

JoVE: Science Education
General Approach to the Physical Exam
--Manuscript Draft--

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Overview

For nearly 2000 years, it has been recognized that the examination of the body is fundamental to the practice of medicine. Since As a prominent physician in the Roman Empire, Galen of Pergamon the physicians have described the connection between alterations in function of specific parts of the body and specific disease states (Figure 1) and have. For the centuries following his descriptions, physicians sought to further scientific understanding in order to improve bedside diagnosis. (Figures 2-3). Physical examination held an unquestionable role in medical practice (Figure 4). However, in this modern age of increasing technology within medical diagnostics (Figure 125), it is important to consider the role that physical examination plays today. It is misguided to believe that physical examination holds all the answers, and much has been written about the questionable utility of certain maneuvers previously held in high regard. It is equally misguided to suggest that physical examination plays little role in the modern patient encounter.

Physical First, physical examination remains a valuable diagnostic tool, and there are many diagnoses that can only be made by physical examination. (such as nearly all of dermatology) (Figures 6-8). Next, and perhaps more importantly, physical examination is an important tool in helping to generate and hone clinical hypotheses. Rarely is a diagnosis made by labs or imaging is rarely done in the absence of findings detectable at the bedside. As the provider conducts a history and physical, they are actively generating and testing hypotheses to explain the patient's condition. The information one gathers may not replace the need for subsequent testing, but having firm hypotheses in place allows the provider to order tests more judiciously and ask better questions of those tests (Figure 923). This, in turn, has the potential to reduce risk to the patient and save cost for the health care system. Finally, physical examination plays a critical role in the therapeutic relationship. By engaging in the time-honored ritual of physical examination, the clinician has the opportunity to develop rapport (by demonstrating attention and sensitivity) and promote healing through the deliberate and responsible use of touch (Figure 1034).

Comment [AS1]: From the author:
I trimmed some words to make it a bit shorter, but I don't think it's going to take anywhere near the 3-4 minutes that the editor suggests. I just did a demo, going through my text verbatim, and it took exactly 2 minutes, which seems to me like a reasonable length for the introduction to the introductory video. I see this section as being important to convince an audience that investing time and attention in the video series (and learning PE skills in general) is a worthwhile endeavor.

Comment [AS2]: From Dr Talwalkar: This could be a short video of me talking to a patient or examining a patient in the background during the narrative.

Comment [TJ3]: Narrative
Comment [AK4]: This text will lead to a 3-4 minute introduction to the video. That is beyond the scope. If the authors feel strongly about covering this content, then they should highlight about 200 words to narrow down the scope of the overview.

Procedure

1. Before patient encounter:
 - 1.1. Prepare the exam room for the patient by disinfecting surfaces touched by the previous patient (e.g. exam table); this is typically done by support staff.

1.2. Disinfect any equipment you plan to use during the encounter (e.g. stethoscope, reflex hammer).

1.3. Wash your hands with soap and water or topical disinfectant solution.

1.4. Determine if any specific infection control precautions are needed for the clinical encounter (e.g. contact precautions) and obtain necessary protective equipment.

1.5. Attempt to calm your own anxieties; patients may be feeling vulnerable due to illness, exposure, and what you have the potential of finding during the examination. The patient is likely to feel much more at ease if you appear calm.

2. Enter the room (this is done at the start of the history in most circumstances).

2.1. Knock on the door and ask permission to enter.

2.2. Introduce yourself and your role.

3. Patient privacy.

3.1. Ask family members who have accompanied the patient to step out of the room. This provides an important opportunity to speak to the patient alone. Requests by patients to have family members remain present should generally be respected.

3.2. Ensure the exam room curtains are drawn and doors are closed.

3.3. Determine if a chaperone will be present during the exam, which is fine if either the patient or provider feels it necessary. This is often done standardly for genitourinary, rectal, and female breast exams.

4. Consider your approach.

4.1. Determine what aspects of the examination you plan to perform. This can range from a comprehensive assessment, as one might do during a preventive visit, to a more focused examination based on patient complaints and your clinical suspicion for specific diseases.

4.1.1. Whether focused or comprehensive, the exam should be performed in a deliberate, active way, with constant attention given to what one is seeking, rather than through solely a rote/automatic process. Achieving the state in which one is able to focus on the findings, rather than just the process, takes much practice.

4.2. Plan your sequence of examination to optimize efficiency and patient comfort. You should strive to minimize patient repositioning by grouping maneuvers together that need to be performed in a particular position. It is helpful to have a plan in mind before starting the examination.

5. Patient attire.

5.1. Ensure the patient is dressed appropriately for the planned exam. **If necessary, provide the patient with a gown and drape.**

6. Other environmental considerations:

6.1. **Adjust the height of the chair and exam table as needed to optimize your ability to perform maneuvers.**

6.2. **Adjust lighting and ambient noise as able.**

6.3. The conventional approach to the examination places the examiner on the patient's right side.

7. Components of the exam.

7.1. The physical examination is subdivided into the following regional/anatomic components: general survey; vital signs; head, eyes, ear, nose, throat (HEENT); neck; chest; cardiovascular; back; abdomen; extremities; neurologic; musculoskeletal; skin; breast; genitourinary; rectal; lymph nodes; mental status. There is substantial overlap between components. The procedure involved in each specific exam maneuver is beyond the scope of this introductory video.

7.2. Each component exam consists of maneuvers employing the techniques of inspection, percussion, palpation, and auscultation, each of which is explored in detail in separate videos. Newer modalities, such as bedside diagnostic ultrasound, are increasingly incorporated into the physical examination.

7.3. **Ask the patient's permission to proceed with the exam and at major transition points during the exam (e.g. "Now that I've explained what I am going to do, may I start the examination?" and "Next, I'd like to examine your heart.").**

8. Clinical Reasoning.

8.1. The examiner must actively weigh how the presence or absence of particular findings affects disease probability. Experienced clinicians do this in real time during the examination.

Comment [ASS]: My understanding is that for this part you would not be performing some "simulation" of it for the video sequence, correct?

Comment [DM6]: Author response: I think a simulation of each body part would take a long time, unless you wanted to give a 1-2 second screen shot of me examining each of these parts (minus pelvic and rectal). The same could be done for 7.2 and 7.3. This short stretch might also benefit from text overlaying the video. I leave that to your producers.

8.2. Modify the initial plan of approach based on findings encountered during the exam. For example, while one may have only planned to perform simple auscultation of the lungs, the presence of decreased breath sounds in a given area may prompt the examiner to utilize specialized techniques (e.g. egophony, vocal fremitus).

8.3. The consolidation of information obtained during history (symptoms) and physical (signs) informs the next steps in management. Treatment may be initiated if the probability of a particular disease is high enough, or additional testing may be requested in a deliberate and judicious manner.

9. Ending the examination.

9.1. Have the patient change back into regular clothing at the conclusion of the exam.

9.2. It is optimal to wait until the patient is dressed again before offering your advice and opinions.

Summary

This video demonstrates the role that physical examination plays in the modern patient encounter and has reviewed some critical steps to ensure the exam is carried out in a safe and sensitive manner. Important preparatory steps before the examination help to reduce risk of infection and patient and provider anxiety. Ensuring patient privacy and using gowns and drapes in a sensitive manner also makes patients feel more comfortable. A deliberate approach to the examination that is grounded in clinical reasoning is valuable to optimize efficiency and the predictive value of the exam. An organized approach to the maneuvers being performed minimizes the need for unnecessary patient repositioning. The specific maneuvers to be performed varies based on the clinical circumstance, but an examiner's efforts to maintain clear communication with attention to patient comfort should not vary.

The physical examination has played a vital role in patient care for millennia and should continue to do so even in the face of technological advances. Over the past forty years, multiple studies in various clinical settings have demonstrated that history and physical alone allow physicians to arrive at the correct diagnosis a great majority of the time. In almost all other circumstances, the information gained at the bedside allows the clinician to utilize clinical reasoning to judiciously order and interpret tests to make diagnoses. Given the recent emphasis on medical cost containment, patient safety, and access to services, bedside diagnostics remain inexpensive, widely available, and carry little risk of adverse effects.

Figures and Legends

Figures 1-4. Drawings from history of medicine.

Comment [A57]: All the images have been downloaded from shutterstock.com and do not require reproduction

Figure 1: Galen of Pergamon (AD 129–199), a prominent ancient physician, surgeon, and philosopher.

Figure 2: Giovanni Battista Morgagni (1682–1771), one of the founders of pathological anatomy, studied the relationship between clinical signs and postmortem discoveries.

Figure 3: Leopold Auenbrugger (1722–1809), an Austrian physician who invented medical percussion as a diagnostic technique.

Figure 4: Rene Theophile Hyacinthe Laënnec (1781–1826), a French physician who invented the stethoscope.

Figure ~~21~~: ~~5~~. A photograph of a patient in a magnetic resonance imaging (MRI) scanner.

Figure ~~6–8~~. Dermatologic findings.

Photos of classic skin findings that point strongly to specific disease states:

Figure 6. Psoriasis

Figure 7. Vitiligo

Figure 8. Lyme disease

Figure ~~9~~: ~~23~~. Ordering tests using Electronic Medical Records (EMR). A photograph of a clinician selecting tests to order in EMR.

Figure ~~10~~: ~~34~~. Importance of touch. Photo of a clinician with a reassuring hand on a patient's hand during physical exam.