Infection Control...Timeless

Dr. Rene Laennec - The Stethoscope

About This Series....
Welcome to the third Edition of Timeless, a historical perspective on infection control, to celebrate Infection Prevention and Control Week. This year’s series will highlight some of the technical advances that have impacted on infection control. Enjoy your read.

"Concern for man himself and his fate must always form the chief interest of all technical endeavours"  
– Albert Einstein, speech at California Institute of Technology, 1931

"Every heart sings a song".  
– Plato, 4th century BC

Biography:

Rene Laennec was born in France in 1781. When he was just 5 years old, his mother died of tuberculosis. His father was unable to cope with Rene, his younger brother and sister, so he sent the 3 children to live with their uncle, who in turn, sent the 2 boys to live with Uncle Guillaume, who was the dean of the medical school.

By all accounts, Rene was strongly influenced by this uncle and he demonstrated a fierce determination to become a physician like him. In 1801, he left for medical school in Paris. His father only provided a small contribution towards his son’s education, so Rene walked the final 200 miles to Paris. He graduated from medical school in 1804 and began his medical practice. He was a notable physician, and had such prestigious patients as Napoleon Bonaparte’s uncle and Frederic Chopin.

Legacy:

To understand the significance of the stethoscope, we need first to review how chest auscultation was performed prior to its invention. Auscultation simply means, “to listen”. Before the stethoscope, chest sounds were heard by “immediate” or “direct” auscultation, by putting one ear directly onto the chest, as shown in this illustration from the cover of Harper’s Weekly, dated 1889.

In the 1760s, an Austrian physician named Auenbrugger, described percussion of the chest. He would tap his fingers on the chest, listening for hollow or dull sounds. If the lung was filled with secretions, it would resonate back with a dull, low-pitched sound, much like a water-filled drum.

In 1816, Dr. Laennec was consulted to see a young, but large woman who was suffering from shortness of breath. As he later wrote about this experience, “Direct auscultation was as uncomfortable for the doctor as it was for the patient, disgust in itself making it impractical in hospitals. It was hardly suitable where most women were concerned, and, with some, the very size of the breasts was a physical obstacle to the employment of this method…”

So, he rolled up a paper and held it to her chest and was impressed by how the chest sounds were amplified. Thus, the stethoscope was invented. Over the next 3 years, he went from the paper prototype to the wooden cylinder. Like a fine academic, he published his work in, “De l’auscultation mediata ou traite du diagnostic des maladies des poumons et du Coeur.” This translates to, “Indirect auscultation, or treatise of diagnosis of diseases of the lung and of the heart”. A stethoscope was included in the price of the book. As you can imagine, applying this cylindrical device to the chest looked rather odd, and its use was not widespread until well after his 2nd publication which described chest sounds and their diagnostic interpretations.

Rules is just one example of a breath sound described in detail by Dr. Laennec. It is commonly heard in emphysema, a disease also described by the doctor. Rules is the French word for crackles, and is often described as scrunching up paper. It wasn’t until the late 1800s that the stethoscope came to North America, which may explain why it was not pictured in the American “Harpers Weekly” of 1889.

Present Day:

The stethoscope is a great example of a multi-patient use medical device. The stethoscope is classified as a non-critical device in the Spaulding Classification and subject to low level disinfection. In a survey of 1401 health care providers at a large academic pediatric hospital, most (76%) believed that stethoscope contamination can contribute to the transmission of infections, yet only 24% reported disinfecting it following each use. Visual reminders and the readily available disinfectant wipe were identified as significant cues to improve the likelihood of disinfecting after every use. For more information on medical devices and the level of cleaning, disinfection and sterilization, refer to the PIDAC best practice guideline, available from www.publichealthontario.ca.