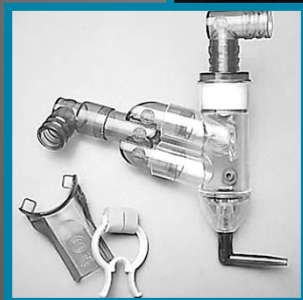
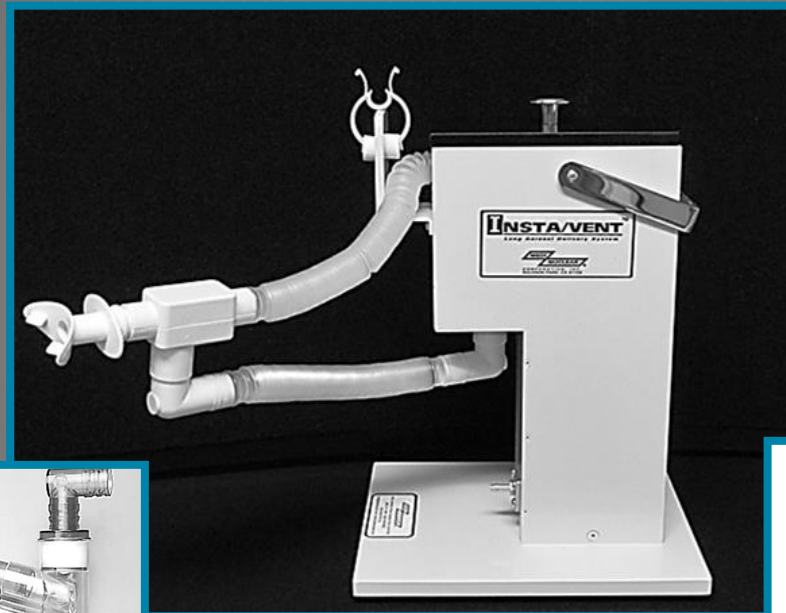
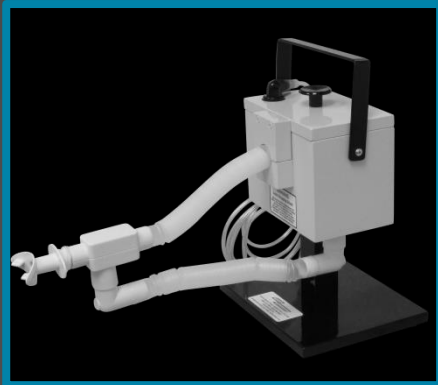




Radioaerosol Delivery TODAY



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About Us

- Medi/Nuclear® Corporation is the producer of 5 top selling radioaerosol delivery systems in the USA.
- For over 40 years it has been dedicated exclusively to studying aerosol drug delivery and developing innovative products to effectively deliver aerosol drugs for both nuclear lung diagnostics and respiratory therapies.
- The Aero/Vent™ and Insta/Vent™ Radioaerosol Delivery Systems feature unmatched image quality and speed of delivery.

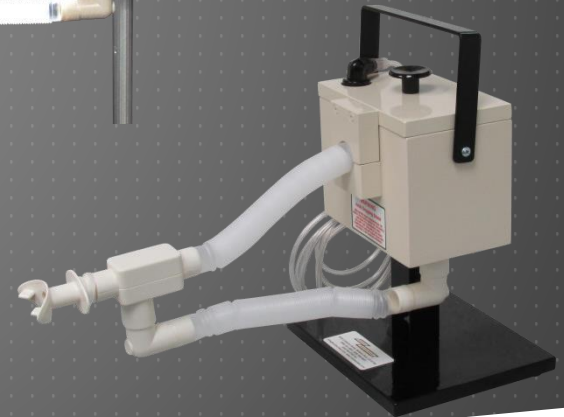
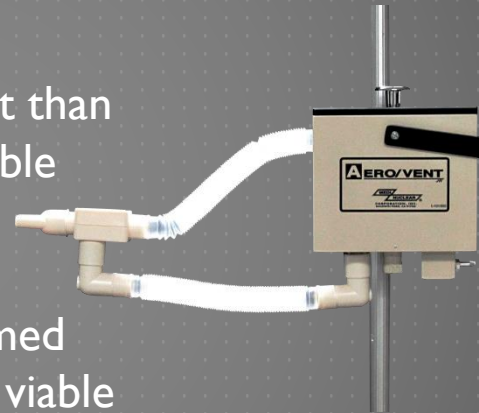
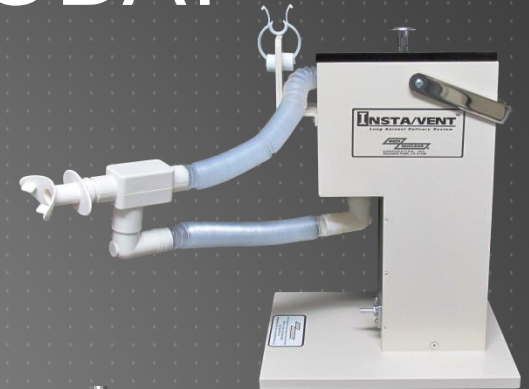


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Radioaerosol Delivery TODAY

- When it comes to radioaerosol delivery, there is a lot of misinformation floating around and potentially missed opportunities for medical facilities and product distributors alike.
- With budgetary limitations and tightening regulatory requirements, its more important than ever to understand the value added to available products and services.
- Although the number of V/Q studies performed has dwindled through the years, it remains a viable and important procedure, as well as a solid business opportunity.



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Differences in Radioaerosol Delivery Devices

Radioaerosol delivery devices and their results can be dramatically different. Some critical areas where they differ are:

- **Particle size**, which effects lung deposition and image quality.
- **Speed of dosing**, which effects tech time, imaging options, patient compliance and safety.
- **Patient comfort**, which effects compliance, safety and image quality.
- **Features and capabilities**, which effects imaging options, Appropriate Use Criteria (AUC), and services rendered.



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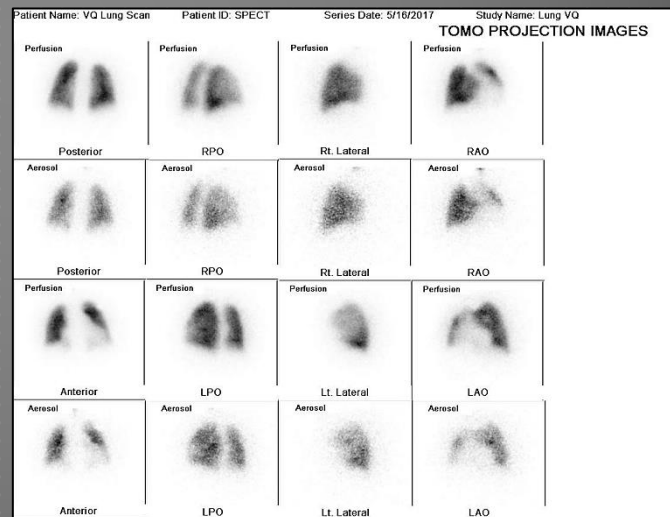
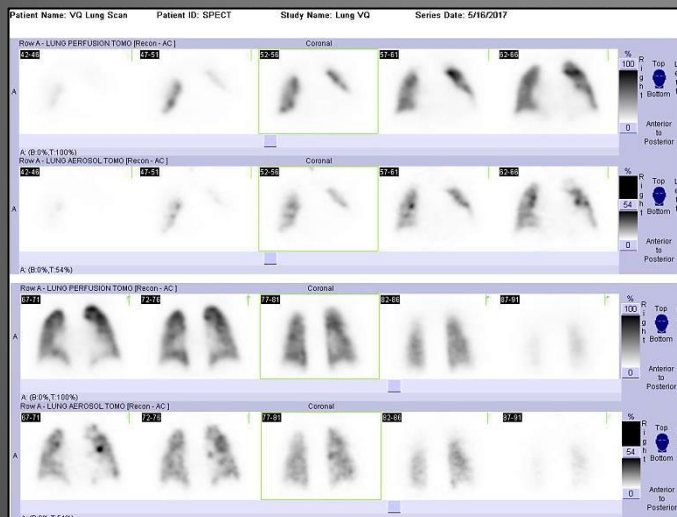
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V/Q SPECT

Although the health and financial benefits of VQ/SPECT are well known, a number of healthcare facilities have not yet embraced this opportunity.

In addition to DTPA, PYP is frequently used for VQ/SPECT as it has a longer dwell time. Sulphur Colloid, Sestamibi and other alternatives may also be used. When combined with a delivery device that produces exceptionally small particles and rapid dosing, radioaerosol can be efficiently and effectively delivered for SPECT.

Insta/Vent Plus™ is Medi/Nuclear's® most popular system for SPECT.



Images using Insta/Vent™ Plus with Sulphur Colloid, courtesy of University of Iowa.



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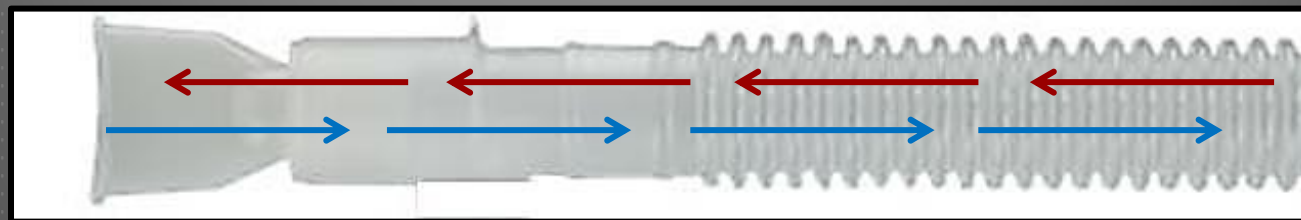
Particle Size

Many of today's radioaerosol delivery devices boast a particle size of $.5\mu\text{M}$. What isn't shared is that the particles are hygroscopic, meaning they will grow in humidity.

In a single tube delivery system, a patient is breathing and exhaling through the same tube, creating a humid environment. This allows the particle to grow even before it reaches a patient's mouth.

Particles will continue to grow as they travel, possibly contributing to central airway deposition and/or impacting lung deposition and image quality.

Medi/Nuclear's® Aero/Vent™ and Insta/Vent™ Radioaerosol Delivery Systems feature a particle size of just $.28\mu\text{M}$, which allows room to grow without sacrificing image quality.



Inhalation →
Exhalation →



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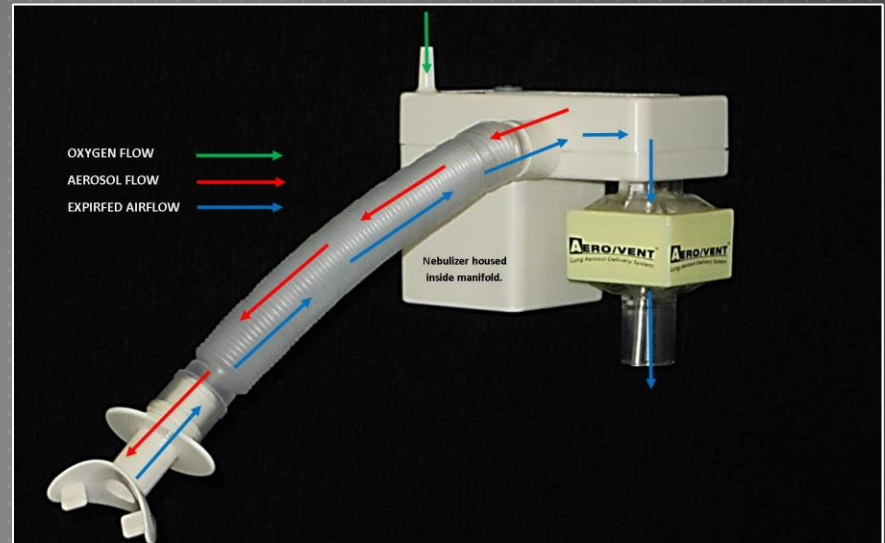
Speed of Delivery: Single Tube System

In addition to providing an opportunity for particles to grow, a single tube system dilutes the inhaled medication.

As a patient exhales, the medicated aerosol is mixed with the patient's breath. Each inhaled breath contains this mixture.

To complete dosing, delivery time will be slowest when using a single tube system.

Single tube delivery generally falls between 3-7 minutes.



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Speed of Delivery: Two Tube System

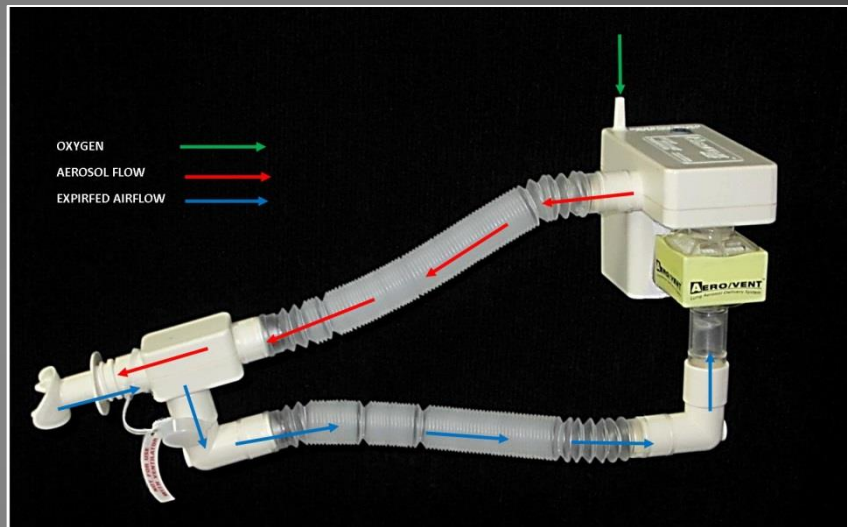
Unlike the back and forth air flow in a single tube system, a two tube system has unidirectional air flow.

When a patient exhales, breath is directed into a lower tube attached to a filter. At the same time, aerosol mist fills the upper tube.

The next inhaled breath is fully medicated.

Because of this efficiency, dosing time with a two tube system is faster than with a single tube system.

Dosing with a two tube system is generally in the range of 2-5 minutes.



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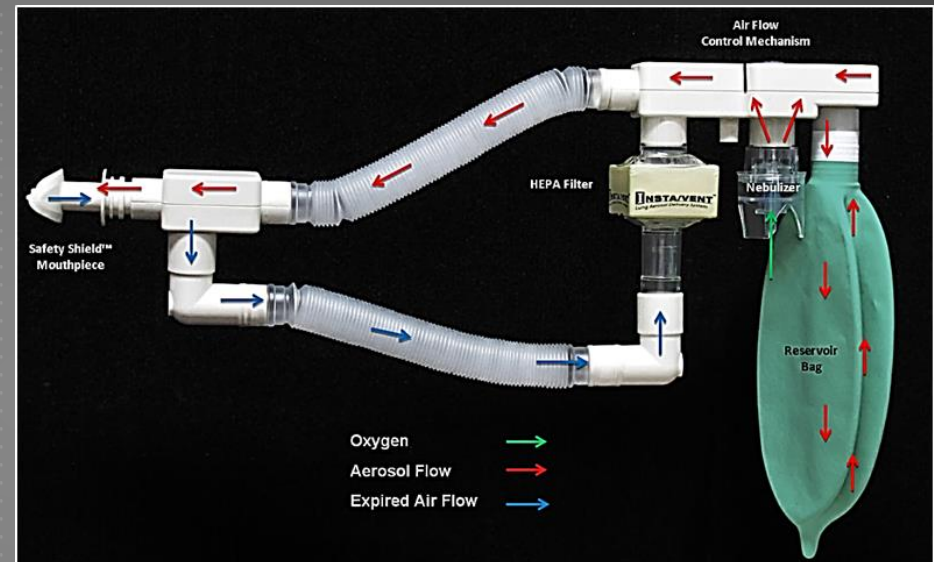
Speed of Delivery: With Conserving Reservoir

The Insta/Vent™ Plus has further improved two tube systems by adding a breathing bag, which acts as a conserving reservoir.

During exhalation an internal air flow control mechanism closes, allowing aerosol mist to fill the breathing bag.

When the next breath is taken, the air flow control mechanism opens and the patient immediately inhales the medicated aerosol that has filled both the upper tube and the breathing bag.

This process allows dosing to be done in approximately .30-1.5 minutes, making the Insta/Vent™ Plus the most efficient radioaerosol delivery system available.



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Shallow Breathers

Elderly patients and those with COPD or other respiratory illness often have shallow breathing. To assist them, select a delivery system with the following:

- Two tubes for unrestricted air flow.
- A filter without breathing resistance. **Note:** Some devices use heavily packed filters which create substantial breathing resistance. To understand what a shallow breather might experience, you are encouraged to try breathing through the device yourself.
- No breath holding or deep breathing requirements.

Medi/Nuclear's® Insta/Vent™ Plus system was originally designed specifically for shallow breathers. It features two tubes, a resistance-free HEPA filter and normal tidal breathing.



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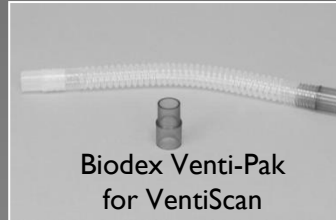
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Ventilator Dependent Patients

Ventilator dependent patients are an important patient population.

Most manufacturers offer a tube with a connector/adaptor so the standard radioaerosol delivery kit may be used.

Only Medi/Nuclear® offers special kits made exclusively for ventilator dependent patients and sold in small case quantities. Kits come complete and are used without adaptation.



Biodex Venti-Pak
for VentiScan



Biodex Venti-Pak
for AeroTech



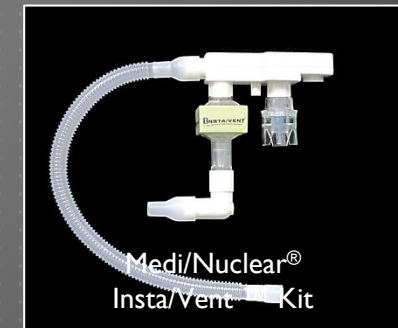
Swirler Trach Tube
Connector



Medi/Nuclear®
Aero/Vent™ Jr. Kit



Medi/Nuclear®
Aero/Vent™ Max Kit



Medi/Nuclear®
Insta/Vent™ Kit



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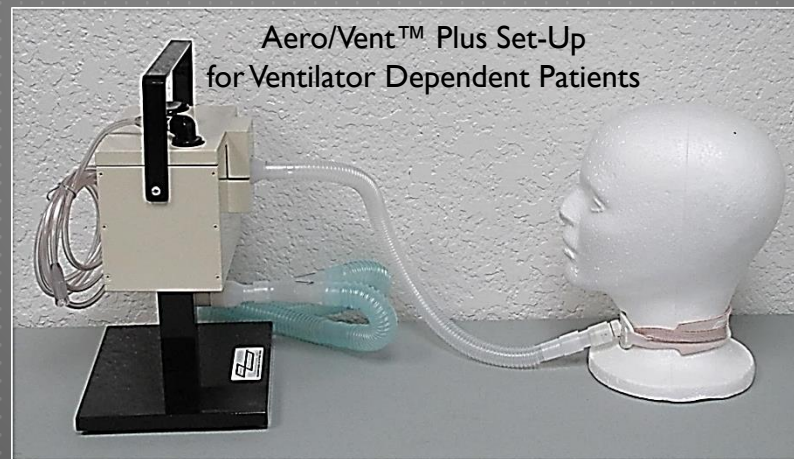
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Xenon Users and Ventilator Dependent Patients

In the past, Xenon users were not equipped to serve ventilator dependent patients but this is slowly changing.

More and more, Xenon using facilities are adding radioaerosol delivery to their department for this purpose and to satisfy radioaerosol requests from physicians.

Medi/Nuclear® offers a variety of radioaerosol delivery systems with various price points for those interested in expanding their services.



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Patient Interface Options

A straight mouthpiece is the least expensive mouthpiece to manufacture but also the most challenging for patients. If it isn't held tightly in the lips leakage may occur at the corners of the mouth.

Scuba-style mouthpieces avoid these issues. Popular options include Medi/Nuclear's® Safety Shield™ Mouthpiece with snap on cap to quickly catch saliva and discard after removal, and Amici's® Tru-Fit™, a soft, flange mouthpiece.

For patients that can't handle a mouthpiece and/or nose clip, an air-cushioned face mask can be used, keeping in mind that delivery time will be slightly longer as nose hair may filter some particles from the medicated mist.



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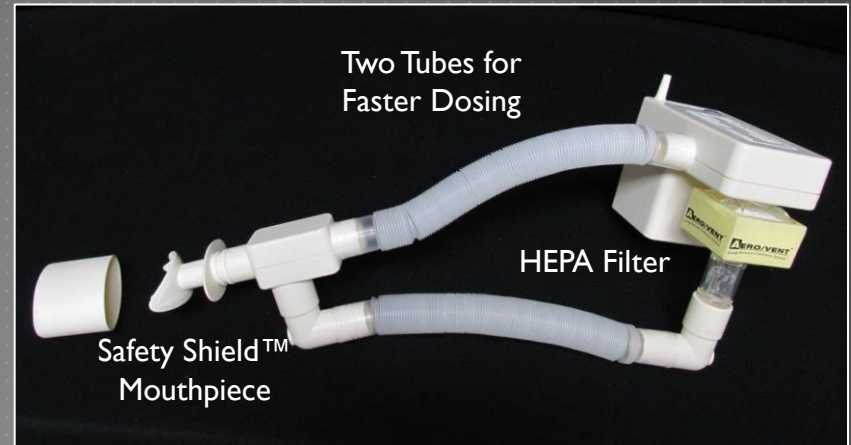
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ALARA

(As Low as Reasonably Achievable)

Assuming all products have the required amount of shielding and fall within safety allowances, the following are additional considerations when seeking a safe system:

- Faster dosing to improve patient compliance and reduce time for exposure.
- Patient interface options to improve compliance and reduce the risk of accidental exposure.
- A system with a HEPA filter, rather than a bacteria filter, to provide maximum trapping capability.



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Technegas™

Technegas™ heats and delivers ultra-fine carbon particles tagged with ^{99m}Tc . Its use requires the purchase of a Technegas generator and substantial site prep. Ongoing expenses include but are not limited to the purchase of crucibles, high specific activity ^{99m}Tc , argon gas and administration kits.

Although not yet approved by the FDA, testing against Xenon is currently underway. DTPA could not be used for testing as its use for lung imaging is off label.

The only results found where Technegas™ was compared to a system using ^{99m}Tc -DTPA, was an early study using UltraVent, a single tube system with a lengthy dosing time.

Insta/Vent™ Plus is a national product so it has not yet been compared to Technegas but Medi/Nuclear® would welcome an opportunity to do so and believes the benefits of using Insta/Vent™ Plus would be clear.

According to Technegas™ investor information, upon FDA approval Xenon using facilities will be the first sales target. Before considering Technegas™, a no obligation radioaerosol product trial is strongly recommended.



Technegas
Generator



Insta/Vent™ Plus



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Appropriate Use Criteria (AUC)

Improvements made in radioaerosol delivery are well timed as Appropriate Use Criteria (AUC) gets more scrutiny every day.

With superior delivery devices and more imaging options available, V/Q can be even better justified as the safe and effective procedure that it is.



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The goal of this presentation is to provide practical information that can be used when health, safety and financial improvements to diagnostic lung imaging are being considered. It is hoped this has been accomplished.

Dedicated exclusively to exceptional aerosol drug delivery for over 40 years, please know that Medi/Nuclear® is standing by to support your efforts with:

- Quality Radioaerosol Delivery Systems
- A Full Line of Lung Imaging Supplies (Radioaerosol and Xenon)
- Detailed Training Materials
- Outstanding Sales and Technical Support

We thank you for your time and loyalty to our products, and look forward to being of further assistance!



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For additional information, please contact:



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We're here to be of assistance!



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