


# Diabetic Eye Registry

Second National NED Meeting  
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## Scope of presentation

- Introduction
  - What we know
  - What we don't know
- Objectives
- Methods
- Results
- Limitations
- Conclusion

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## Introduction

- Prevalence of DR varies within nation and ethnicity
  - 35% Singapore Malays
  - 40.3% in USA
- Higher in type I DM- 86.4% (USA)
- Vision threatening DR (Severe NPDR, PDR, DME)
  - USA -8.2%
  - Singapore Malays -6.8%

Ref:  
The Eye Disease Prevalence Research Group. The Prevalence Of Diabetic Retinopathy Among Adult Type 1 Diabetic Person In The Untied State .Arch Ophthalmol. 2004;122  
The Eye Disease Prevalence Research Group. The Prevalence of Diabetic Retinopathy among Adults in the Untied State .Arch Ophthalmol. 2004;122: 252-563  
The Singapore Malay Eye Study. Ophthalmology 2008

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## NHMS 2006 findings


### DM prevalence, eye examination and complications

- Prevalence of DM -14.9%
- Increasing in an alarming rate(7% over last decade)
- Eye examinations among known diabetics
  - 45% never had fundus examined
  - those examined, 33% within last one year
- Complication rate among diabetics
  - Stroke -3.4%
  - Amputation-4.3%
  - Renal failure -1.6%

Year	Prevalence (%)
1986	6.3
1996	8.3
2006	14.9

Duration	Percent
Within 1 year	32.9
1 to 2 years	49.7
More than 2 years	17.4

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**By the time it gets to this,**




**it's already too late**

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## Objectives of DER


*General objective*

To evaluate the status of diabetic retinopathy at the first diabetic eye screening at Ophthalmology clinics / screening centre

*Specific objectives*

1. Characteristics of patients
2. Severity of DR
3. Type of management required

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## Method

- **Inclusion:**
  - Diabetic patients who are seen for the first time at eye clinics (new case)
- Fill in case record forms (CRF)
- Data entry into e-Web application
- CRF and data definition are on the web site

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## Results

DER Statistical Report 2007  
1.1.07 to 31.12.07  
Subjects- 10,856patients

Note: Web reports are slightly different from this statistical report as retrospective entry of data in 2008 for 2007 cases

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## Patients characteristics

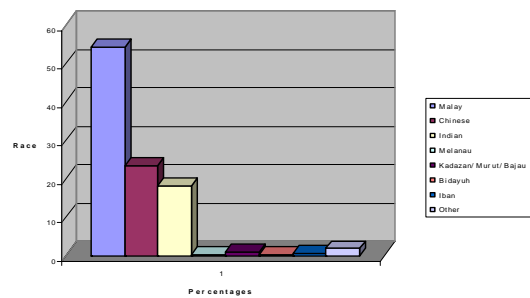
Demographic		Medical history	
			%
Mean age (years)	57 years	% Type II DM	92
% Women	54.8	% Oral Medication	82
% Malay	54.0	% with systemic co-morbidity	77.3
%Chinese	23.2	%HPT	63.9
%Indian	18.4	%Cataract	44.2
%Others	3.6	DM Women Who were Pregnant	3.3 (n=160)

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## Distribution of Ethnicity



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## Sources of Referral

No	Sources of referral	No.	%
1	Government OPD clinic/KK/KD	6,858	60.6
2	Government hospital-MO or physician	3,523	31.1
3	Optometrist	14	0.1
4	General practitioners (GP)	140	1.2
5	Private hospital-MO or specialist	84	0.7
6	Others	41	0.4

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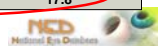


## Characteristic of DM

Duration of DM, years	N=10856	
	No.	%
<5	3612	33.3
5-10	3355	30.8
>10-20	1625	15.0
>20	333	3.1
Missing	1931	17.8

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## Eye Examinations

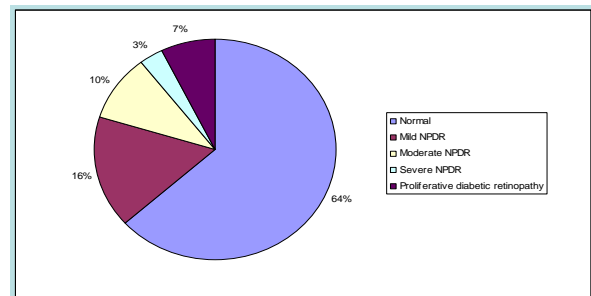
Eye examination	N=10856	
	No.	%
Never had eye examination before	7701	70.9
Had eye examination before	1871	17.2
• Last 1 year	1354	71.9
• Last 1-2 years	79	4.2
• > 2 years	1	0.1
• Missing [had eye examination, but did not state]	450	23.9
Missing [ no data on eye examination][	1284	11.8

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## Status of DR



### Global data

Status of DR at first exam, 70% normal  
30% has some forms of DR

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## Status of vision threatening DR

	n=10381 R Eye	n=10428 L Eye	n=20809 (all eyes)
All Maculopathy	1002 (9.7%)	979(9.4%)	1981(9.5%)
Clinical significant macular edema	432(4.2%)	434(4.2%)	866(4.2%)
Vision threatening retinopathy	1440(14.7%)	1422 (14.5%)	2862(14.7%)

Eyes with Blindness ( Vision worse than 3/60) – 9.2%

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## Management

Treatment plan	N= 10856	
	No	%
• Routine follow up	9038	83.3
• Need laser	1103	10.2
• Need vitrectomy	332	3.1
• Need further assessment/ FFA	49	0.5
• Missing	631	5.8

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## Limitations

- Not all new case diabetics are captured at each SDP ( poor ascertainment rate)
- Data quality
  - Variable with >5% missing data
  - Date ( in year) of last fundus examinations
  - Duration of DM
  - Vision
  - Fundus photography taken on day of examination (yes/no)
  - Fundus findings

## Actions

- Improve ascertainment by modifying work process
  - Put CRF on medical records of all new DM pt
- Data quality
  - check for completeness
  - Check for accuracy
- Cooperation and accountability of the site coordinator/ doctors/ paramedics/optometrist

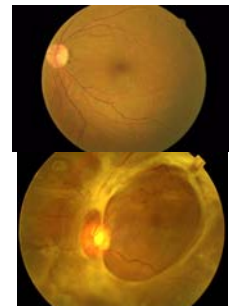
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## Conclusion

- Globally prevalence of DR 30%
- DER- 63% of diabetic new case have no apparent DR – may not need to be seen at eye clinic
- But those who come - refer too late
  - 9.2%-Blind eye
  - 10.2% need laser 14.7% VTDR
  - 3%-need vitrectomy



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## Recommendation

- Need better coverage of diabetic eye screening at primary care with proper and organized programmed
- At eye clinic
  - need to give early appointment (KPI 80% to be seen within 6 weeks)
  - Need proper triaging – those for screening and those require VR assessment.

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## Acknowledgement

- The DER is supported by a special registry grant from Clinical Research Centre, MOH.
- We wish to thank
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