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## OPHTHALMIC DROP BOTTLE WITH DISPOSABLE CANNULA

### Technology Reference

R239

### Keywords

Medical Device  
Drug Delivery Tool

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### Field

Ophthalmology

### Patent Status

US and PCT Patents Pending

This invention is a novel topical ophthalmic drug delivery system.

### AREAS OF APPLICATION

- This bottle is intended for all FDA approved topical ophthalmic drug solutions and OTC ophthalmic products that are preserved for multiple use application.

### ADVANTAGES

- Designed to improve comfort and convenience to patient and/or physician, by allowing topical ophthalmic solutions to be delivered to the eye without the need to tip the head back; can be used in front of a mirror
- Maintains sterility of preserved ophthalmic solution by using disposable cannulas which minimizes contact between tip of device and eye
- Recurring revenues are possible through use of disposable cannulas
- Maintains correct dosing of solution by controlling droplet size, thus waste of ophthalmic solution is minimized
- Allows delivery directly to lower conjunctival sac

### THE TECHNOLOGY

This invention is an improved design of the ophthalmic drop bottle and method of use. The design provides more precise and comfortable delivery of ophthalmic solutions to the eye and improves the control of droplet size. Previous studies have shown that drops in excess of 15-20  $\mu\text{L}$  can lead to conjunctival irritation and in some cases cause reflex tearing resulting in a dilution of the drug. An optional cannula consistently provides drop sizes of 15-20  $\mu\text{L}$ . This feature also eliminates drug waste that is common in current bottle designs. This bottle provides patients the ability to apply the solution drops without the need to tilt the head back, a method currently used in conventional bottle designs delivering ophthalmic solutions. For sterile solutions, sterility can remain intact because the bottle applicator does not come in direct contact with the eye; the cannulas will allow for proper application without contaminating the solution in the bottle. Additional features are contemplated by the design including a mechanism to measure remaining solution, a mechanism for determining if the device has been used recently and mechanisms for retaining the cap and cannulas proximal to the bottle. These features aid patients and physicians in predicting future costs of the drug product, refill needs, control of timing and avoidance of loss of components.

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