NOVELIA®: A PRODUCT FOR PATIENTS CREATED FROM PATIENTS' NEEDS

The development of Nemera's multidose preservative-free eyedropper illustrates perfectly our patient-oriented innovation process.

1 *Patients suffer because of preservatives in eye drops*

Scientific research shows that preservatives cause irritations and other side effects to the eye, thus jeopardizing adherence to treatments.

> DEVELOP A BRIEF STARTING WITH THE PATIENT

We decided to develop a brand-new preservative-free device which would be simple and patient-friendly, able to handle new viscous drugs, affordable, easy-to-fill and above all, safe for patients.

THE PATIENTS' VOICE

100 eyedropper patients with chronic eye treatments were interviewed in July 2011. Novelia® colored tip was rated as the preferred preservative-free multidose eyedropper!

2 *The best design to make eye drops safe*

Creativity meetings were organized and concepts generated freely. After a "quick kill" of unpractical solutions, a comparison matrix was set up for decision-making. 3D mock-ups were produced for testing by healthy patient volunteers.

3 *Verified product performance and user interface*

The selected Novelia® concept was a standard squeezable bottle, dispensing the drops while maintaining sterility. Its one-way valve was easy for patients to actuate but strong enough to prevent contamination. After the first patients' tests, a blue tip was introduced to improve the "precision" of drop delivery felt by the patients and then retested for validation.

> DESIGN FOR MANUFACTURING

We performed a full review to create a detailed manufacturing-compliant design including a verification plan to avoid risks of non-quality. As it is impossible to test filters at 100% during production to fully guarantee the safety of the patient, we selected a patented alternative venting technology to replace formulation in the bottle by non-contaminated air.

PROVEN EFFICACY

4,800 products have been tested from November 2009 to assess Novelia's sterility performance.

4 *A reliable process to guarantee quality*

The cooperation between the Innovation Center and La Verpillière plant teams which started during Step 3 became evident. A pilot assembly machine was developed with associated injection molds in order to assess the design robustness and de-risk the industrial process.

5 *Mass production for the benefit of patients*

The La Verpillière plant teams now take the lead with the support of the innovation team on the product functionality. A high-speed assembly line with 100% controls in a brand new clean room started on schedule.

IN 2014

Patients use Novelia® with over 10 products across 4 continents.