


## Glaucoma Registry

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### Scope of presentation

- Introduction
- Objectives
- Methods
- Results
- Limitations
- Conclusion



### Introduction - Glaucoma

- 2<sup>nd</sup> leading cause of blindness worldwide
- Prevalence increased with age, 1.4 - 3.2% in population > 40 years old
- In Malaysia, prevalence unknown . National Eye Survey 1996 : blindness 1.8%, low vision 1.8%
- As the population ages & with increasing life expectancy , it is estimated the number of patients will reach 60 million globally by 2010, with an anticipated increase to almost 80 million by 2020
- Aim of treatment – maintain quality of life by preventing or slowing visual loss



### Introduction - Glaucoma

- Many advances in glaucoma research provided a better understanding of its causes, the development of diagnostic techniques & more efficient ways to manage the disease

**EDITORIAL**  
**56,000 WAYS TO TREAT GLAUCOMA?**  
**NOT WITH VALUE-BASED MEDICINE!**


Gary C. Brown, MD, MBA  
Melissa M. Brown, MD, MN, MBA

In the November 2002 issue of *Ophthalmology*, Realini and Fechtner wrote an editorial entitled "56,000 Ways to Treat the value of each drop in this arena. The use of utility values in such a model will greatly facilitate measurement of the

- Essential to constantly evaluate the diagnostic and management practice to ensure high quality affordable care


### Objectives- Glaucoma Registry

1. To study the demographic characteristics of glaucoma patients, glaucoma suspects and ocular hypertensive patients
2. To determine the types of glaucoma
3. To assess risk factors associated with glaucoma, glaucoma suspects and ocular hypertensive patients
4. **To evaluate the pattern of management of glaucoma patients**



### Method

- **Inclusion:**  
All new and follow up patients who were diagnosed to have glaucoma , ocular hypertension or suspects
- CRF entered at the time of visit
- Data entry into eWeb application
- Duplication – checked with IC number
- CRF and data definition are on the web site



### GLAUCOMA REGISTRY DATA COLLECTION SHEET

INSTRUCTIONS: Where check boxes are provided, check (x) one or more boxes. Where radio buttons are provided, check (x) one box only.

i) Hospital: \_\_\_\_\_ ii) Date of notification (dd/mm/yy): \_\_\_\_\_

iii) Type of case:  New  Follow-up

#### SECTION 1 - PATIENT PARTICULARS

1. Name of Patient: \_\_\_\_\_

2. Identification Card Number: \_\_\_\_\_  
If Myd/MyKid not available, please complete the Old IC or Other IC document No.

3. Address: \_\_\_\_\_  
 Postcode: \_\_\_\_\_ Town/City: \_\_\_\_\_ State: \_\_\_\_\_

4a. Date of Birth: \_\_\_\_\_ No. Age at notification: \_\_\_\_\_ Auto Calculated

5. Gender:  Male  Female  
 Ethnic Group:  Malay  Indian  Melanau  Iban  Other, specify: \_\_\_\_\_  
 Chinese  Orang Asli  Kadazan/Muntaghau  Bidayah

7. Occupation:  Government employed  Private employed  Self employed  Unemployed

#### SECTION 2 - ASSOCIATE FACTORS

1. Medical History:  None  Hypertension  Cardiac disease  Vasospastic disease  Family history of glaucoma  
 Diabetes  Hypercholesterolemia  Stroke  History of steroid therapy

#### SECTION 3 - OCULAR EXAMINATION

1. VA:	a) OD				b) OS				
	(i) Unaided:	(ii) With glasses/ph:	(i) Unaided:	(ii) With glasses/ph:	(i) Unaided:	(ii) With glasses/ph:	(i) Unaided:	(ii) With glasses/ph:	
2. GUP/DISC RATIO (VERTICAL):	<input type="radio"/> 0.1 <input type="radio"/> 0.4 <input type="radio"/> 0.7 <input type="radio"/> 1.0	<input type="radio"/> 0.1 <input type="radio"/> 0.4 <input type="radio"/> 0.7 <input type="radio"/> 1.0	<input type="radio"/> 0.1 <input type="radio"/> 0.4 <input type="radio"/> 0.7 <input type="radio"/> 1.0	<input type="radio"/> 0.1 <input type="radio"/> 0.4 <input type="radio"/> 0.7 <input type="radio"/> 1.0	<input type="radio"/> 0.1 <input type="radio"/> 0.4 <input type="radio"/> 0.7 <input type="radio"/> 1.0	<input type="radio"/> 0.1 <input type="radio"/> 0.4 <input type="radio"/> 0.7 <input type="radio"/> 1.0	<input type="radio"/> 0.1 <input type="radio"/> 0.4 <input type="radio"/> 0.7 <input type="radio"/> 1.0	<input type="radio"/> 0.1 <input type="radio"/> 0.4 <input type="radio"/> 0.7 <input type="radio"/> 1.0	<input type="radio"/> 0.1 <input type="radio"/> 0.4 <input type="radio"/> 0.7 <input type="radio"/> 1.0
	<input type="radio"/> 0.2 <input type="radio"/> 0.5 <input type="radio"/> 0.8 <input type="radio"/> Undefined	<input type="radio"/> 0.2 <input type="radio"/> 0.5 <input type="radio"/> 0.8 <input type="radio"/> Undefined	<input type="radio"/> 0.2 <input type="radio"/> 0.5 <input type="radio"/> 0.8 <input type="radio"/> Undefined	<input type="radio"/> 0.2 <input type="radio"/> 0.5 <input type="radio"/> 0.8 <input type="radio"/> Undefined	<input type="radio"/> 0.2 <input type="radio"/> 0.5 <input type="radio"/> 0.8 <input type="radio"/> Undefined	<input type="radio"/> 0.2 <input type="radio"/> 0.5 <input type="radio"/> 0.8 <input type="radio"/> Undefined	<input type="radio"/> 0.2 <input type="radio"/> 0.5 <input type="radio"/> 0.8 <input type="radio"/> Undefined	<input type="radio"/> 0.2 <input type="radio"/> 0.5 <input type="radio"/> 0.8 <input type="radio"/> Undefined	
	<input type="radio"/> 0.3 <input type="radio"/> 0.6 <input type="radio"/> 0.9 <input type="radio"/> No view	<input type="radio"/> 0.3 <input type="radio"/> 0.6 <input type="radio"/> 0.9 <input type="radio"/> No view	<input type="radio"/> 0.3 <input type="radio"/> 0.6 <input type="radio"/> 0.9 <input type="radio"/> No view	<input type="radio"/> 0.3 <input type="radio"/> 0.6 <input type="radio"/> 0.9 <input type="radio"/> No view	<input type="radio"/> 0.3 <input type="radio"/> 0.6 <input type="radio"/> 0.9 <input type="radio"/> No view	<input type="radio"/> 0.3 <input type="radio"/> 0.6 <input type="radio"/> 0.9 <input type="radio"/> No view	<input type="radio"/> 0.3 <input type="radio"/> 0.6 <input type="radio"/> 0.9 <input type="radio"/> No view	<input type="radio"/> 0.3 <input type="radio"/> 0.6 <input type="radio"/> 0.9 <input type="radio"/> No view	

#### SECTION 4 - DIAGNOSIS

1. Diagnosis: \_\_\_\_\_

a) OD		b) OS	
(i) Primary	(ii) Secondary	(i) Primary	(ii) Secondary
<input type="radio"/> Congenital <input type="radio"/> OHT <input type="radio"/> PEX <input type="radio"/> PDS	<input type="radio"/> Congenital <input type="radio"/> OHT <input type="radio"/> PEX <input type="radio"/> PDS	<input type="radio"/> Congenital <input type="radio"/> OHT <input type="radio"/> PEX <input type="radio"/> PDS	<input type="radio"/> Congenital <input type="radio"/> OHT <input type="radio"/> PEX <input type="radio"/> PDS
<input type="radio"/> POAG <input type="radio"/> PACG <input type="radio"/> Rubellitic <input type="radio"/> Inflammatory <input type="radio"/> POAG <input type="radio"/> PACG	<input type="radio"/> Rubellitic <input type="radio"/> Inflammatory <input type="radio"/> POAG <input type="radio"/> PACG	<input type="radio"/> Rubellitic <input type="radio"/> Inflammatory <input type="radio"/> POAG <input type="radio"/> PACG	<input type="radio"/> Rubellitic <input type="radio"/> Inflammatory <input type="radio"/> POAG <input type="radio"/> PACG
<input type="radio"/> Glaucoma suspect <input type="radio"/> PAC suspect <input type="radio"/> Posttraumatic <input type="radio"/> Lens induced <input type="radio"/> Steroid induced <input type="radio"/> Post Surgery <input type="radio"/> Malignant <input type="radio"/> Mixed Type <input type="radio"/> ICE	<input type="radio"/> Posttraumatic <input type="radio"/> Lens induced <input type="radio"/> Steroid induced <input type="radio"/> Post Surgery <input type="radio"/> Malignant <input type="radio"/> Mixed Type <input type="radio"/> ICE	<input type="radio"/> Posttraumatic <input type="radio"/> Lens induced <input type="radio"/> Steroid induced <input type="radio"/> Post Surgery <input type="radio"/> Malignant <input type="radio"/> Mixed Type <input type="radio"/> ICE	<input type="radio"/> Posttraumatic <input type="radio"/> Lens induced <input type="radio"/> Steroid induced <input type="radio"/> Post Surgery <input type="radio"/> Malignant <input type="radio"/> Mixed Type <input type="radio"/> ICE
<input type="radio"/> Others, specify: _____	<input type="radio"/> Others, specify: _____	<input type="radio"/> Others, specify: _____	<input type="radio"/> Others, specify: _____

#### SECTION 5 - MANAGEMENT


a) OD		b) OS	
1. Conservative: <input type="checkbox"/> Observation	<input type="checkbox"/> Observation	1. Medical: <input type="checkbox"/> Antiglaucoma medication (topical/systemic): Yes <input type="checkbox"/> No	<input type="checkbox"/> Antiglaucoma medication (topical/systemic): Yes <input type="checkbox"/> No
2. Medical: <input type="checkbox"/> Beta-blockers <input type="checkbox"/> Alpha-adrenergic <input type="checkbox"/> Systemic CAIs <input type="checkbox"/> Prostaglandin <input type="checkbox"/> Topical CAIs	<input type="checkbox"/> Systemic CAIs <input type="checkbox"/> Hypoosmotic agents <input type="checkbox"/> Cholinergics <input type="checkbox"/> Others, specify: _____	2. Laser: <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Systemic CAIs <input type="checkbox"/> Hypoosmotic agents <input type="checkbox"/> Cholinergics <input type="checkbox"/> Others, specify: _____
3. Laser: <input type="checkbox"/> Nd:YAG <input type="checkbox"/> Trabeculoplasty <input type="checkbox"/> Endocyclotodide <input type="checkbox"/> Irigadomy <input type="checkbox"/> Transcatheter Cycloablation <input type="checkbox"/> Others, specify: _____	<input type="checkbox"/> Endocyclotodide <input type="checkbox"/> Transcatheter Cycloablation <input type="checkbox"/> Others, specify: _____	4. Surgical: <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Endocyclotodide <input type="checkbox"/> Transcatheter Cycloablation <input type="checkbox"/> Others, specify: _____
4. Surgical: <input type="checkbox"/> Trabeculectomy (plain) <input type="checkbox"/> Drainage Device <input type="checkbox"/> Needling <input type="checkbox"/> Non Penetrating Surgery <input type="checkbox"/> Trabeculectomy	<input type="checkbox"/> Trabeculectomy (augmented) <input type="checkbox"/> Cryotherapy <input type="checkbox"/> Surgical PI only <input type="checkbox"/> Goniotomy <input type="checkbox"/> Others, specify: _____		<input type="checkbox"/> Trabeculectomy (plain) <input type="checkbox"/> Drainage Device <input type="checkbox"/> Needling <input type="checkbox"/> Non Penetrating Surgery <input type="checkbox"/> Goniotomy <input type="checkbox"/> Others, specify: _____

Examined by:  Glaucoma Specialist  Glaucoma Fellow  Other specialist \_\_\_\_\_  Medical Officer

### Data Definition Glaucoma Registry


This form is to be filled for glaucoma patients who are being seen at the ophthalmology department

Data Item	Core data ?
i) Hospital/Clinic	Yes
ii) Date of notification	Yes
iii) Type of case	Yes
Follow up	Yes
Section 1 Patient Particulars	Yes
1. Name of patient	Yes (must fill)
2. Identification Card Number	Yes (must fill)
3. Address	No
4a. Date of Birth	Yes (must fill)
4b. Age at notification	Yes (must fill)
5. Gender	Yes (must fill)
6. Ethnic Group	Yes
7. Occupation	Yes
Government employed	Employ by the Government
Private employed	Employ by the Private sector
Self employed	Doing own business
Unemployed	Unable to work/retired/housewife/student/part-time or occasionally working
Section 2	Yes



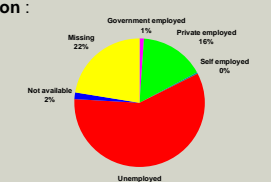

## Results

**Web Report 2007  
1.1.07 to 31.12.07  
Subjects- 1155 patients**



## Demography

- Types of cases : New – 4.0 % , Follow up – 95.5%
- Average age – 62 years
- Gender - Male 54.8%, Female 44.6%
- Occupation :





## Associated factors

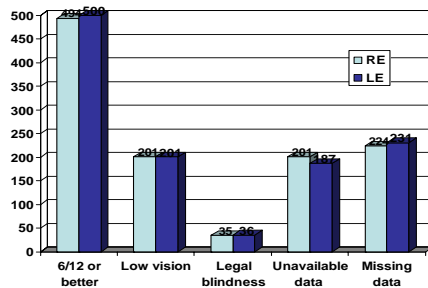
### Medical History

Diabetes	35.24%
Hypertension	39.05%
Hypercholesterolemia	3.55%
Cardiac disease	0%
Stroke	1.99%
Vasospastic disease	0.17%

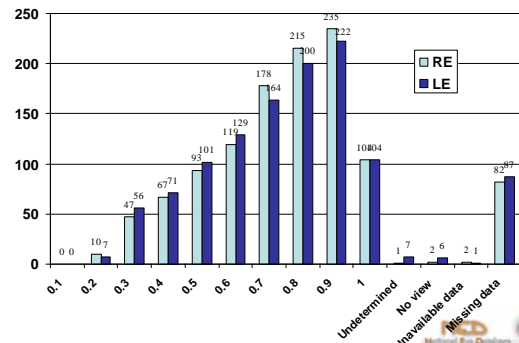
**History of steroid therapy - 3.55%**  
**Family history of glaucoma - 6.58%**



## Ocular Findings - Visual Acuity



## Ocular Findings - Cup-disc Ratio



## Diagnosis

- **Primary cause - 88%**
  - POAG - 55%
  - PACG - 12%
  - OHT - 5%
- **Secondary cause - 10%**
  - Pseudoexfoliation - 3%
  - Post surgery - 2%
  - Steroid induced - 2%
  - Rubeotic - 1%



## Management

### Medical - 80%

- **No. of eye drops:**
  - 1 drug - 32%
  - 2 drugs - 27%
  - 3 drugs - 13%
  - ≥ 4 drugs - 7%
- **Types of Drugs**
  - Prostaglandin analog - 60%
  - Beta blockers - 55%
  - Topical CAI - 26%
  - Alpha adrenergic - 9%

### Laser - 10%

Laser iridotomy - commonest

### Surgery - 2%

Trabeculectomy - commonest



## Limitation

- Not all cases are captured (poor ascertainment rate)
- Data quality
  - Missing & unavailable data > 5%
    - Occupation
    - Associated factor
  - Management- must enter 'no' if patient is not on that specific type of treatment
  - Uncertainty in definition of diagnosis

## Actions

- Make data collection as part of work process
- Put CRF on medical records of all glaucoma patients (in- & out-patients) & patients with visual field done
- Amendment of CRF
- Data quality
  - Check for completeness
  - Check for accuracy
  - Avoid duplication - highlight in case note that CRF has been entered



## Conclusion

- Majority of patients are of older age group who have good vision but are at risk of blindness because of advanced glaucomatous cupping
- Cause of glaucoma is mainly primary in origin with POAG being the commonest
- Medical therapy is the main modality of treatment. About 50% required more than 1 medication and prostaglandin analogs is the preferred choice of drug. This will certainly have an impact on our limited financial resources



## Recommendation

### 1. Use of Glaucoma Registry data

- ☛ Planning of service eg. allocation of resources for drugs, equipments for other modality of treatment and training

### 2. Future research

- ☛ Identify research areas eg. management trends, economic evaluation



THANK YOU

