

TIP SHEET: SELECTIING A RADIOAEROSOL DELIVERY SYSTEM

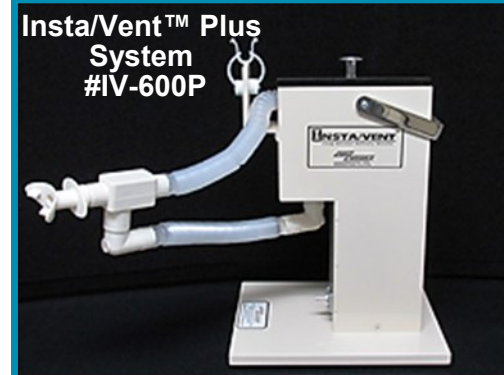
The radioaerosol ventilation study is a very important part of the V/Q nuclear medicine study for the determination of pulmonary emboli in a patient's lungs. Such studies often are of an emergency nature and deserve optimal considerations to provide the referring physician with as accurate information as humanly possible.

The first technical consideration is particle size. In order to accurately image the entire lung, sufficient radioactive material must be deposited at the alveolar level throughout the lungs. Knowing that particles increase in size (hygroscopic growth) as they travel through the warm and humidified airways, it is important to start with very small particles. Although smaller particles will not grow too large, and will therefore be able to reach the alveoli, individually they will not carry as much radioactivity as larger particles. So it is imperative to use a radioaerosol delivery system that will provide a very large amount of small particles.

Secondly, if the aerosol stream contains an excess of medium to large particles, they will cause more radioactivity to deposit in the central airways ('clumping' or 'hot spots') thereby making the visualization of the alveolar regions more difficult. The median size of the particles generated in Medi/Nuclear's® nebulizer is less than 0.3 μm so clumping is virtually impossible.

The third consideration is patient comfort. The rate at which $^{99\text{m}}\text{Tc}$ - DTPA, or an equivalent alternative, is deposited in the lungs is enhanced with the use of any Medi/Nuclear® high efficiency radioaerosol delivery system where a needed deposition of 1.0 -1.5 mCi in the lungs for proper visualization is usually achieved in as little as 2 minutes. This allows for a shorter breathing period resulting in greater comfort and less anxiety for the patient. Patients are only required to perform normal resting tidal breathing while using our radioaerosol delivery systems. This deposition quantity is sufficient for 100-150,000 count images in one minute.

We are pleased to provide you, the Nuclear Medicine professionals, with several choices of outstanding radioaerosol delivery systems. To learn more about them or arrange a free trial, please contact us.



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