Plenary Session 2: Landscape

Single use spray devices for vaccine delivery to Nasal cavity

Next-Generation Vaccine Delivery Technology Meeting

Geneva, Switzerland

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Date: February 18, 2014

Intranasal spray: Description

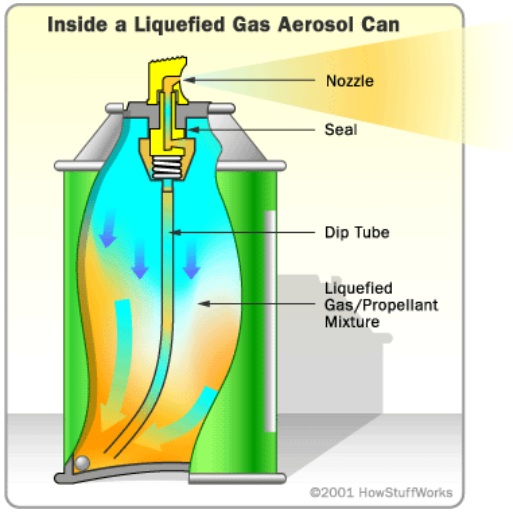
Technology Description:

- A spray device, that when fed with a measured dose of liquid under pressure generates an atomized spray with particles from 30 to 100 micron

Intranasal spray : Mechanism of Action

Overview:

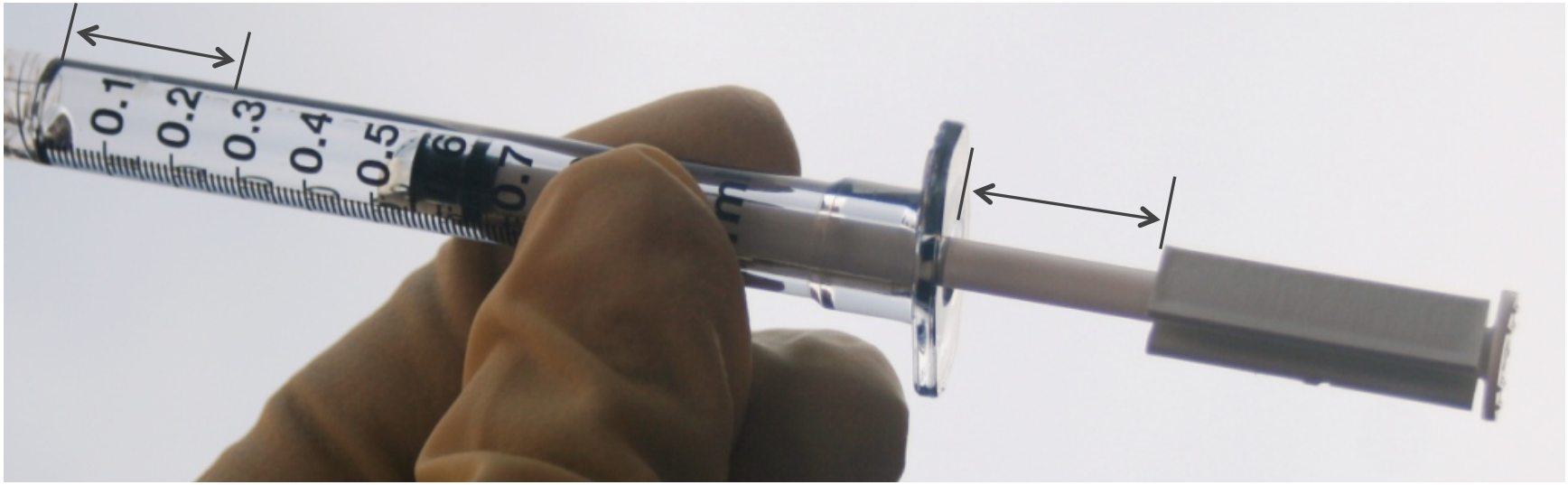
- The device's mode of action is similar to the spray valve present at the tip of an aerosol can. The difference is that a syringe is used to generate the pressure and fitment is compatible with a standard luer syringe.
- The device is used to deliver medicament in the nasal cavity
- Almost 2 million devices used in the administration of the LAIV version of the H1N1 Pandemic vaccine



After reconstituting and drawing the vaccine into the syringe

Fix the dose divider on the plunger of the Luer Lock syringe. It does not matter if there is some air entrainment in the vaccine as the dose divider will stop the plunger at the correct place.

The length of the space exposed by the dose divider is equal to the length occupied by 0.25 ml and will physically obstruct the plunger from moving further



Intranasal spray : Specific Example

Description:

- Manufactured by Wolfe Tory Medical, USA. This firm was initially taken over by LMA International N.V. which, in turn has been taken over by 'Teleflex'

Insert technology photo

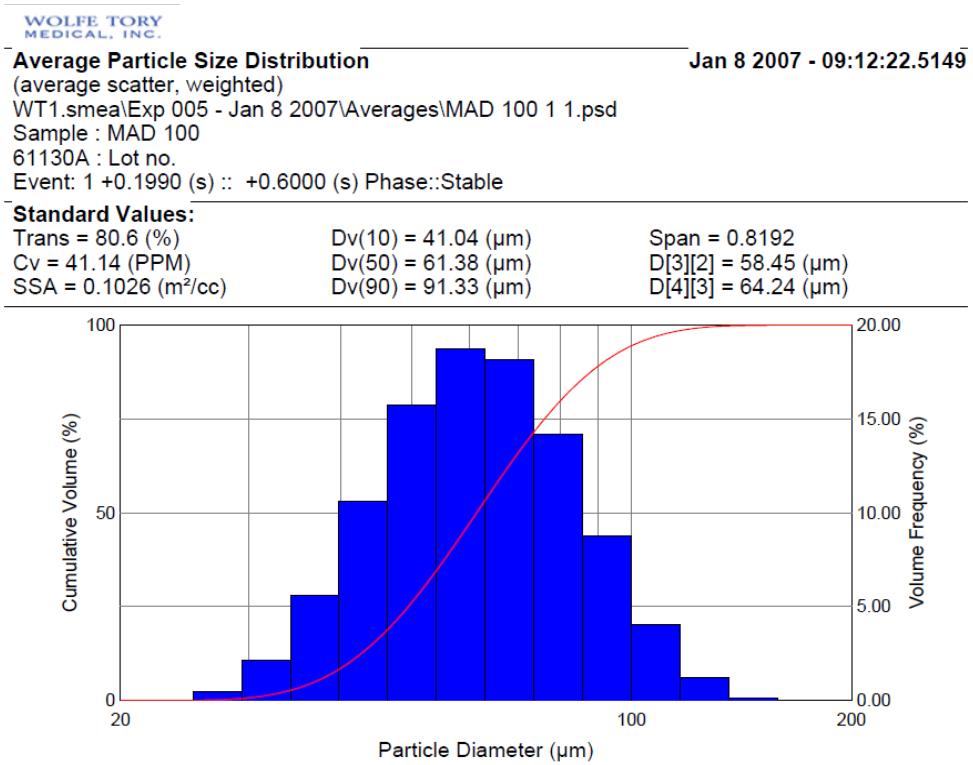
Status:

- Available in the market.
- Contact Gail.Molloy@teleflex.com

Intranasal spray : Benefits and Challenges

Benefits:

- It had a typical particle size distribution of droplets between 30 and 100 micron, appropriate for the delivery to the mucosal region
- a system dead space between 0.07 to 0.09 mL with no priming.
- a small tip dia of 4.3 mm appropriate for nostrils of childre also
- It is simple to train the user.



Challenges:

- Number of steps in use is very high to reconstitute the vaccine, withdraw into syringe and spray into 2 nostrils.
- Quick ramp up of availability during a pandemic- probably needs stock-piles

Intranasal spray : Opportunities and Way Forward

Global Public Health Challenge:

- Assists influenza pandemic preparedness

Technology Availability:

- Technology in present form is available for program use
- Funding to enhance the device concept to combine several steps into a single device
- A single device to manage all the multiple accessories to be condensed into a single accessory