1. There are several methods to measure or estimate total lung capacity.
   - Radiological- volume of the lung is estimated from an x-ray or CT scan (the patient would need to breath in as much as possible)
   - Plethysmography: “In body plethysmography, patients sit inside an airtight chamber equipped to measure pressure, flow, or volume changes, inhales or exhales to a particular volume (usually FRC), and then a shutter drops across their breathing tube. The subjects make respiratory efforts against the closed shutter, causing their chest volume to expand and decompressing the air in their lungs. The increase in their chest volume slightly reduces the box volume and thus slightly increases the pressure in the box.” By measuring the pressure changes in the box and the airways, the amount of volume in the lungs can be computed. (Aetna policies http://www.aetna.com/cpb/data/CPBA0474.html)
   - Helium Dilution can be used to measure the functional reserve volume, the inspiratory capacity can be added for total lung capacity and is easily measured with a spirometer. Helium dilution works on the principle that two closed volumes (the airways and a spirometer containing a known amount of Helium). The helium enters the lungs and the concentration equilibrates. Knowing the initial and final concentrations of Helium in the spirometer, and the volume of the spirometer, the volume of the lungs can be computed.