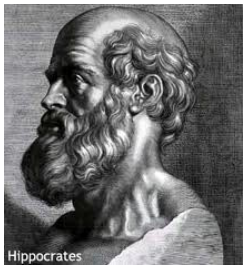
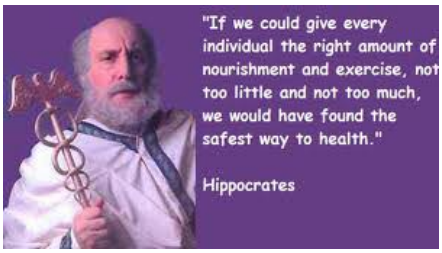
Let's Get Physical….

By John R. Goodman BS RRT

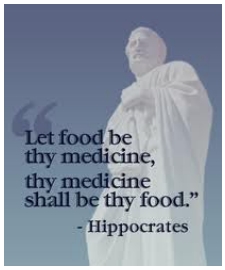
Who hasn't had either their routine annual physical exam or perhaps had a hospital admission where a physician did not perform at least a brief "history and physical?" The answer in most of the civilized world is virtually no one! Heck, we even have pre-natal care to check a developing baby's health while still in the womb. So to quote Tony in West Side Story we have access to medical care "womb to tomb…and birth to earth."



Hippocrates 450-380BCE



Sounds like Pulmonary rehab to me



Simple yet profound

Hippocrates practiced medicine back around 400 BCE. Hippocrates taught his students to dismiss supernatural causes of disease and concentrate on actual evidence that could be proven. Hippocrates said, "It is the business of the physician to know in the first place, things which are to be perceived by the sight, touch, hearing, the nose, the tongue, and the understanding." Hippocratic physicians most definitely palpated the abdomen and thorax.

Several hundred years later in the 2nd century AD, Galen the physician added the study of anatomy, physiology, pathology and logic. Like Hippocrates, Galen would spend hours in conversation with his patient. Galen learned a great deal of anatomy by studying the wounds of the gladiators. All of Galen's teachings and writings were lost when the Roman Empire fell in 476AD.


Galen the physician


Practiced mainly in Rome


Was physician to the gladiators

Fortunately, Arabian scholars rescued many of these lost texts and they were eventually translated back into Latin by the early 1100's. Galen's works became the basis for medical education for the next several hundred years. So there is a long history of physicians who practiced medicine well before the industrial revolution. They relied almost exclusively on taking a good history and doing a good physical on their patients. Interestingly, many modern

day physicians are speculating on whether doing a good history and physical is becoming a lost art, but more on that later.

Since this series of articles are written almost exclusively for patients with lung disease, let's concentrate on the history and physical of just the chest. A modern examination of the chest is made up of four distinct parts. They are:

1. **Inspection.** From the Latin *inspectus* or "to look in to." (1615-25)
2. **Palpation.** From the Latin *palpates* or "to stroke or touch (1840-50)
3. **Percussion.** From the Latin *percussio* or "to beat" (1535-45)
4. **Auscultation.** From the Latin *auscultatus* or "to listen with ear" (1625-35)


Typical waiting room


Where you wait…and


you wait…and you wait

So let's take a trip to the examination room at your family doctor's office or perhaps pulmonologists office. You finally got out of the waiting room and now you are sitting up on the exam table as your doctor opens the door and says "Hello." He/She is already beginning their *inspection* of you. There are so many things they are looking for or at it would amaze you. In fact, I would have to fill several pages describing everything they are inspecting. Suffice it to say everything from your body position to the way you answer their questions are going into their mental data bank. Routine observations like your color, your breathing pattern, any obvious chest deformities, are you working particularly hard to breathe just sitting there, are you coughing, are you breathing rapidly or shallowly, is your chest rising and falling symmetrically or is there some paradoxical movement, do you have any (especially new) skin lesions, are you pursing your lips when you exhale, are you using your accessory muscles in the upper chest and neck to help you breathe, your overall nutrition….the list goes on and on from the top of your head to the tips of your fingers looking for clubbing and cyanosis.


Use of accessory muscles


Poor nutrition


Cyanosis and finger clubbing


Has to lean forward

As you know, while all this inspecting is going on your doctor is asking you a variety of questions in order to zero in on what may be going on with you this visit.

Generally speaking *palpation* follows inspection, although your doctor is never quite done with your inspection are they? Palpation is when your doctor actually lays his/her hands on your chest both to feel your chest and therefore lungs expand, and occasionally to have you make certain sounds or noises that transmit differently with different lung conditions. You certainly have had your doctor feel under your neck for enlarged lymph nodes, and position of your trachea. Patients can direct their doctor to exact points of chest pain by showing their doctor exactly where it hurts. With the advent of more sophisticated x-ray techniques, it may be that palpation plays a less important role than it has in the past, but it is still helpful in some of the situations noted above. Remember this is just one part of your four part exam.


The laying on of the hands


Measuring lung expansion

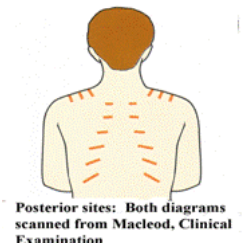

Looking for symmetry

Percussion is normally performed after palpation. Percussion was first described in 1761 by a Viennese physician named Leopold Auenbrugger. Leopold got his idea to percuss as a child. His father owned an inn and brewed his own beer. Leopold watched as his father tapped ("percussed") the side of the beer kegs noting the difference in sound of the half full versus the full kegs of beer. He intuited the principle could be applied to the chest…and he was right. Oddly, the medical profession was not enthusiastic about this major advance and it would take another invention to finally advance the addition of percussion to the standard chest exam. When a physician percusses your lung fields, they are looking for differences in the sound produced. Air-filled lung makes a resonant sound like a drum. Percussion over a fluid filled (as in congestive heart failure) or consolidated lung (as in pneumonia) produces a dull or flat sound. Doctors usually proceed up and down your lungs in a zig-zag fashion, comparing one side to the other and the front of your chest to the back. During the few minutes it takes for palpation and percussion, the doctor is continually asking you questions and of course…they are still inspecting you.


Leopold Auenbrugger


"Thumping position"


Percussing a patient



Percussion positions

We finally arrive at the last part of your chest inspection. Your doctor will now use their stethoscope to listen to your chest. This is called *auscultation*. Rene Laennec invented the first stethoscope back in 1816. Up until Laennec's time auscultation was done by the physician

simply placing their ear on their patient's chest. This involved a number of variables in terms of actual patient contact, and quite rightly modesty and impropriety with female patients. Certainly there were few if any woman physicians back at the beginning of the 1800's for a female patient to see. On one occasion Laennec was asked to see a very "stout" female patient complaining of severe chest pain. In one of those Eureka moments, Laennec rolled up a sheath of papers tightly into a tube and tied it with a string. He simply placed one end on the patient's chest and the other end to his ear. He was shocked and amazed at what he heard. He later wrote, "I was both surprised and gratified at being able to hear the beating of the heart with much greater clarity and distinctness than I had ever done by direct application of my ear."

Laennec goes on to improve on his early design, and in effect invents the modern day stethoscope. The word stethoscope is from the Greek "stethos" or chest, and "scope" to view. As a long time respiratory therapist I have always wondered why it isn't called a "sthethophone" since we really listen through it, not actually look through it. The metaphor however is a good one and I am sure will endure for as long as we continue to auscultate our patients. The modern stethoscope with tubing used for each ear was invented in 1852, and has survived with the usual upgrades until this very day.


Listening by ear


Laennec's first stethoscope


Laennec using his invention


Modern stethoscope

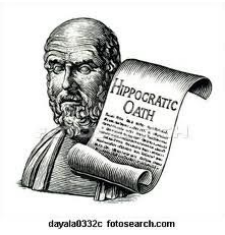
Much like percussion before it, auscultation of the chest produces different sounds (actually frequencies) that vary in different disease states. Auscultation is a very useful tool for physicians as it can not only be used to detect disease, but also the progression, and hopefully the resolution of the problem. Again the physician listens to your chest both front and back. They compare left to right side and upper lobes to lower lobes as well. This may be the only time your physician stops asking you questions. The only instructions are normally something like…"take in a few deep breaths for me…" I personally listen very, very closely to my patients. Many times I close my eyes as if I can squeeze out an answer while I am listening. Besides, no doctor, respiratory therapist, or nurse wants to miss an important clinical sign.

So it has taken me several hours and over 1300 words to get though the BRIEFEST description of a **chest physical exam** that I could. And the average length of time you will be face to face with your physician is 9-13 minutes. This was determined in a 2012 survey of over 24,000 physicians in all areas of medicine. Let's just round it off to 10 minutes. Ten minutes to get all four parts of the chest physical completed, ask all the questions that they need to ask, and answer as many of yours as can reasonably be answered in ten minutes! The demands of a modern medical practice are simply overwhelming. The same study showed only one in two physicians would go into medicine again as a career and only one in two of them would go into their same specialty. Physicians continue to practice "defensive medicine." Medical malpractice insurance rates for many specialties have gone up exponentially over the years. (The first documented case of medical malpractice in the United States was heard back in 1794.) It is estimated that 10% of all physicians will be involved in a malpractice suit at some point in their career.

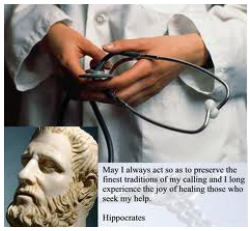
Over the past 10-20 years the question of the need to keep doing the traditional history and physical has begun to appear in the medical literature. On the one hand we have traditional physicians who still believe in the information that can be learned using the signs and symptoms they pick up doing their history and physicals. Also, there is the all important concept of the "laying of the hands." Patients allow their physicians access to parts of their bodies that some spouses have never seen. This is quite a humbling concept for the physician. We DO allow our physicians to touch, poke, and probe….and much more. In ten minutes, there just isn't much time for the laying of the hands is there? By the way, another very recent study measured the time that went by when a patient was talking to their physician *before* they were interrupted by that physician. Are you surprised or not to learn that the first interruption occurred right at 14 seconds?

Is the physical exam a "fading art?" Good question in light of today's technology. It could become a fading art or perhaps only be used by certain specialties. One physician recently joked that "If you come to our hospital missing a finger, no one will believe you until we get a cat scan, an MRI, and an orthopedic consult!" Only time and the relentless march of technology can tell if the history and physical will go the way of say …bloodletting. Let's conclude this chapter with two quotes.

Over 2,300 years ago Hippocrates gave us one of the most famous quotes in all of medicine "*Primum non nocere…first do no harm."* And from the famous French philosopher Voltaire in the mid 1700's we get "*Doctors are men who prescribe medicines of which they know little, to cure diseases of which they know less, in human beings of whom they know nothing."*



"Primum non nocere"
" First do no harm"



" May I always act as to preserve the finest traditions of my calling, and I long experience the joy of healing those who seek my help."

Voltaire (1694-1778)

Your doctor trying to figure out just what the heck is going on with you.