

PulmonUs

Breathe Easy, Live Green



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The PulmonUs team is designing a refillable multi use dry powder inhaler that is biodegradable and also easier to use for patients across all ages. The current aerosol inhalers that are available on the market utilize hydrofluoroalkanes (HFAs) to deliver asthma medication to patients. Recent emerging studies have shown that the HFAs in a single asthma inhaler emits as much carbon dioxide as driving 25 miles in a gasoline car (Tirumalasetty et al. 2024). To reduce these carbon emissions, we want to market a dry powder inhaler that does not sacrifice the efficacy and simplicity of aerosol inhalers that patients are accustomed to. Physicians prescribe aerosol inhalers to younger patients for their ease of use and the complexity of teaching patients how to use a dry powder inhaler. Our inhaler will be designed with ease of use in mind to cater towards all age ranges. The inhaler itself will be made out of PLA plastic to remain durable and ensure that its shelf life remains consistent with current industry standards. The refillable cartridge will be made out of a biodegradable material and we aim to have it be replaced monthly by the asthma patient or when more doses are needed. The inhaler can be opened for ease of reliability and medication can be easily administered with a push of a button. When the button is pressed that releases a capsule of medication that gets punctured by a needle. Our inhaler design should be easily manufactured as we plan to keep the inhaler and the medicinal cartridge manufacturing separate which should make its mass fabrication easier and cheaper. To keep our inhaler enticing for insurance companies, we hope to keep our manufacturing and associated costs under \$300 as the average inhaler costs range from \$380 to \$500 depending on the inhaler.