

# Reduced Incidence of Post- Injection Endophthalmitis with Pre-filled Syringes

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## Financial Disclosures

- Alimera Sciences
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# SUMMARY



- Lower rate of endophthalmitis with were observed with pre-filled syringes (PFS) compared with VIALS.
- Lower rate of endophthalmitis were noted when MD draws up drug from VIAL, as opposed to technician.
- Extra caution is warranted when drawing up drug from vials in the office.
- Consider having MD drawing drug from vials for intravitreal injections.

# PURPOSE

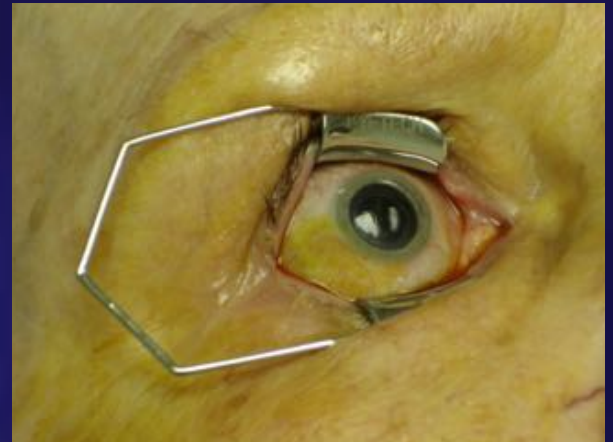


- Acute endophthalmitis is rare but the most feared risk of intravitreal injections.
- Study to:
  - Assess the features of post-injection endophthalmitis and risk factors for developing endophthalmitis.
  - Do pre-filled syringes prepared in a sterile fashion reduce endophthalmitis risk?
  - Does physician drawing up of medication as opposed to technicians impact rates of endophthalmitis?

# METHODS



- Retrospective review
  - All Intravitreal injections of VEGF inhibitors
  - 2014 through 2019
  - All 16 NJ Retina locations
  - 24 Retina specialists
- Technique
  - In office procedure
  - Povidine-iodine for ALL eyes
  - Speculum typically use
  - No face mask
  - Gloves not routinely used by MD



# METHODS



- Identify eyes developing endophthalmitis after intravitreal injection
- Medications:
  - Bevacizumab (pre-filled by compounding pharmacy)
  - Ranibizumab (vial)
  - Ranibizumab (pre-filled syringe)
  - Aflibercept (vial)

# RESULTS



■ 325,902 injections over 6 years	
■ Bevacizumab	32,045
■ Ranibizumab (vial)	93,073
■ Ranibizumab (pre-filled syringe)	77,925
■ Aflibercept (vial)	122,947

# RESULTS



## ALL ENDOPHTHALMITIS (88 CASES):

Incidence endophthalmitis: 1 in 3704 injections (0.0270%)

- Bevacizumab: 1 in 3204 injections (0.0312%)
- Ranibizumab (vial): 1 in 4432 injections (0.0226%)
- Ranibizumab (PFS): 1 in 6494 injections (0.0154%)
- Aflibercept (vial): 1 in 2732 injections (0.0366%)

■  $P = 0.03$

- However, only 37% culture positive

# RESULTS



## CULTURE POSITIVE ONLY:

Incidence endophthalmitis:	1 in 9586 injections (0.0104%)
■ Bevacizumab:	1 in 10,682 injections (0.0094%)
■ Ranibizumab (vial):	1 in 15,512 injections (0.0064%)
■ Ranibizumab (PFS):	1 in 38,962 injections (0.0026%)
■ Aflibercept (vial):	1 in 5344 injections (0.0187%)

■  $P = 0.003$

# RESULTS: VIAL vs R-PFS



## *INCIDENCE OF ENDOPHTHALMITIS*

### *ALL EYES*

- VIAL medication: 1 in 3272 injections (0.0306%)
- R-PFS medication: 1 in 6493 injections (0.0154%)
- $P = 0.026$

### *Culture Positive ONLY*

- VIAL medication: 1 in 7448 injections (0.0134%)
- R-PFS medication: 1 in 38,962 injections (0.0026%)
- $P = 0.011$

# RESULTS: MD vs Technician Prepared Drug



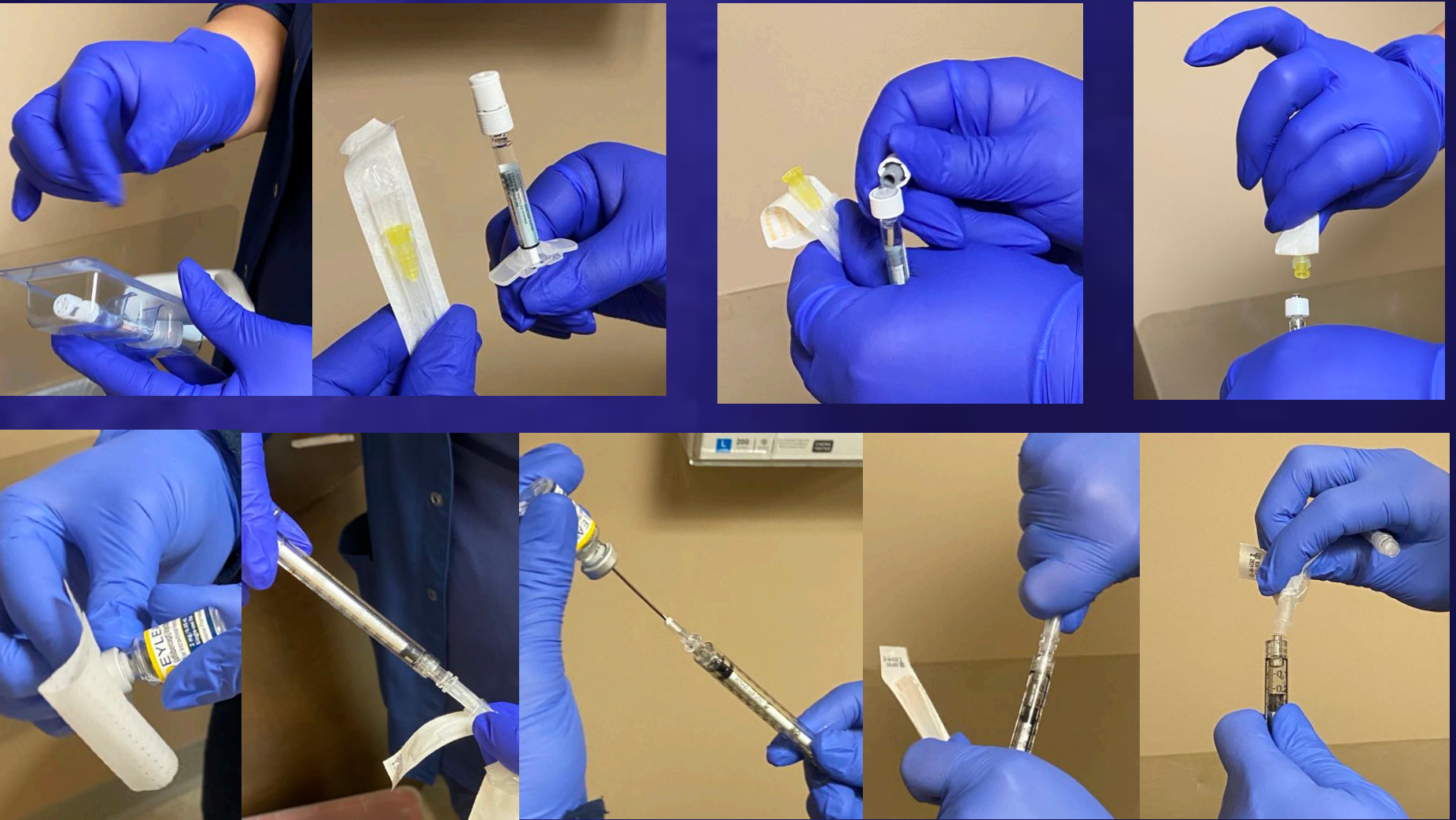
## ALL MEDICATIONS:

- MD drawn med: 1 in 5402 injections (0.0185%)
- Technician drawn med: 1 IN 2991 injections (0.0334%)
- $P = 0.01$

## FOR PFS MEDICATION ONLY:

- **No significant difference in endophthalmitis incidence between MD prepared med vs Technician prepared med**

# What's Different Between VIAL and PFS?



# Why Lower Incidence with MD Drawn Med?



## ■ Possibilities:

- MD more familiar with sterile technique
- MD may have more dexterity manipulating needles and avoiding contamination
- MD feels more responsible (“The Buck Stops Here!”)

# Conclusions



- Lower rate of endophthalmitis with PFS compared with VIALS ( $P = 0.026$ )
- Lower rate of endophthalmitis when MD draws up drug from VIAL, as opposed to technician. ( $P = 0.01$ )
- Use extra caution when drawing up drug from vials in the office
- Consider MD drawing drug for injections
- We welcome PFS for all intravitreal pharmaceuticals

Thank You!



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