Blood Pressure, Respiratory Rate, Temperature
• Provide insight into:
  – Asymptomatic disease (e.g. hypertension)
  – Degree of perturbation caused by acute disease (e.g. dehydration)
  – Compensation for chronic diseases
Pulse

• **Rate (heart beats/minute):** Generally measure for 15 seconds (get a watch!) $\times 4$ – unless particularly slow or fast (then measure $\times 60$ sec)

• **Regularity** – Normal $\rightarrow$ metronomic
  
  Other:
  
  – Irregularly irregular
  – Regularly irregular

• **Volume** – Subjective sense of “how full” it feels

Rhythm Simulator:

Variations In Rhythm and Volume

- Regular
- Regularly Irregular
- Irregularly Irregular
- Large Volume
- Small Volume
Measuring The Pulse - Anatomy

Can measure at any artery, or over heart – Radial artery is most convenient
Radial Artery Anatomy
Measuring Pulse - Technique

- Find radial artery
- Place index & middle fingers (not thumb) oriented along artery length-wise
- Count number of impulses in 15 seconds – multiply x 4 =s beats/min
- Note also:
  - regularity
  - strength of impulse
Measuring Blood Pressure - Physiology

• Occlude artery (usually brachial) w/cuff that provides variable amount of pressure

• Release pressure slowly – First audible sign of blood flow = systolic pressure – referred to as Sounds of Korotkoff.

• Value at point when sound of flow disappears = diastolic pressure.

• Measure in both arms – should be within 10 points
Clinical Implications

• Hypertension =s chronic dz that promotes:
  – arterial vascular dz (coronary, peripheral, cerebral, retinal)
  – renal dysfxn
  – heart failure
• Rarely causes acute sx → slowly progressive, asymptomatic process.. Until target organ becomes dysfunctional
• Normal < 120/80; Pre-HTN 120-139/80-89; HTN > 140/90 (> 150/90 age > 60)
• Lower end normal ~ 90/60 – No absolutes.
  – First ? after obtaining a low reading → “How do you feel?”
  – Also depends on degree change from usual BP.

Anatomy of Antecubital Fossa and Brachial Artery

Brachial Artery: Located within the medial 1/3 of the Fossa
• One size doesn’t fit all! If too small → BP artifactually high.

  • Length of **bladder** must reach 80% around circumference of upper arm

  • Width bladder should reach 40% around circumference upper arm
Confounding Environmental Factors

- Patient should rest, seated x 5 minutes (i.e. don’t take after they’ve run into your office), feet flat on floor.
- No stimulants prior, if possible (e.g. coffee, cigarettes, sudafed, etc)
- Remove shirts, sweaters – except loose t-shirts - exam gown is ideal
- Errors in technique can be additive→ resulting in inappropriately diagnosing pt w/HTN!
Stethoscopes

Various styles of stethoscopes – They all work – the most important part is what goes between ear pieces!
BP Measuring Technique

- Chose correct size cuff
- Place stethoscope in your ears, engage bell.
  ** Review which side is bell & which the diaphragm for your stethoscope **
- Wrap cuff around arm
- Raise arm so brachial artery @ level of heart – arm should be relaxed (can also rest on table)
BP Measuring Technique (cont)

- Place bell over brachial artery area
- Inflate to ~ 160 mmHg
- First consistent sound → SBP; Loss of all sound → DBP
- Avoid moving arm, scope or cuff (makes extra noise) – also keep talking to a min!
- Mind the Gap (auscultatory gap)! Sounds may fade & disappear briefly (giving false DBP) & then reappear.. Can avoid pitfall by listening for ~ 10 mmHg to assure sound really gone.
Confirming SBP By Palpation

- Position BP cuff on arm
- Palpate radial pulse while inflating cuff with your other hand
- Inflate to ~10 mmHg beyond point when pulse disappears
- Slowly deflate cuff while continuing to palpate – point where pulse reappears = SBP
- This isn’t typically done – but provides an opportunity for practice and confirmation
BP Simulator

Ohio State University School of Medicine Interactive Learning Center

(http://familymedicine.osu.edu/products/physicalexam/exam/)
Postural (Orthostatic) Vital Signs

- In setting of significant hypovolemia (e.g. blood loss) → pulse increases & BP decreases
- Exaggerated when change position from lying to standing (gravity → less venous return)
- Measure BP & HR w/patient lying, sitting, then standing (after waiting 2 minutes for equilibration)
- Suggestive of important hypovolemia if:
  - Pulse increases by 20 and SBP decreases by 20 (not absolute), in concert w/symptoms
Measuring Respiratory Rate

- Normal 12-20/min (adults)
- Observe rise & fall of chest while holding wrist & "measuring" pulse
- Measure x 30 seconds.. If slow or fast, measure x 1 minute
Temperature

• Temperature measured in setting of illness, concern re infection.
• Ear probe v Oral
• Rectal rarely used, though is most accurate
Screening Skin Exam

- Skin is the largest organ.
- Disease can be primary to skin or manifestation of problem elsewhere.
- Common asymptomatic disease is cancer → epidemic in California.

Sun + Multiple Exposures + Multiple Sun Burns → Skin Cancer
Skin Screening Exam: Basic Principles

• Full exposure → See all skin
• Particular attention → areas max exposure (face, ears, scalp)
• Look for areas that are:
  – Non-healing
  – Growing/changing shape
  – Irregular borders
  – Colored/bleeding
• Palpate for:
  – Size, firmness, depth, pain

American Academy of Dermatology: How to perform a complete skin exam
Common Skin Cancers

Squamous Cell Cancer

Basal Cell Carcinoma

Skinsight: Melanoma and skin cancer early detection

**ABCDE assessment for Melanoma:**
- Asymmetry, irregular **Borders**, variation in **Color**, **Diameter** > 6mm, **Evolution**
Summary of Skills

☐ Wash hands
☐ General observation of patient
☐ Measure radial pulse \(\rightarrow \text{rate, rhythm, volume}\)
☐ Measure respiratory rate
☐ Measure BP \(\rightarrow\) both arms – using cuff and by palpation
☐ Assess for orthostatic changes in pulse & BP
☐ Screening skin exam
☐ Wash hands

Time Target: < 10 min

If Extra Time: Measure BP, P, RR after running in place