



## History of Stethoscopes

Initially heart sounds were auscultated by placing the ear directly on the chest of the patient. For the sake of convenience and propriety, Dr. Rene Theophile Hyacinthe Laennec (1816) rolled up a sheet of paper and placed one end over the patient's heart and the other end over his ear. Dr. Laennec later replaced the rolled paper with a wooden tube (similar in appearance to a candlestick) which was called "stethoscope" from the Greek words "stethos" (chest) and "skopein" (to look at). By discovering and perfecting the acoustic trumpet, Laennec became the father of auscultation. The refinement of the stethoscope is an ongoing process and is reflected by the great variety of quality stethoscopes available today.

There were no significant developments to Laennec's device over the next decade or so, apart from the fact that Pierre Adolph Piory, a pupil of Laennec, refined the original device with the provision of a large flat or concave ear piece to cover the external ear, (which exists to this day as a Foetoscope). About one year later in 1829, Dr. Charles Williams improved the original Laennec stethoscope by dividing the instrument into two parts, manufacturing it from gutta percha with a joint that permitted it to be twisted at various angles. This enabled the physician to stand in a more comfortable position, apply less pressure to the patient's chest, and also observe simultaneously "pulsations in the neck".

The design of stethoscopes changed little over the next 40 years or so, apart from the development of a differential stethoscope having two separate chest pieces, with tubing connected to each ear. Some work in 1894 by an Italian, Aurelio Bianchi, on a complex stethoscope incorporating a water seal, (which proved impractical in a clinical setting and was subsequently abandoned), resulted in a patent being filed by an engineer in the USA, R.C.M. Bowles, for a simple modern diaphragm chestpiece.

A growing acceptance of the need of both the bell and diaphragm, led Howard Sprague to design the first combination bell and diaphragm chestpiece in 1926, which essentially remains with us to this day, albeit in a considerably refined form.

In the 1940's, Dr. Sprague, working with Maurice Rappaport, scientifically investigated the physical principles of stethoscopy, upon which much current knowledge is founded.

Again, for an extended period until 1958, few developments were made until a new design by Dr. Aubrey Leatham, an English cardiologist, was revealed. This stethoscope differed from earlier designs in that not only was it a combination diaphragm and bell stethoscope, but it incorporated a second much smaller bell inside the first. The smaller bell was extended by a lever mechanism enabling easier and more accurate auscultation of infants and children.

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In 1961 an "electronic" stethoscope was developed by Amplivox, taking advantage of the smaller vacuum tube technology then available. This was intended purely as a teaching device, given its considerable weight and size. Again, microphone and amplifier technology, did not match the physicians' needs, and this proved to be a rudimentary device soon abandoned in favor of conventional stethoscopes.

Perhaps the most significant milestone occurred in 1961, when Dr. David Littmann, a cardiologist at West Roxbury VA Hospital in Massachusetts, designed a streamlined, lightweight stethoscope, with a single tube binaural, which was available in both stainless steel and light alloy. Dr. Littmann had long been aware of the shortcomings of heavy and cumbersome stethoscopes currently available, and of the extraneous noise generated when the two tubes of the then existing models rubbed or snapped together. The Littmann combination stethoscope quickly became one of the most popular models in use, because of its lightweight, flexibility and excellent acoustic properties.

The popularity of the Littmann stethoscope came to the attention of the 3M company and was purchased by them in 1967. The Littmann stethoscope continued to grow in popularity, and specialized models were added to the existing range. See [History of Littmann Stethoscopes](#) for more information.



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