



### **Problem Definition**





Custom Balloon Shape: Ribbed balloon shape for optimal needle placement Adding more needles to manifold to increase injection regions - only 0.005" spacing between needles is necessary Increased precision manufacturing methods to ensure water tight fits

# **Therapeutic Agent Injector**

## For Esophageal Stricture Treatments

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### Future Work

### **Procedure Overview**

	(1 mL)
2.5 mm Penetration Limit	1 mL of agent
Each needle shall not penetrate the esophageal ssue by more than 2.5 mm.	The device must inject at least 1 mL of agent evenly through the five needles.
	80%





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