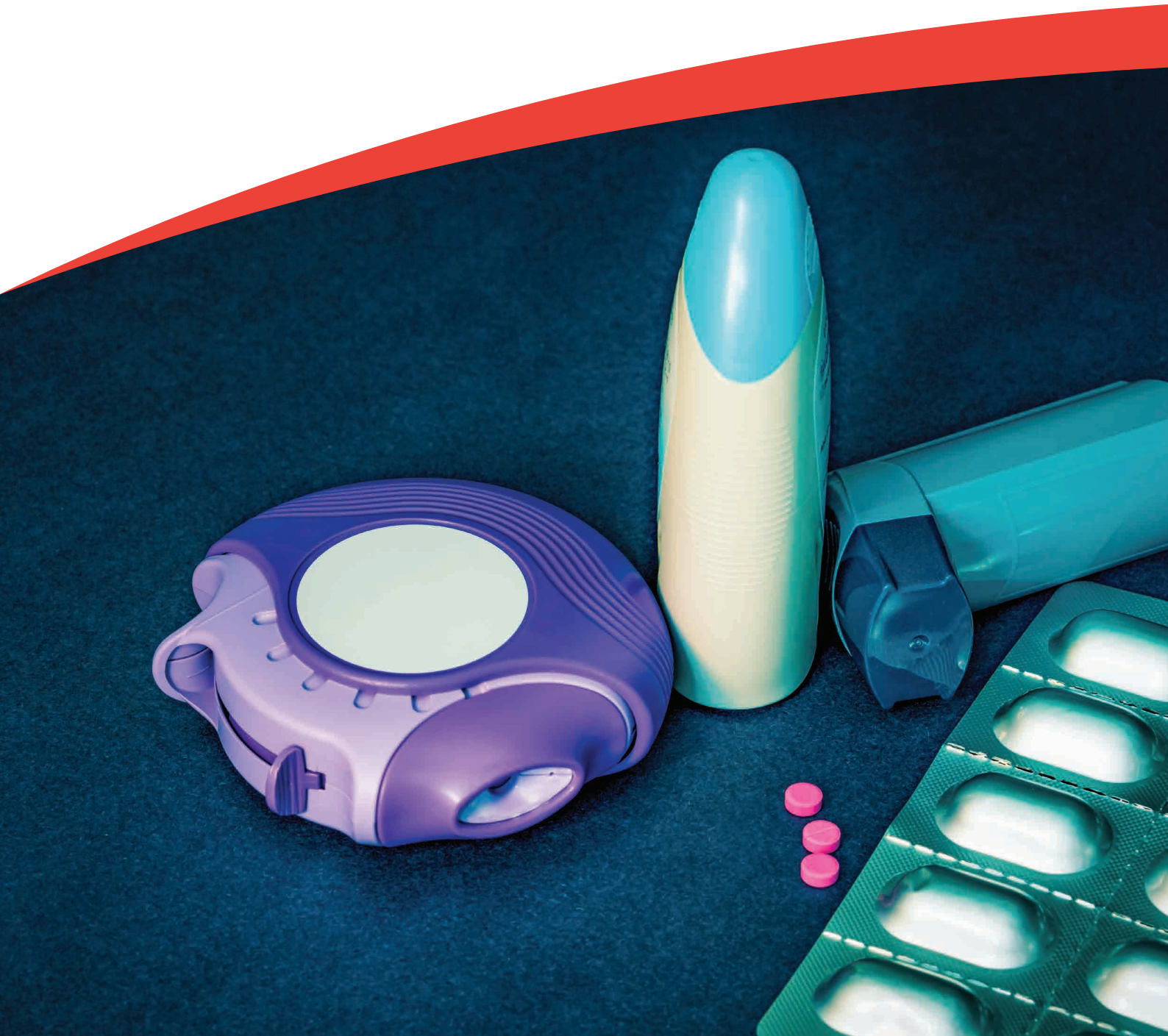
ALMAC

Partnering to Advance Human Health

Case Study

Development of a novel blinding methodology for a market leading Dry-Powder Inhaler (DPI)



Innovation is one of Almac's core values. Our unique inhaler blinding services provide a perfect illustration of this. While Almac has already developed and validated blinding techniques for most leading inhalers, continued launches of new inhalers mean we consistently face new challenges in this specialised area of clinical trial supplies.

Challenge faced

A mid-sized pharmaceutical company was planning to enter a phase III trial with a promising new treatment for asthma and COPD. To eliminate bias, the client's clinical team had designed a double-blind clinical trial. While manufacturing active and placebo forms of their own product was possible, developing a method to blind their product against the visually different active comparator was more of a challenge.

The company approached Almac to help solve this problem. Almac had never handled this product before, and within a limited time frame we had to develop and validate a cost effective, reliable and reproducible blinding method capable of handling the volumes required to support the client's planned clinical trial demand.

Almac's approach

Based on the major visual differences between the two products, we suggested that the client use a double-blind, double-dummy design for the trial (patients received 2 inhalers each: either active innovator product + placebo comparator product OR placebo innovator product + active comparator). To enable this approach, Almac had to develop a method to convert commercial active comparator units to placebo.

Researching the manufacturing process

Almac researched the manufacturing process used for the comparator product. We were able to identify the equipment used commercially to fill the inhaler units. However, the cost of acquiring similar equipment to produce smaller clinical trial volumes was prohibitive, besides which, rights to the filling process were owned by the manufacturer.
Therefore, the challenge was to develop a new method, at a reasonable cost, that would allow us to:

- Disassemble commercial comparator inhalers without damaging them
- Remove the blister strip containing the Active Pharmaceutical Ingredient (API)
- Manufacture matching placebo blister strips
- Develop a method for inserting these into the inhaler body
- Re-assemble the inhaler without impacting its functionality

In parallel, Almac had to develop analytical methods to support the absence of active testing, identify and source a placebo powder with similar characteristics to the API blend, and to perform a stability program for the placebo units.

The Almac solution

As an integrated group, the Almac project team was able to recruit experts from several disciplines to support development of the placebo inhalers. Our engineers developed a blister line and powder-filling technique that enabled us to replicate the active blisters. Almac engineers also developed specialised equipment to disassemble and reassemble commercial inhalers - including winding placebo blister back into the inhaler units at the correct tension to support correct functioning of the unit once reassembled.

Our particle sizing team helped us to identify a suitable grade of lactose-for-inhalation to replace the API. Almac analysts developed methods to test for absence-of-active and stability. Finally, our Quality Assurance (QA) and Validation teams helped us to prove our technique worked, and developed in-process and finished product tests that enabled us to guarantee finished product functionality.

The client results

Our highly experienced and knowledgeable team was able to produce sufficient placebo and blinded active inhalers to support the client's clinical trial. Feedback from the client was that performance of the placebo units in the field was superb. Almac produced several thousand placebo units for the client in support of their initial trial requirements, and fulfilled several repeat orders over the course of the client's development program. Other clients have availed of this process, and more than half a million placebo units of this type have now been produced for clinical trials around the world ranging in various sizes and complexities.

Almac has delivered hundreds of batches of inhaler devices for use in double-blind clinical trials for over 30 years.

Inhalers we blind:

Metered Dose Inhalers (MDIs)

Dry-Powder Inhalers (DPIs)

Capsule-Based (DPIs)

Reservoir-Based (DPIs)

Blister-Based (DPIs)

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