

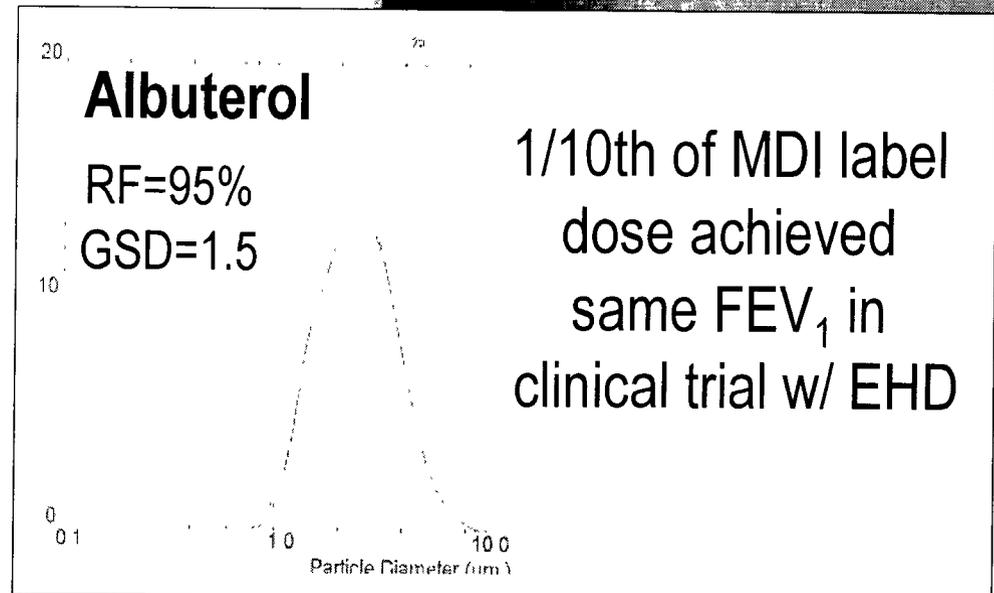
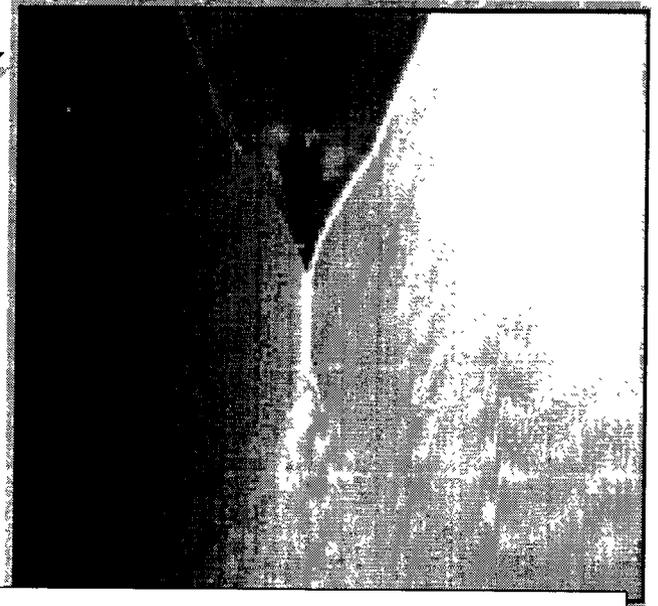


EHD Technology PowerPoint Slides

EHD Pulmonary Drug Delivery

What is ElectroHydroDynamic Aerosolization

- Process of electrically charging a liquid drug formulation pumped out a nozzle
- At the nozzle, forces of surface charge and surface tension balance to form a Taylor cone
- Apex of the cone forms a jet
- Without surface tension, jet breaks up into aerosol droplets



Characteristics of EHD Nebulization

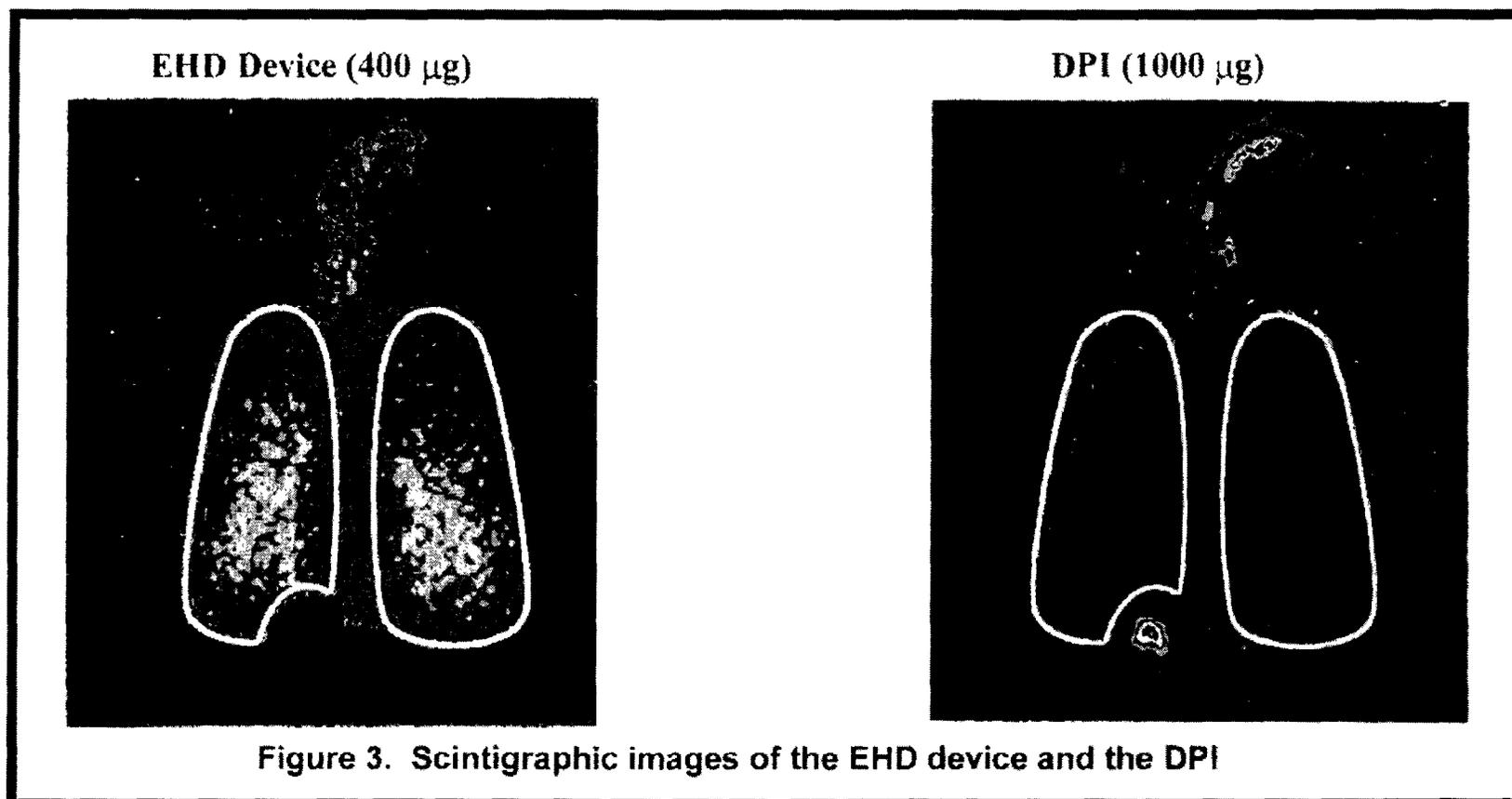
- > 95% of Pumped Drug is Nebulized (high efficiency)
- > 90% Respirable Fraction (high mass transfer)
- Adjustable Particle Size (targeted deposition)
- Near Isokinetic Aerosol (zero velocity)
- High Precision Dose Delivery (\pm 3-8%)
- > 75% Lung Deposition (low gastric, oral uptake)
- Geometric Standard Diameter (GSD) 1.2 - 1.9
(near mono-dispersal bandwidth)
- Suitable for a wide variety of inhaled drug products
 - e.g. bronchodilators, steroids, contrast agents, etc.

VIASYS™
HEALTHCARE

PharmaMyst™ Inhaled Drug Delivery

Electrohydrodynamic Nebulization

EHD compared to Dry Powder Inhaler Scintigraphy

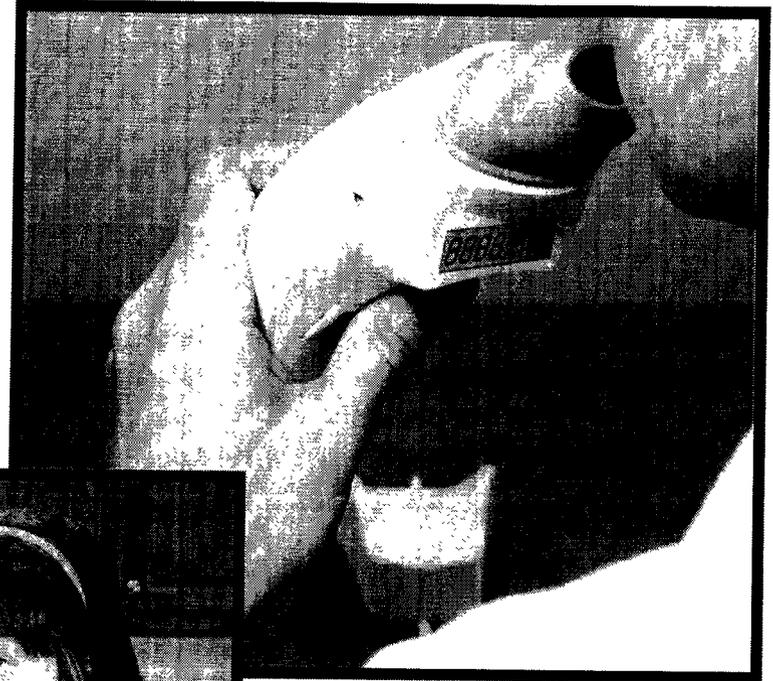


Single (400 ug) EHD inhalation vs Two DPI inhalations (1000 ug total). EHD lung deposition of 78% vs 21% for DPI deposition. DPI had 15 x more deposition to oropharynx and gastric region

VIASYS™ PharmaMyst™ Delivery System

HEALTHCARE

- Reads contents and instructions from drug cartridge
- Senses inspiration for breath actuation, breath counter
- Stores records of drug delivery
 - Date and Time
 - Dose
 - Number of breaths
- DC wallmount/battery powered



What are the Potential Benefits for Patients?

- Lower total dose
 - Fewer side effects
- Better clinical response as a function of:
 - More effective distribution
 - Optimized particle size
- More precise dose
- Ease of use
 - No mixing of diluents
 - Unit dose delivery
 - Breath actuation obviates coordination issues