

# DO WE HELP OUR GLAUCOMA PATIENTS BE CURED?

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## Can we help our glaucoma patients be cured?

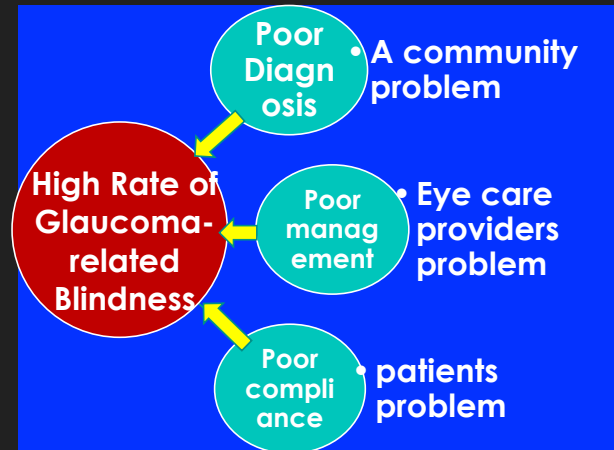
- There is **NO CURE** from glaucoma
- The only thing we can do is to stop or slow down progression of the disease
- And to help patient maintain his visual capacity and minimize ocular morbidity

- Patients always hope for **MORE visual improvement**
- Doctors always hope to have **NO MORE harm to patients**

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## Are we able to prevent our patients from going blind from glaucoma?

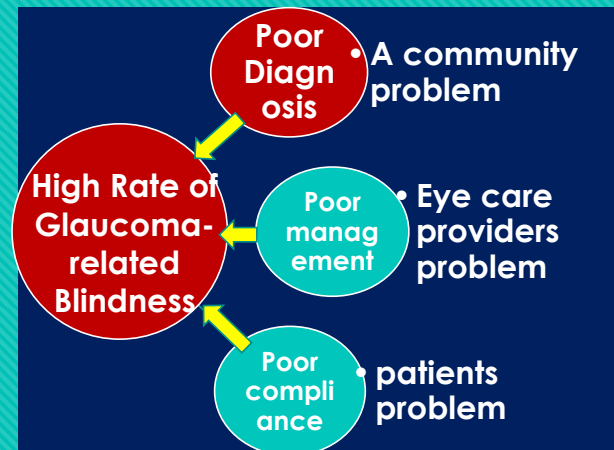
- In 1982, Grant & Burk asked the question: **Why do some people go blind from glaucoma?**
  - Ophthalmology 1982;89:991
- 30 years later, Susanna and associates asked the same question: **Why do people (Still) go blind from glaucoma?**
  - Trans Vis Sci Tech. 2015;4:1



ثالث التخلف = الفقر + الجهل + المرض

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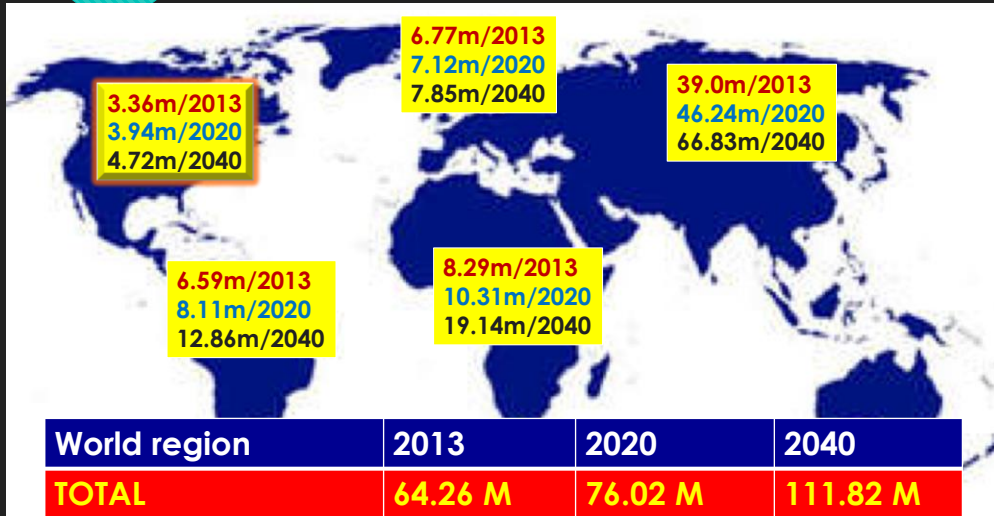
## The burden of poor diagnosis and lack of early detection of glaucoma



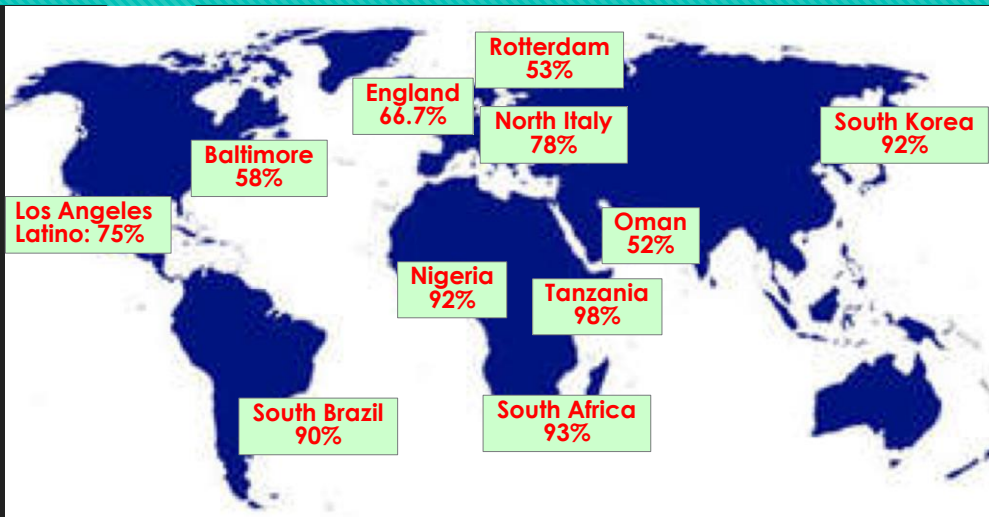
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# Global Prevalence of Glaucoma and Projections of Glaucoma Burden through 2040

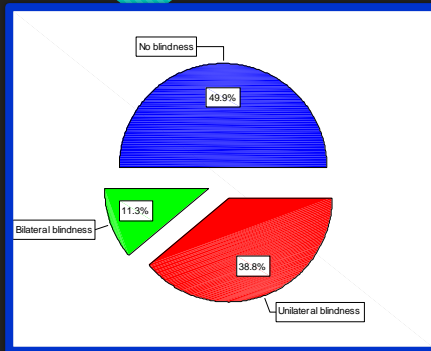
Tham et al, Ophthalmology 2014;121:2081-90



# Rate of Undiagnosed Glaucoma Worldwide in Community-based Prevalence Surveys



# GLAUCOMA BLINDNESS RATE



- In a clinic-based study in Saudi Arabia for newly diagnosed patients
  - Bilateral legal Blindness = 47 pt of 417 new gl pts (11.3%)
  - Unilateral legal blindness = 162 pts of 417 new gl pts (38.8%)
- In a glaucoma prevalence survey in rural South Africa, 45% of those with glaucoma were blind in at least one eye

- Tarek Eid, Elhawary I, Elmenawy W. Prevalence of glaucoma types and legal blindness from glaucoma in the western region of Saudi Arabia: a hospital-based study. *Int Ophthalmol* 2009;6:477-483
- Rotchford AP, Johnson GJ. Glaucoma in Zulus: A population-based cross-sectional survey in a rural district in South Africa. *Arch Ophthalmol*. 2002;120:471-8

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## Factors associated with Poor Diagnosis & Lack of early detection of Glaucoma

V. Improper understanding and utilization of new diagnostic modalities

I. Patients lack regular eye checkup

IV. Underestimation of glaucoma likelihood by ophthalmologists

II. Lack of community screening programs (targeted screening, over 40)

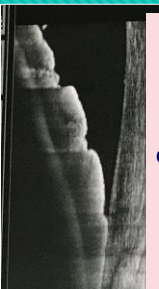
III. Lack of Insurance & Attitude of physicians toward the uninsured

- Tropouzis et al. *Am J Ophthalmol* 2008;145:327
- Jiang et al. *Ophthalmology* 2012;119:2245

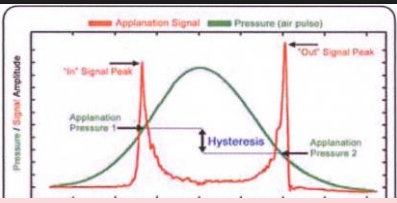
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**NEW DIAGNOSTIC TECHNOLOGY FOR GLAUCOMA IS MOVING TOWARDS MORE**

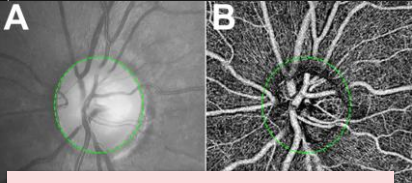
**PRECISE  
SENSITIVE  
OBJECTIVE  
SPECIFIC  
QUANTITATIVE  
CELLULAR LEVEL  
ANALYSIS**



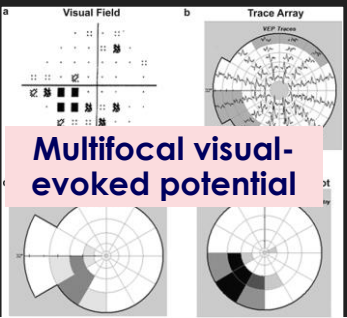
**Anterior segment OCT**



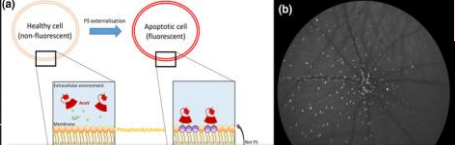
**Ocular Response Analyzer**



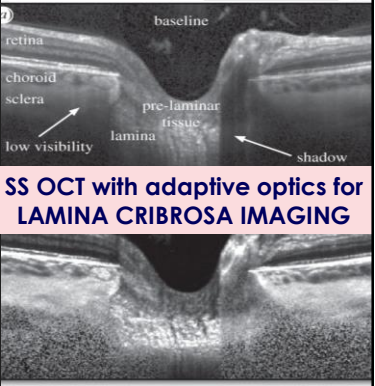
**OCT ANGIOGRAPHY**




**Multifocal visual-evoked potential**



**DARC tech for imaging of APOPTOTIC GANGLION CELLS**



**SS OCT with adaptive optics for LAMINA CRIBROSA IMAGING**



# What are the Factors Associated with Poor Management of Glaucoma ?

**High Rate of Glaucoma-related Blindness**

**Poor Diagnosis**


- A community problem

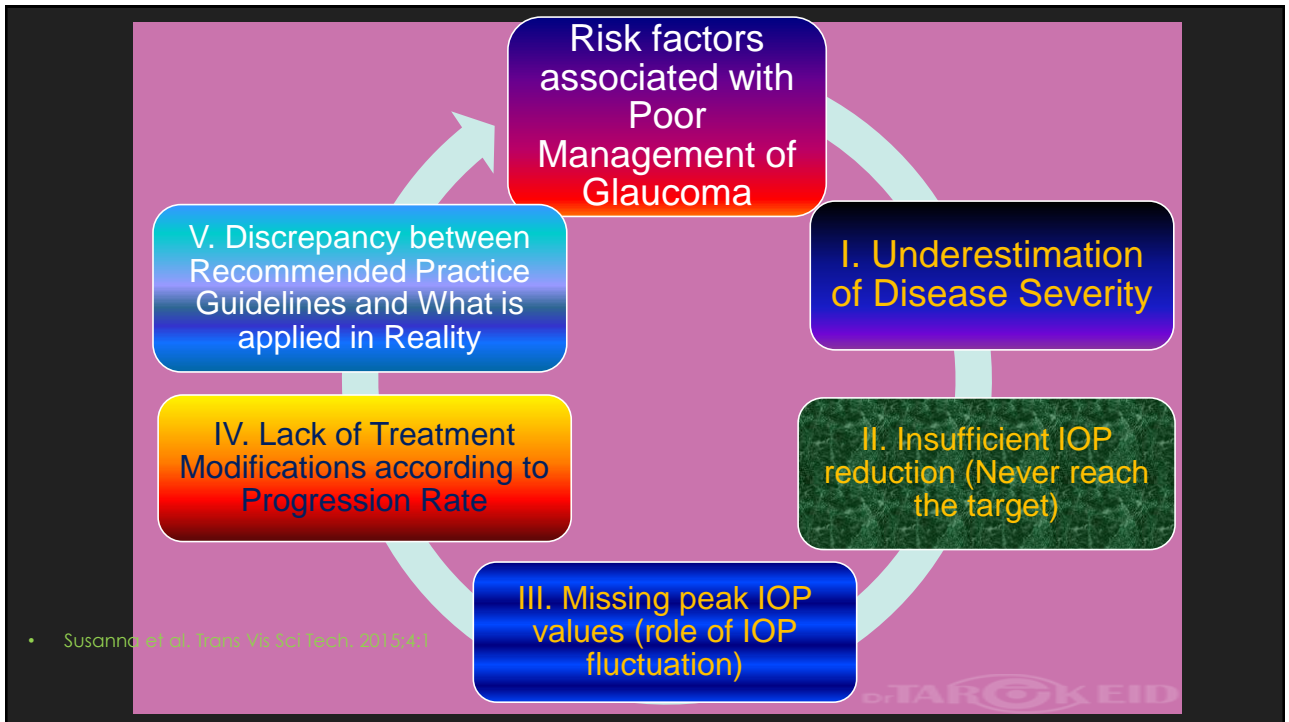
**Poor management**

- Eye care providers problem

**Poor compliance**

- patients problem

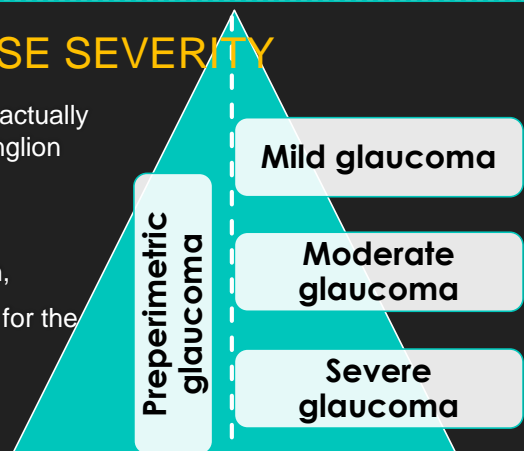




## RISKS ASSOCIATED WITH POOR MANAGEMENT

### I. UNDERESTIMATION OF DISEASE SEVERITY

- A diagnosis of mild glaucoma by visual field defects is actually not a mild form of the disease since almost 50% of ganglion cells have been lost.
- **Subsequently**
  - Less aggressiveness necessary for intervention,
  - Less emphasis on seriousness of the condition for the patient
  - Less frequent patients' visits
  - A possible higher IOP to target for treatment



• Harwerth & Quigley Arch Ophthalmol 2006;124:853

## RISKS ASSOCIATED WITH POOR MANAGEMENT

### ○II. INSUFFICIENT IOP REDUCTION

- What is the ideal pressure?
- A target IOP 20-40% less than baseline, with consideration of
  - Patient's own specific characteristics
  - “One-size-fits-all” is not applicable for glaucoma patients
  - The lower is not necessary the better
  - Maximal IOP lowering may not be enough (look for other non IOP-dependent factors)
  - Associated risk factors and treatment adverse effects

□ EMGT. Arch Ophthalmol 2003;121:48  
 □ CIGTS. Ophthalmology 2011;118:1766

□ AGIS. Am J Ophthalmol 2000;130:429  
 □ CNTGS. Am J Ophthalmol 2001;131:699

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## RISKS ASSOCIATED WITH POOR MANAGEMENT

### ○III. MISSING PEAK IOP VALUES (IOP FLUCTUATION)

- Short term (diurnal curve to target peak IOP)
- Ultrashort term (with blinking, eye movement, squeezing, staring, ...)
- Long term (longitudinal data to target mean IOP)
- Peak IOP of office visits is different from that of diurnal curve
- Association of IOP fluctuation and glaucoma progression is debatable



Home tonometer helps 24-hour monitoring

□ Barkana et al. Arch Ophthalmol 2006;124:793  
 □ Medeiros et al. Ophthalmology 2008;115:934

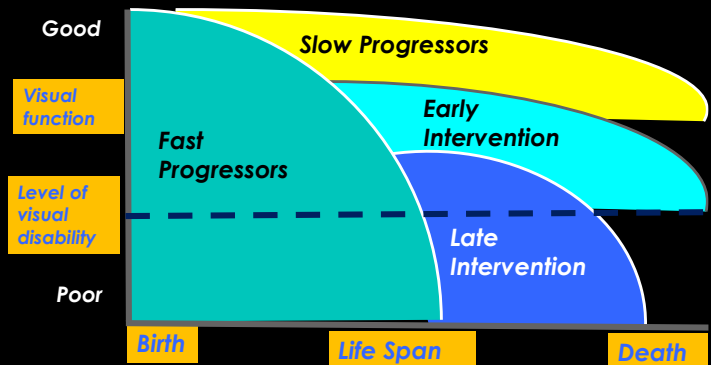
□ Konstas et al. J Ocul Pharmacol Ther 2012;28:26

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# RISKS ASSOCIATED WITH POOR MANAGEMENT

## IV. TREATMENT MODIFICATIONS ACCORDING TO PROGRESSION RATE

- Treatment plan at first diagnosis
- Monitoring patient's response and glaucoma progression
- Glaucoma progression is not linear with high variability among patients
- Discrepancy between progression and blindness from glaucoma between real practice and clinical trials
- Readjustment of treatment plan according to rate of progression



□ Henson & Shambhu. Arch Ophthalmol 2006;124:1405

□ Spaeth GL et al. J Glaucoma 2009;18 (6): S1-S21

# RISKS ASSOCIATED WITH POOR MANAGEMENT

## ○ V. DISCREPANCY BETWEEN RECOMMENDED PRACTICE GUIDELINES AND WHAT IS APPLIED IN REALITY

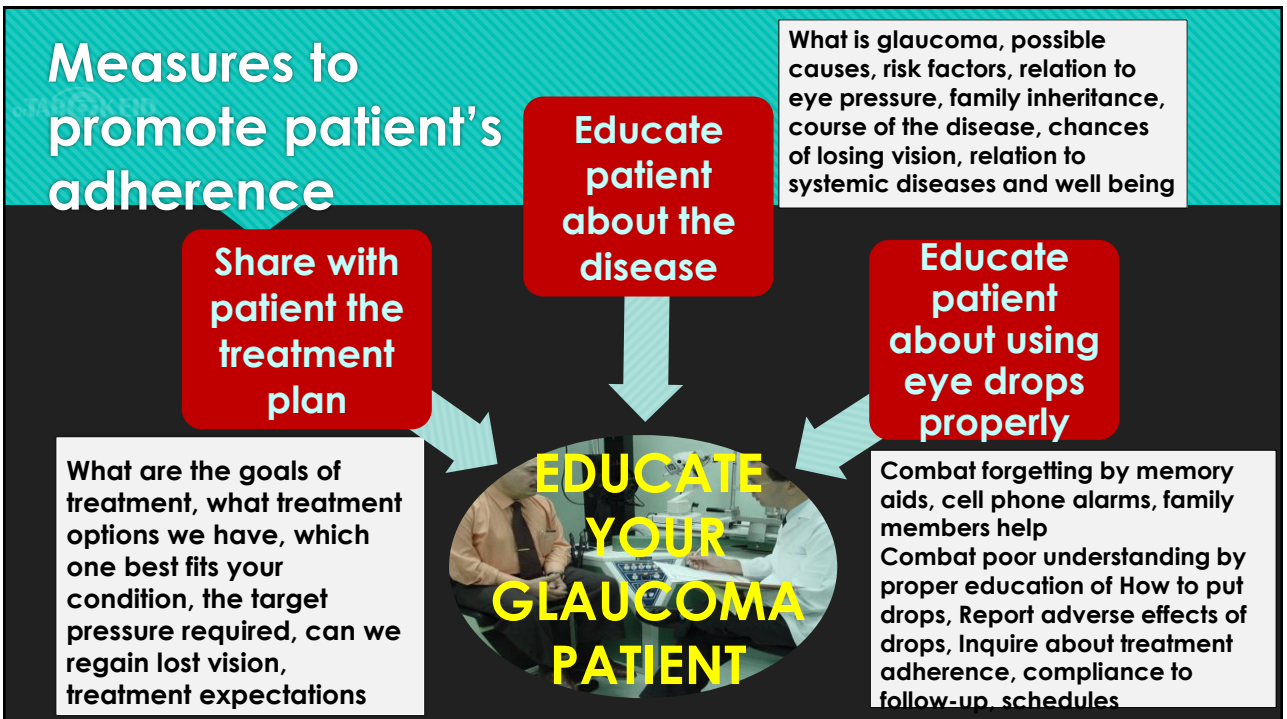
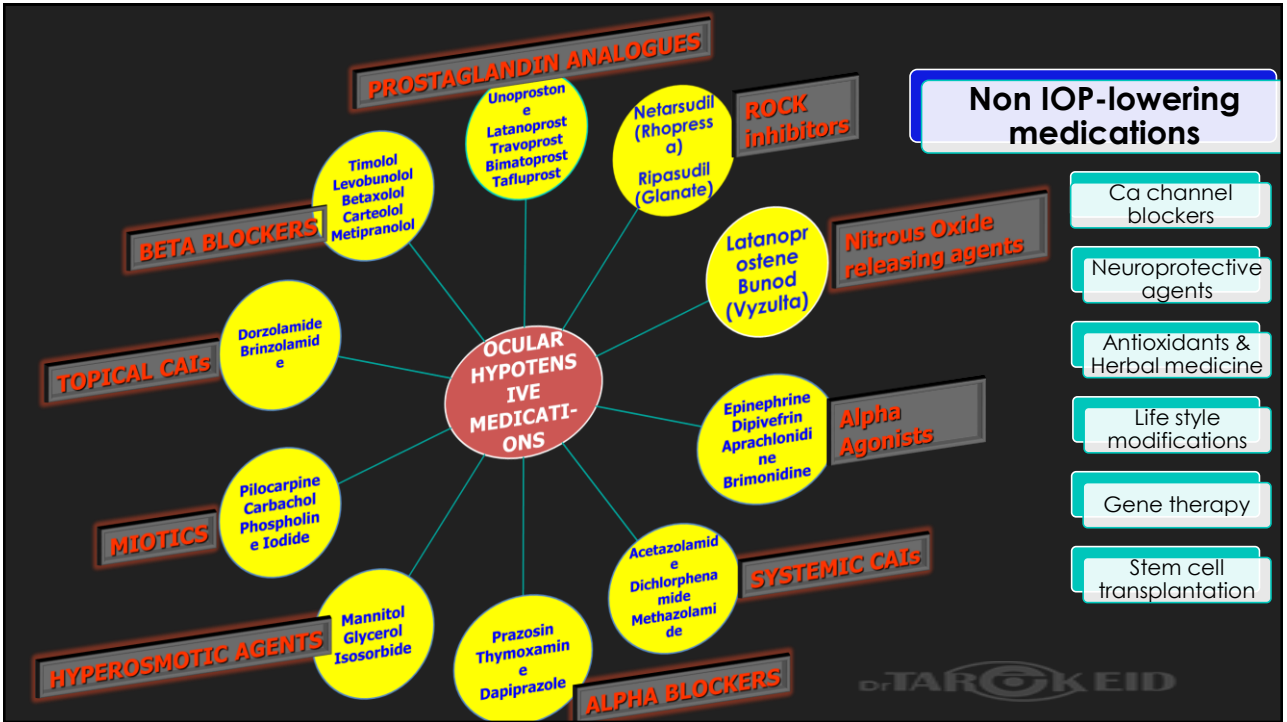
- In a **General Eye clinic**, how many check IOP
- In a **Glaucoma clinic**, how many do IOP phasing, gonioscopy, disc drawing, repeat VF test, pupil assessment, measure corneal thickness, document family history, target pressure, ...
- In **follow-up visits** how many patients have serial VF testing, documented adverse effects of meds, compliance check, or treatment plan readjustment according to progression probability , not just IOP level

□ Fung et al. B J Ophthalmol 2013;97:843

□ Fremont et al. Arch Ophthalmol 2003;121:777







## Measures to promote patient's adherence



## Measures to promote patient's adherence to recommended treatment

- Less complex regimen: Fixed combination drops = less number of bottles, less dosing, less money, less preservatives
- Memory aids, phone call reminders
- Applications of new dosing devices (electronic devices, drug-loaded inserts, supraciliary injection)



# GIVE YOUR PATIENT HOPE, NOT FEAR

- **WE ARE ALL PATIENTS**

- There is no better feeling than walking out of the doctor's office with a good report

- » Brown RH. Hope, Not Fear: Talking to the glaucoma patients. Glaucoma Subspecialty Day, American Academy of Ophthalmology Meeting, Orlando 2011.



- **No patient should ever leave a visit with a physician without a sense of HOPE**

- Harris JC, DeAngelis CD. The power of hope. JAMA 2008;300(24):2919

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