

**Summer Training at
Sightsavers, Kolkata
(April 3 to June 2, 2017)**

**Sight-Threatening Diabetic Retinopathy at Presentation to Screening
Services in Patna City of Eastern India**

**By
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**Under the guidance of
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**MBA Rural Management
2016-2018**


School of Development Studies
The IIHMR University, Jaipur
2017

CERTIFICATE

This is to certify that **Pranav Keshan** has undergone summer training at **Sight Savers, Patna** from 3rd April to 2nd June 2017.

The candidate himself completed the project assign to his during summer training. His approach to the project was sincere and proactive. This summer training is in partial fulfillment of the course requirement recommended for the award of MBA in Rural Management.

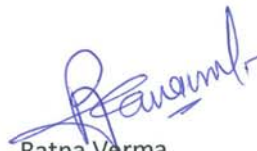
I wish him success in all her future endeavors.



Col. (Dr.) Ashok Kaushik



(Academic & Student Affairs)
The IIHMR University, Jaipur



Ratna Verma

(Assistant Professor)
The IIHMR University, Jaipur

To whomsoever it may concern

This is to certify that Mr. Pranav Kesan, a student of IIHMR University, has successfully completed his summer training with Sightsavers India. He has satisfactorily completed his assignment and his conduct during the summer training period was found satisfactory. We wish him success in his academics and career.

With best wishes,

✓ *Sudipta Mohanty*
09/06/2017

Mr. Sudipta Mohanty,
Area Director,
East Area Office, Sightsavers,
Kolkata

Acknowledgements

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Furthermore, I would also like to acknowledge with much appreciation the crucial role of the staff of Sightsavers, New Gardiner Road Hospital, Patna and Novo Nordisk Education Foundation who gave the permission to use all required equipment and the necessary materials to complete the study on “Sight-threatening Diabetic Retinopathy at Presentation to Screening Services in Patna city of Eastern India. Some special thanks go to Optometrist Chandan Kumar Gupta for providing useful information and suggestion at the study center. Finally, many thanks go to the head of the project, Mr. Sudipto Mohanty whose have invested his full effort in guiding the team in achieving the goal. I must appreciate the guidance given by other supervisor as well as the panels especially in my project presentation that has improved my presentation skills thanks to their comment and advices.

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Abbreviations

BP- Blood Pressure

DM-Diabetic Mellitus

DR-Diabetic Retinopathy

FBS-Fasting Blood Sugar

IGIMS-Indira Gandhi Institute of Medical Science

NPDR-Non-Proliferative Diabetic Retinopathy

OPD-Out Patient Department

PDR-Proliferative Diabetic Retinopathy

PHC-Primary Health Center

RIO-Regional Institute of Ophthalmology

STDR-Sight Threatening Diabetic Retinopathy

SECTION-1

OBSERVATIONAL LEARNING

Section-1{Observational Learning}

Subsection-1{Introduction}

Sightsavers India is a part of Sightsavers international organization working on eye health of poorest of poor people. They help blind people to see again, and prevent people from going blind wherever they can. They improve the lives of people with disabilities, particularly those who have permanent sight loss. Every year, they support their partners to carry out millions of eye examinations and refer people for treatment to prevent blindness and restore sight. Through community volunteers in developing countries, they enable the distribution of medication to prevent blinding diseases. They fund operations for people who need them, and train eye care workers and surgeons. They work with partners to train specialist teaching staff; supply glasses, Braille kits and other learning tools; and educate communities to reduce stigma around visual impairment and blindness. Because of Sightsavers, people who are visually impaired or have other disabilities are supported to live independently, get an education and earn an income. They work with national governments, strengthening systems that tackle the problems at the root of avoidable blindness – the sorts of things most of us take for granted, like access to clean water, sanitation facilities and education. They make changes for the long term, and help change systems from the inside to ensure support continues to be given to the people who need it.

Subsection-2{Mode of Data collection}

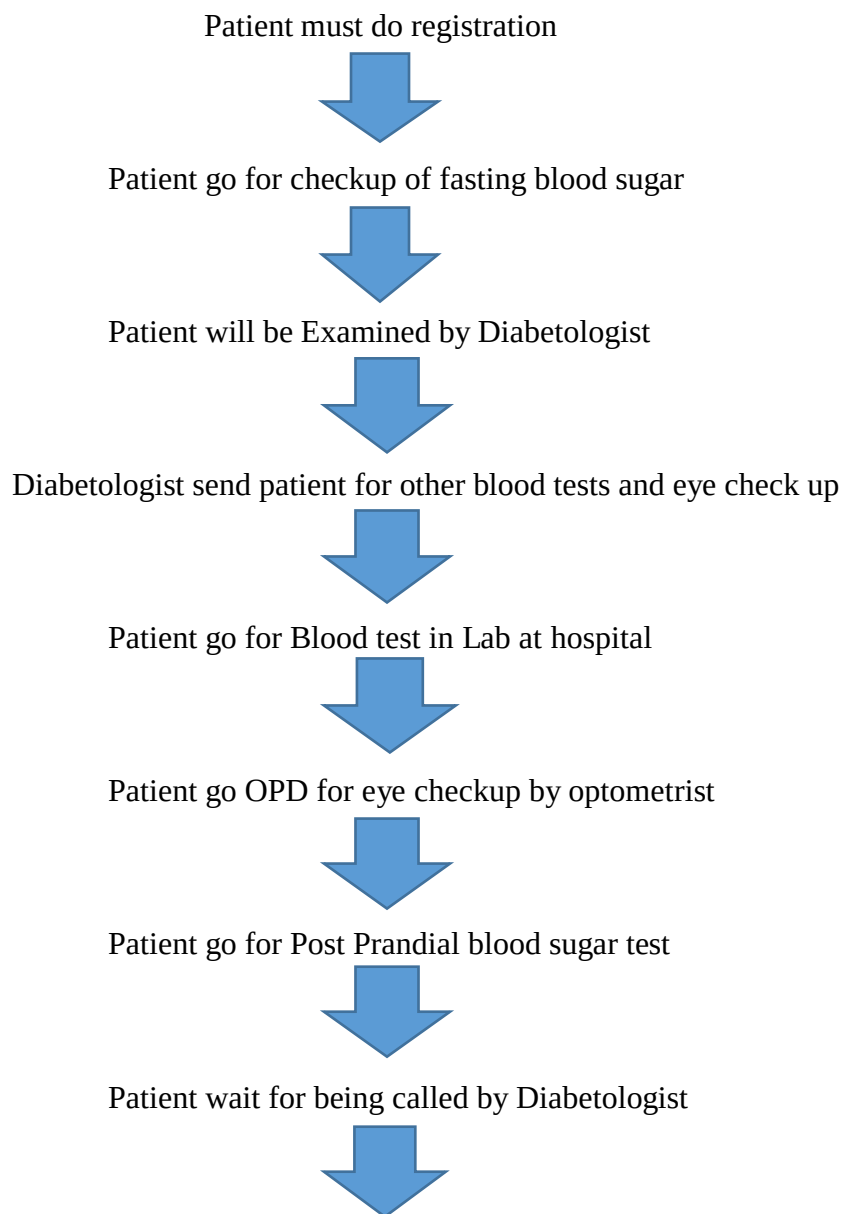
Data in this section has been collected from secondary source which is primarily collected manually by optometrist on the time of screening of patients for DR at vision center.

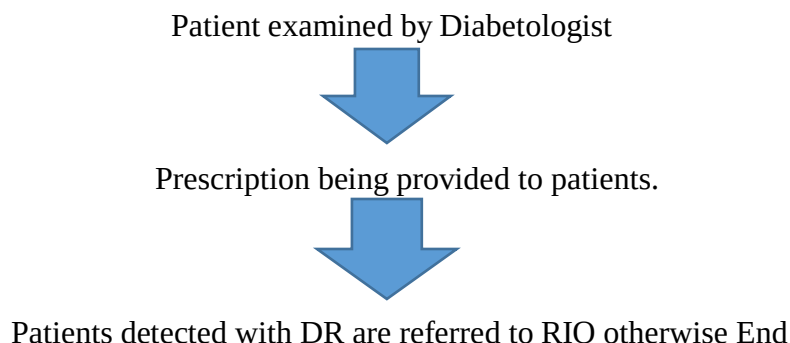
Subsection-3{Key Findings}

At Patna, this hospital named as New Gardiner Road Hospital Is situated in Center of the city. This Center is specified as Center of Excellence For treatment of Diabetes. This center was Established in 2012 for treatment of patient coming for checkup of diabetes. Specification of this center is only type 2 Diabetic patients are entertained here. This center is started by

Government of Bihar in corporation with Novo Nordisk Education Foundation Under National Program for Prevention and Control of Diabetes, Heart Disease and Stroke. Here at this center two Diabetologist are for treatment of patients with four assistants. About 40-50 patients comes here daily for diabetes treatment. This center operates from Monday to Saturday during 8:30 am to 1:30 pm. In 2016, on 14th November which is known as World Diabetes day any initiative is taken by Sightsavers to start eye screening of patients coming for treatment of diabetes to detect Diabetic retinopathy.

Patient Pathway





Patient Entry Exit

Patient comes to New Gardiner Road hospital, Patna which is a government hospital and center of excellence for diabetes. Here at first they must do their registration from counter at first floor of hospital which costs Rs 5 this process takes about 2- 3 minutes the patient goes to assistant provided by Novo Nordisk Education Foundation, where their Fasting Blood Sugar is examined with the help of strips, this process takes 5 minutes, then patient wait for their turn to visit Diabetologist, who instruct them for any other blood test required and for eye checkup. After this patient goes to room number 27(which is test lab) for blood test and they go to room number 21(which is OPD) for Eye checkup by ophthalmologist/optometrist who checks their vision acuity, pinhole vision and sometimes do dilation of pupil also for further screening of retina, this entire process takes about 15-20 minutes depending on number of patients. After doing all these process patients again visit for Post Prandial blood sugar test (which is taken after 2 hours from FBS test and food). Now patient will wait for Diabetologist who will examine them after all processes. At last Diabetologist examines patient and instruct them about medication and cures.

Patient Coming for Diabetic Retinopathy Screening

Here at Patna center about 8-10 patient comes daily on an average for screening of Diabetic retinopathy. All the patients are of type 2 diabetics as this center only treat type 2 diabetes. Generally, patients are referred by diabetologist for screening of DR, sometimes a few patients are referred by ophthalmologist also on being assumed as having some retinal complication. Here optometrist record details of patient like (name, sex, age, contact number, duration of diabetes, remarks after screening etc.)After all this he takes the picture of retina with the help of Fundus camera and after examining of picture, if patient is detected with signs of Diabetic

retinopathy then he refers patient to” Regional Institute for Ophthalmology” which is **Indira Gandhi Institute of Medical Science in Patna** and if patient is detected with other fundus abnormality then he refers them to government eye hospital which is **Rajendra Nagar Eye Hospital in Patna**. Optometrist gives a report of eye photos to patient on referral.

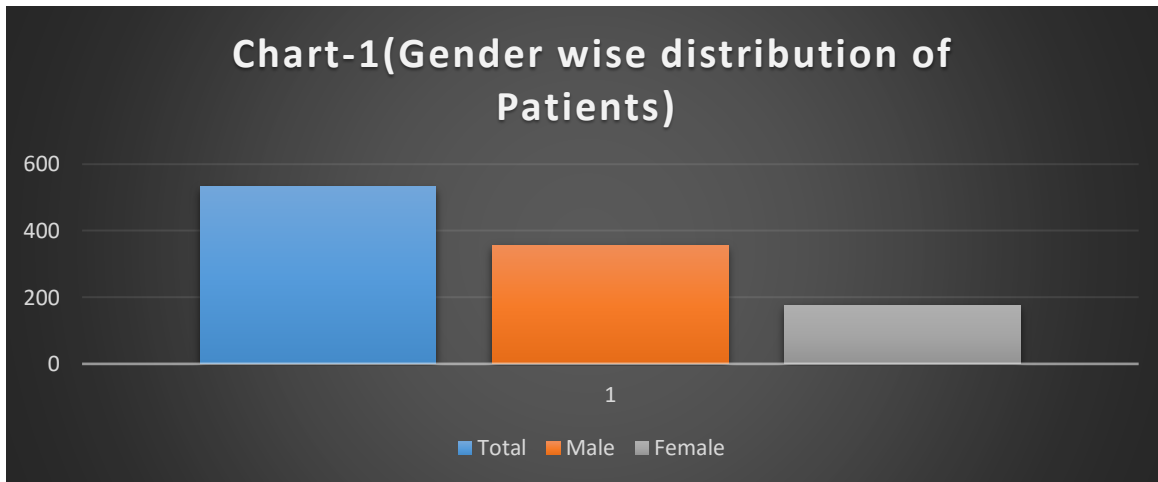
MIS DATA

ANALYSES

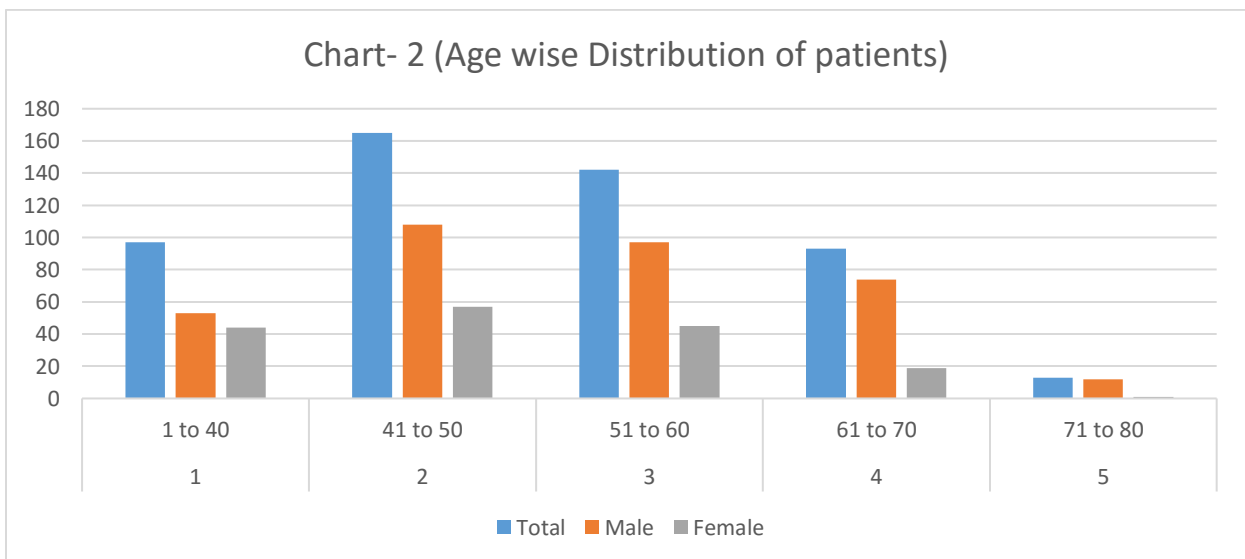
{JAN,2017-APRIL,2017}

MIS data which is taken here for analysis is collected by optometrist at the time of screening of patients. In the process of screening patients who came to screening must give their details which optometrist record manually in register.

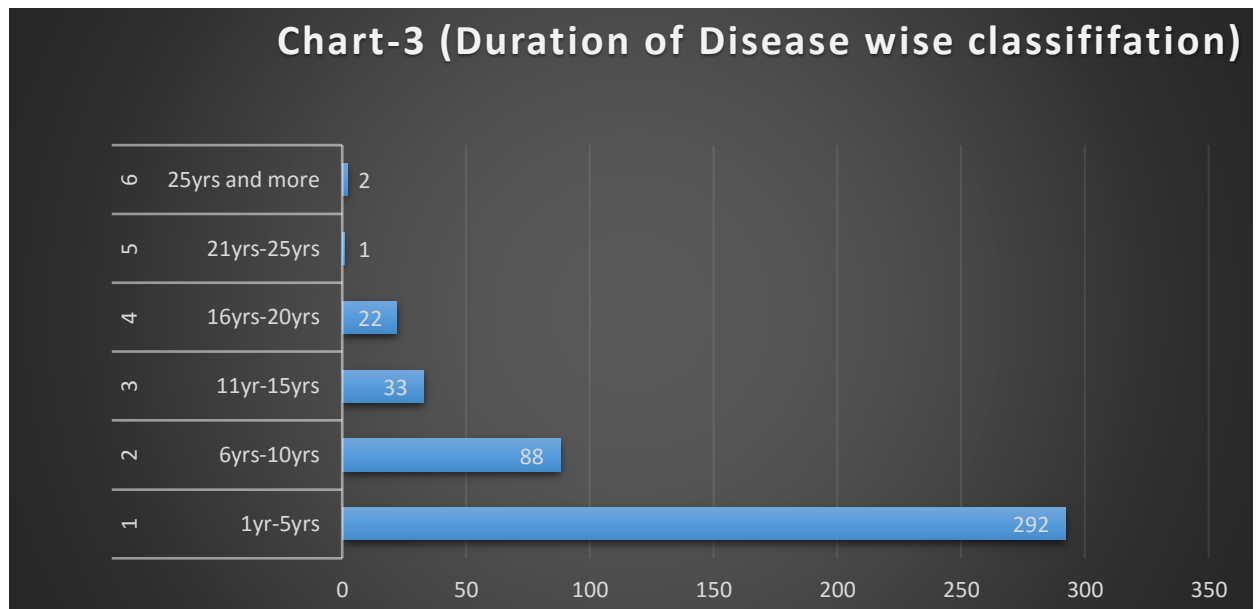
Following charts have been prepared based on secondary data collected from vision center established by Sightsavers at a PHC named as New Gardiner Road Hospital. This data counts for 532 patients screened by optometrist at this center to find out effect of diabetes on retina of patient.



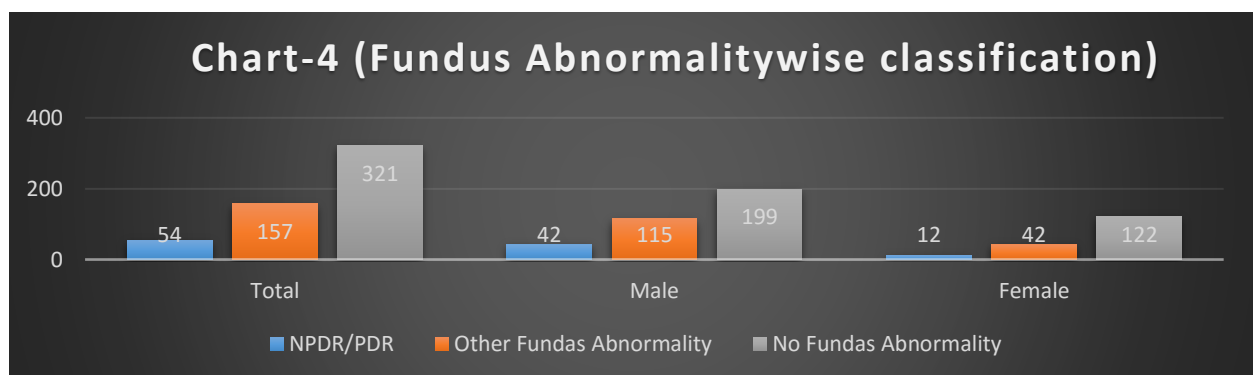
In the (chart-1) total number of Patient Screened at Patna Vision Center is shown with classification of Total male and female. From above chart, it is found that out of 532 patients screened 356 were male and 176 were female.



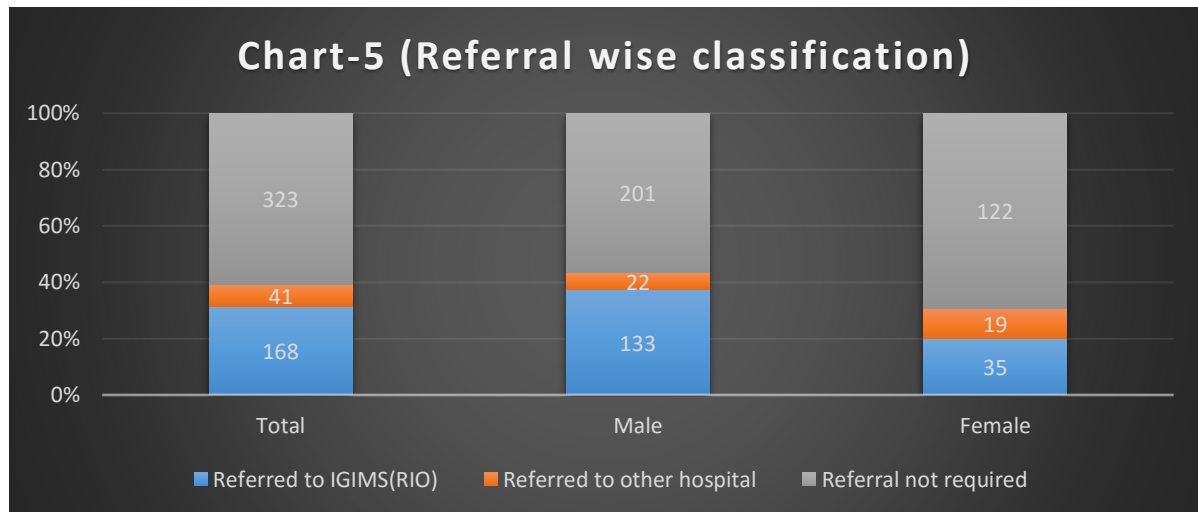
In the (chart-2) total patients are classified among male and female based on their age. In this chart age of patient is classified into five class intervals. This chart states that frequency of patient is maximum between 41yrs-50yrs and minimum between 71yrs-80yrs.



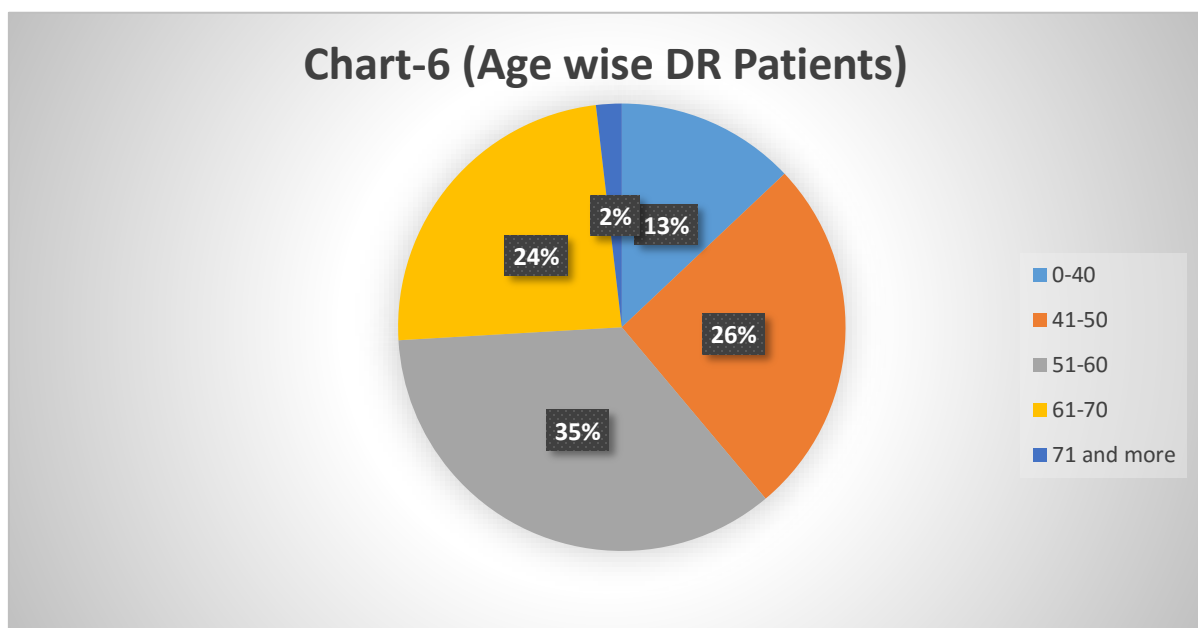
In the (Chart-3) total patients are classified based on duration of diabetes. The Chart consists of six class intervals with difference of five years between them. From the chart, it is found that highest number of patients have diabetes since 1yr-5yrs and lowest number of patients have diabetes since 21yrs -25yrs.

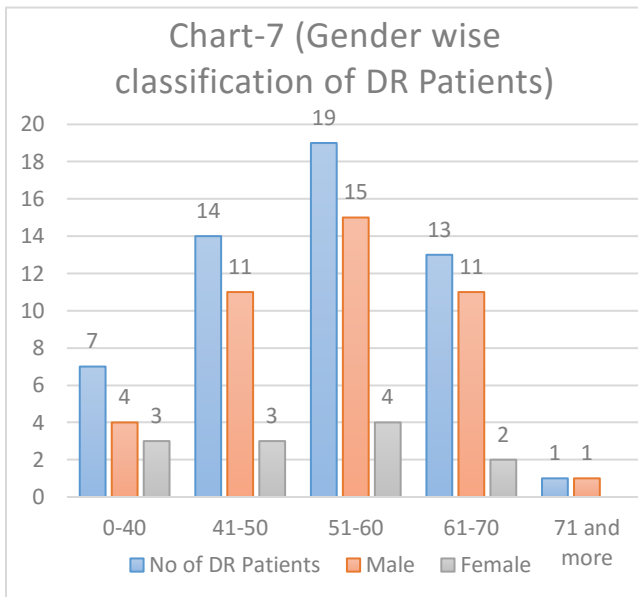


In the (chart-4) total patients screened are classified based on diseases found. In this chart, out of 532 patients 54(42M,12F) are found with NPDR/DR, 157(115M,42F) are found with other fundus abnormality and 321(199M,122F) have no fundus abnormality.

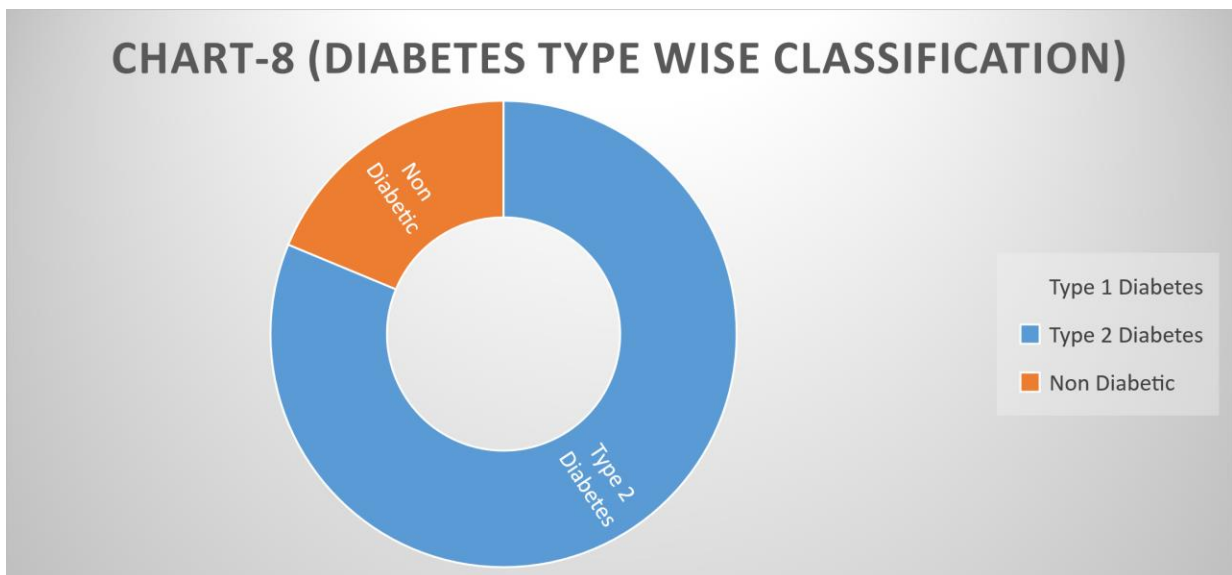


In the (Chart-5) total number of screened patients are classified based on their referral to base hospital. Here in this chart there is base hospital(IGIMS) and other hospital. The chart show that 168 patients out of 532 are referred to IGIMS,41 are referred to other hospital and 323 patients have no disease.

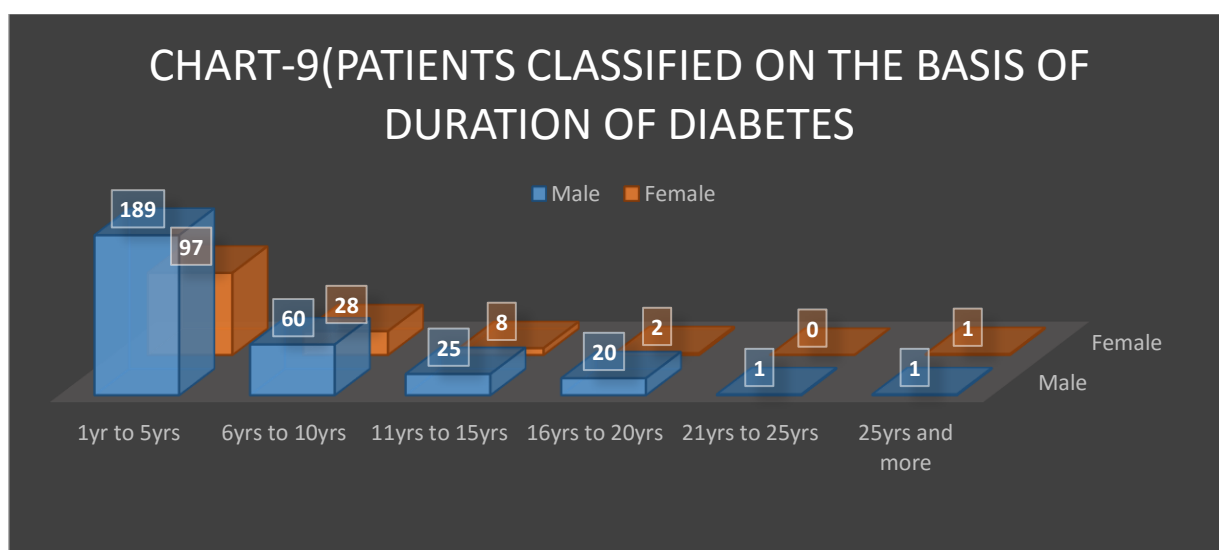




In the (Chart-7) patients having DR is classified based on age of patient. Age of patient is classified into five class intervals. This chart show that highest number of patients having NPDR/PDR are between 51-60yrs and least number of patients are between 71yrs and more. Here (chart-6) presents percentage wise distribution of DR patients.



In the (Chart-8) total number of patients screened are classified based on Diabetes type. The chart shows that out of 532 patients 449 are Type 2 diabetic and 83 are Non-diabetic, it further classifies figures based on male and female.



In the (chart-9) total male and female patients screened are divided in six categories based on duration of diabetes. The Chart show that maximum number of male and female diabetic patients have diabetes since 1yr to 5yrs and minimum number of male and female have diabetes between 21yrs to 25yrs.

Subsection-4{Conclusion and Suggestions}

From the above analyses of collected secondary data it is found that awareness and presentation of female patients are very less in respect of male patients also maximum number of patients range between age of 50-60 years. As limitations, it is observed that patients lose their path between referral by Diabetologist and screening for DR as only 10-15% out of 100% of referral reach for eye screening. The reason for this only states the lack of attitude and practices of referred patients towards their eye health. After the analyses and personal observation of entire process it can be suggest that a proper channel should be developed to reach optimum number of patients and need of proper counselling of patients about disease, type of treatment and entire process of treatment is found.

SECTION-2

PROJECT REPORT

Introduction

At Patna, this hospital named as New Gardiner Road Hospital is situated in Center of the city. This Center is specified as Center of Excellence for treatment of Diabetes. This center was established in 2012 for treatment of patient coming for checkup of diabetes. Specification of this center is only type 2 Diabetic patients are entertained here. This center is started by Government of Bihar in corporation with Novo Nordisk Education Foundation under National Program for Prevention and Control of Diabetes, Heart Disease and Stroke. Here at this center two Diabetologist are for treatment of patients with four assistants. About 40-50 patients comes here daily for diabetes treatment. This center operates from Monday to Saturday during 8:30 am to 1:30 pm. In 2016, on 14th November which is known as World Diabetes day any initiative is taken by Sightsavers to start eye screening of patients coming for treatment of diabetes to detect Diabetic retinopathy.

Background

As per International Diabetes Federation it is estimated in 2015 that about 415 million people are living with diabetes across the world and this figure is going to be increase up to 50 percent by 2040. Every 6 seconds a person with diabetes dies. Only 54 percent people with Diabetes are recognized that means about 1 of 2 people are still unrecognized. IDF stated that Diabetes is developing rapidly and mainly in low and middle income countries. About 80 percent of total increase in diabetic patient are from low and middle income countries. India comes on second rank in number of patients having diabetes with about 69 million patients. Out of these 69 million patients about 36 million are still unrecognized. As per Wild et al Diabetic patients are going to double in numbers in 2030 as of what it was in 2000. This report this that India is going to have maximum number of patients with diabetes by 2030. It stated about 79.4 million patients of diabetes will be in India by 2030, which will be followed by China having 42.3 million patients. Diabetes is defined in mainly two type. (Type 1 and Type 2). Type 1 diabetes states for about 5-10% of whole Diabetic patients.

Diabetic retinopathy is one of the fundus abnormality being developed from diabetes. This is one of the major eye complication being faced by Diabetic patient as it is stated from several researches, about 16 percent people having diabetes are affected by diabetic retinopathy or other retinal issues. It is found that once DR is developed it cannot being eliminated but can be controlled on early stage by proper eye treatment and control of blood sugar and lipids.

Literature Review

As Per **International Diabetes Federation (IDF)** it is estimated that in 2015, **415 million** people are living with diabetes worldwide wherein the figure is expected to rise to **642 million people** living by 2040. In 2015, **1 in 11** adults are suffering from diabetes which will be **1 in 10** adults in 2040, out of which every 6 seconds 1 person dies from diabetes which estimated **5 million deaths** in 2015. **46% of people** with diabetes are undiagnosed which roughly shows 1 in 2 adults remain undiagnosed. Near about \$ 673 billion, **12% of Global Health Expenditure** is already being spent on diabetes. The IDF notes that the diabetes epidemic is rapidly increasing in many countries, with the documented increase most dramatic in low and middle-income countries comprising 80% of people i.e. three **quarters of the world's adult population**. The IDF currently states that the top 5 countries with the highest number of people with diabetes are as follows:

China: 109 million

India: 69 million

USA: 29 million

Brazil: 14 million

Russian Federation: 12 million

India had **69.2 million** people living with diabetes (8.7%) as per the 2015 data produced by WHO. Of these, it remained undiagnosed in more than 36 million people. As per Wild et al. the prevalence of diabetes is predicted to double globally from 171 million in 2000 to 366 million in 2030 with a maximum increase in India. It is predicted that by 2030 diabetes mellitus may afflict up to 79.4 million individuals in India, while China (42.3 million) and the United States (30.3 million) will also see significant increases in those affected by the disease. Rough estimates show that the prevalence of diabetes in rural populations is one-

quarter that of urban population for India and other Indian sub-continent countries such as Bangladesh, Nepal, Bhutan, and Sri Lanka. Preliminary results from a large community study conducted by the Indian Council of Medical research (ICMR) revealed that a lower proportion of the population is affected in states of Northern India (Chandigarh 0.12 million, Jharkhand 0.96 million) as compared to Maharashtra (9.2 million) and Tamil Nadu (4.8 million). The National Urban Survey conducted across the metropolitan cities of India reported similar trend: 11.7 per cent in Kolkata (Eastern India), 6.1 per cent in Kashmir Valley (Northern India), 11.6 per cent in New Delhi (Northern India), and 9.3 per cent in Mumbai (West India) compared with (13.5 per cent in Chennai (South India), 16.6 per cent in Hyderabad (South India), and 12.4 per cent Bangalore (South India). A suggested explanation for this difference is that the north Indians are migrant Asian populations and south Indians are the host populations, however this possible cause-and-effect has not been corroborated through further research. Aged care facilities in rural areas report disparity in the diabetes management compared with their urban counterparts, with these populations more likely to suffer from diabetic complications compared to their urban counterparts.

Type 1 diabetes can appear at any time in someone's life after the destruction of pancreas cells, which produce insulin.

Type 2 diabetes usually appears in adults however is frequently being diagnosed in younger overweight people and certain ethnic groups.

The life expectancy on average now is reduced by:

Up to 10 years for people with Type 2 diabetes

A large proportion of diabetes cases are preventable. Simple lifestyle measures have been shown to be effective in preventing or delaying the onset of type 2 diabetes. Efforts to prevent and treat diabetes will be important to achieve the global **Sustainable Development Goal target 3** of reducing premature mortality from non-communicable diseases (NCDs) by one-third by 2030. DR conforms well to these principles. In DR, early detection and treatment is of vital importance as it may prevent vision loss and blindness. DR is a chronic disease with along latent phase. Among the diabetics 10-15% constitute type 1 diabetics and the reminder are type 2 diabetics.in about 10 years DR develops in 71-90% patients with type 1 diabetes and this incidence rises to 95% in 20-30 years. Out of these,30-50% patients have PDR.

Objectives

- To report the spectrum of Retinopathy at first presentation to screening.
- To determine the proportion & clinical characteristics of those presenting sight threatening diabetic retinopathy.
- To provide information useful for awareness of diabetic eye diseases.

Subsection-2{Mode of Data Collection}

This is a cohort study which is based fully on observation regarding the knowledge, attitude, & behavior of the patient towards diabetic eye diseases. In this study 168 patients came for DR screening between 20th April-20th May,2017 are taken. Data collection is done through interview and observation by investigator of the study.

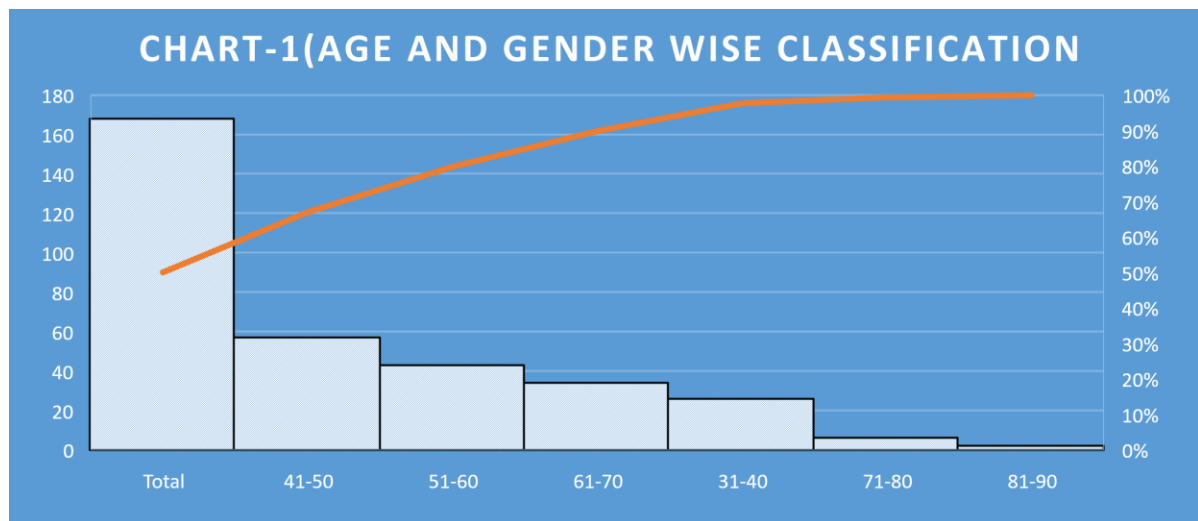
Subsection-3{Data analyses and Interpretation}

DATA

ANALYSES

In this study data, have been collected primarily through close ended questionnaire by the investigator and some case study of the patients are also taken for qualitative purpose.

Data has been analyzed with the help of Microsoft Excel through formation of tables and charts based on details collected through questionnaire.



In above Chart-1, Age and gender of total patients is classified into six class intervals starting from 31 and up to 90. From the above chart, it is found that most number of patients are between 41-50 year of age and least are between 81-90 years of age.

In the above Chart-2, Total patients are classified based on their occupation and outcome is that maximum number of patients are housewife (almost more than 95% women patients) and minimum number of patients are unemployed.

Interpretation of chart-3

Chart-2(Occupation wise classification)

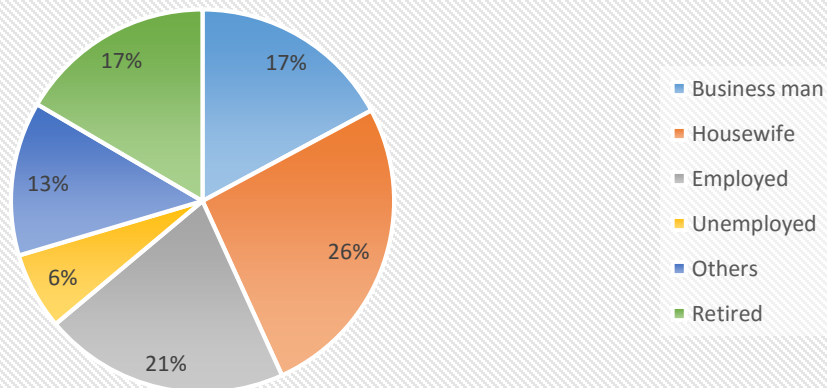
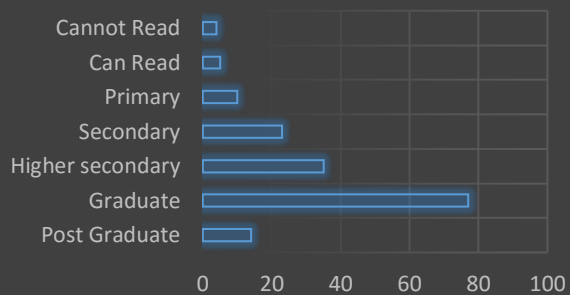
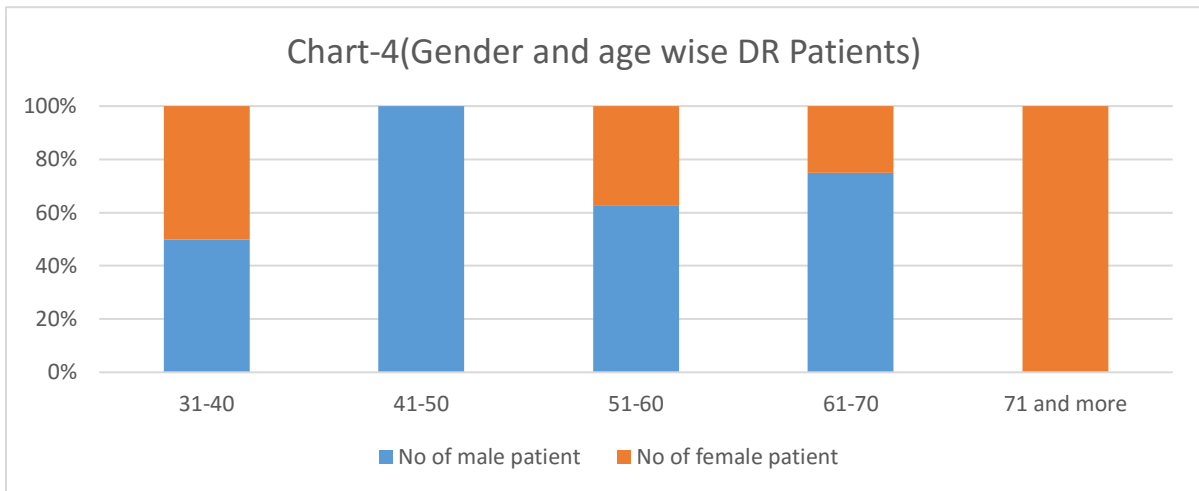


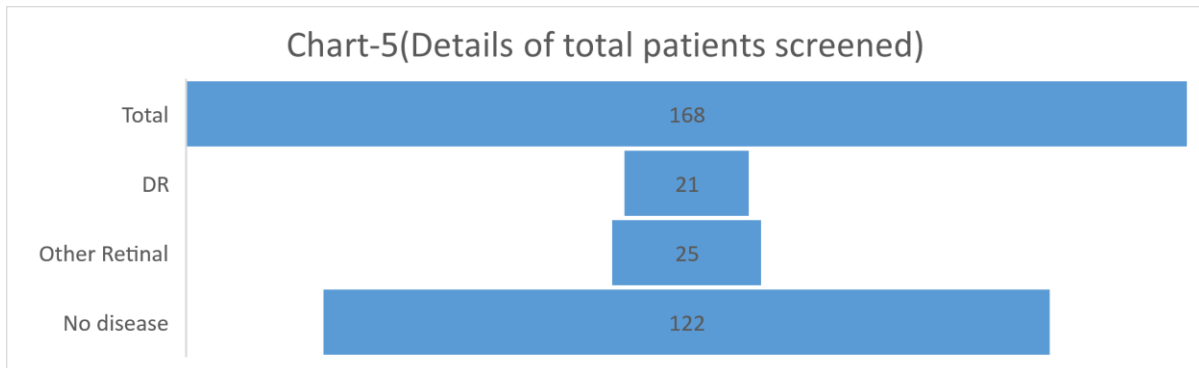
Chart -3(Education level wise distribution)



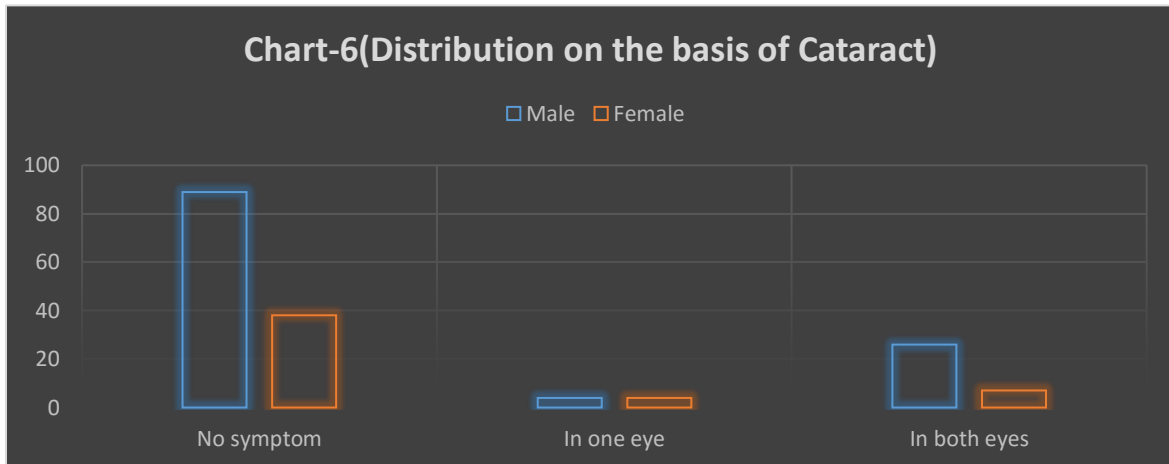
In chart-3 total 168 patients are classified based on their education level. Result shows that maximum number of patients are Graduate and least are illiterate.



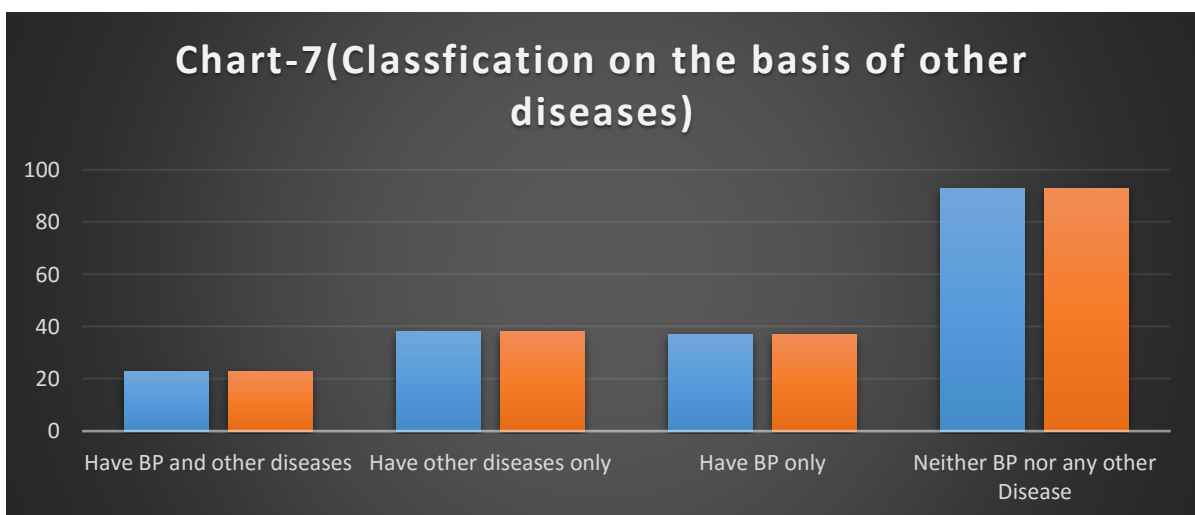
In the above Chart-4, total DR patients out of total 168 patients are classified based on their sex and age. Their age is classified into five class intervals. Outcome of this states that maximum number of male DR patients is between 61-70 yrs. of age and maximum female DR patients are between 51-60 yrs. of age.



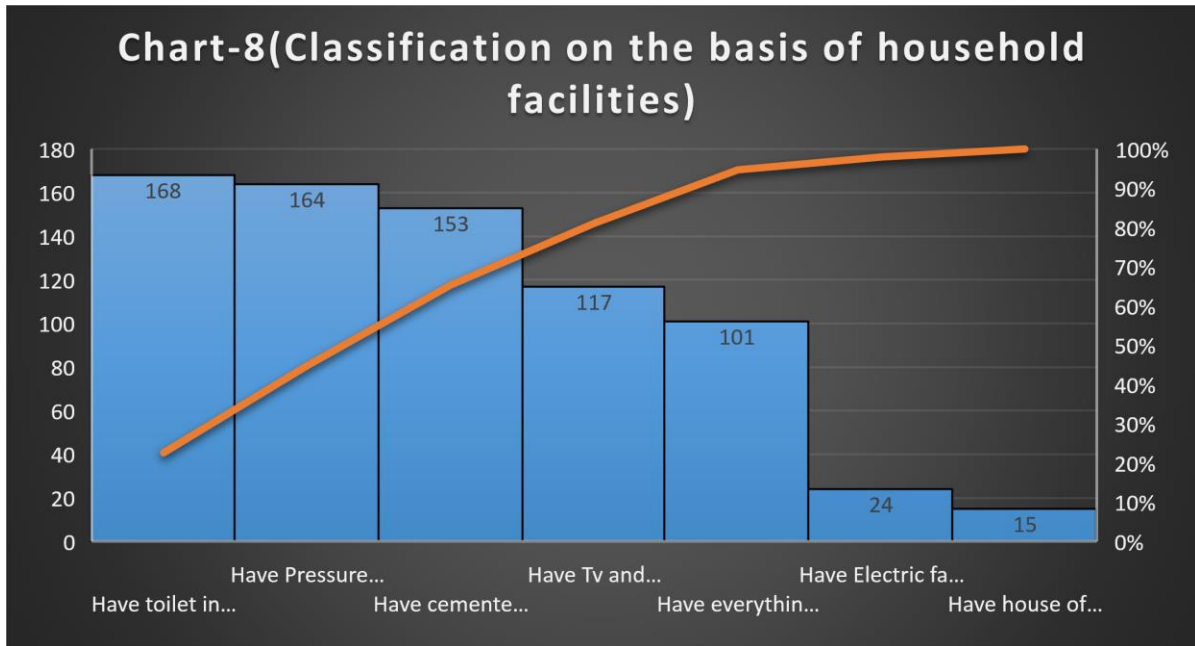
In Chart-5, Total 168 screened patients are classified based on eye complication they have. There columns have been take here for classification. Outcome of analyses states that out of 168 patients 21 have DR,25 have Other retinal issue and 122 have no eye disease. one can have been in detail from chart-5.



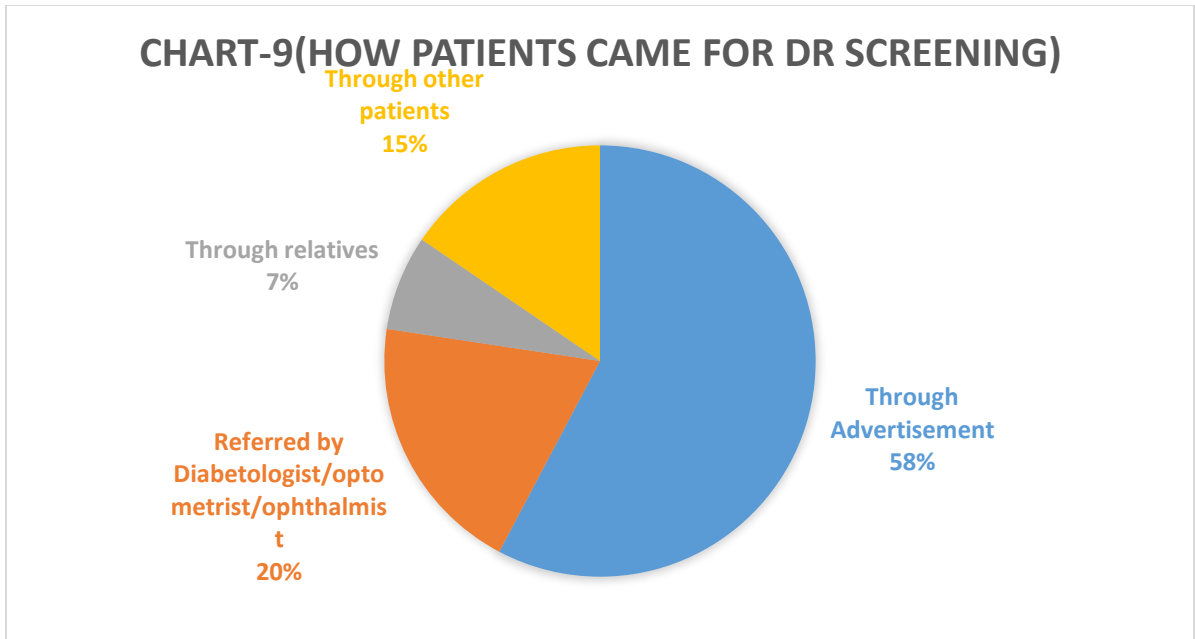
In the Chart-6, Total Patients have been distributed based on Symptoms of Cataract in their eyes. From above analyses it is found that more than 75% patients don't have symptoms of cataract and approx. 25% have cataract either in both eyes or in one eye. Again approx. 20% of those having symptoms of cataract are found cataract in one eye. Refer chart-6.



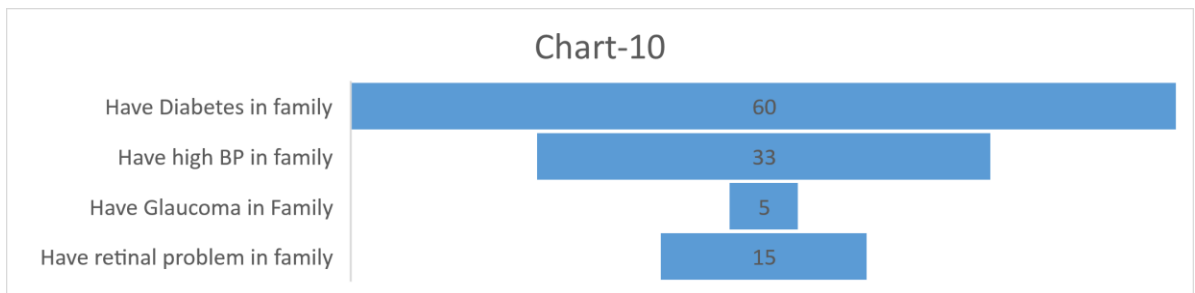
From the above Chart-7 it is analyzed that how many patients have other diseases and outcome states that 23 patients have BP and other diseases, 38 Patients have only other diseases, 37 patients have only BP and 93 patients have neither BP nor any other disease.



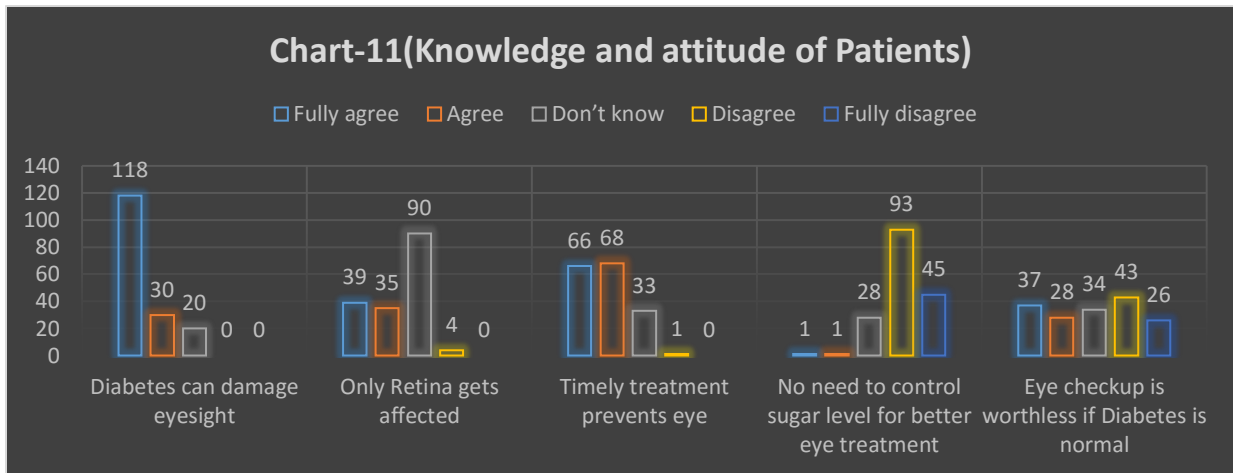
In Chart-8, Total 168 screened patients are divided based on household facilities they have. Table states that 100% patients have toilet in their house, Approx. 98% Patients have pressure cooker in their house, approx. 70% patients have luxury items like Tv and refrigerator in their house and approx. 90% patients have Cemented house. Refer chart and table above for details.



In the Chart-9, Total 168 patients have been classified based on by whom they are referred. Result of analyses states that 97 patients of total come for screening through advertisement, 33 of total come through referral by Diabetologist or Optometrist, 12 of total come on recommendation by relatives and 26 come through influence of other patients.



In Chart-10, Total 168 Patients are analyzed with having any family history of Diabetes, BP, Glaucoma or Retinal Problem and result states that 60 out of 168 patients have diabetes in family, 33 out of 168 patients have BP in family, 5 out of 168 patients have Glaucoma and 15 out of 168 patients have Retinal problem in family.



In the Chart-11, Total patients have been Interviewed for checking their knowledge, attitude and practice about diabetic disease and its complications.

Case Study of Patients

As per Subodh Prasad, a 59-year-old retired patient of Patna, Government hospitals have less facilities, treatment there is time taking and they lack in quality of treatment in compare to private hospitals. Because of all above reasons he doesn't have trust on government hospitals and he cannot afford treatment in private hospital. Hence he said cannot go for treatment of eye. After listening to problem of this patient optometrist make him aware about change in condition of government hospitals and counsel him for taking treatment.

How she reached to vision center for DR screening

Nagina devi is a housewife from Patna. She is 55 years old. She is studied up to secondary level. by interview her it is found that she is suffering with body pain and laziness from sometime so she reached to center for diabetes checkup in which she was found with high sugar level. Then on her second visit also she was found with high sugar level and she was facing some eye sight problem so diabetologist referred her for screening at DR center.

Subsection-4{Key Findings}

- ± It is found that about 12.5% Patients screened are found with STDR.
- ± It is found that most patients come for screening through advertisement.
- ± It is found that most patients belong from middle class and few have luxury items of household.
- ± It is found that majority of patients have basis knowledge about Diabetes and its effect on eyes.
- ± It is found that there is need of behavioral change towards attitude and practices of patients.
- ± It is found that about 35% patients have family history of diabetes and about 20% patients have family history of BP and percentage of glaucoma and other retinal issues is negligible.
- ± It is found that most of the patients have no disease at the time of screening for DR.
- ± It is found that most of the patient are between age group of 51-60 years at the time of screening for DR.
- ± It is found that most of the patients are graduate at the time of screening for DR.

Subsection-5{conclusion}

From the above analysis and whole study the investigator of this study on Sight Threatening Diabetic Retinopathy concludes the study by following observations;

It is observed that patients coming here at vision center for Diabetic Checkup have a little or almost negligible knowledge about screening of DR, although they know that Diabetes affects their eye but they don't know what step should follow, another thing that is observed that patients do not come for screening after referral from diabetologist also as they don't take it seriously, another issue which is observed that there is lack of channel between vision center and RIO which kept number of patients low at RIO for DR treatment.

Subsection-6{Recommendation}

- ± There should be a proper channel between referral to visit for DR screening to Fulfill mission and vision of Sightsavers to eliminate eye blindness and reach to the poorest of poor people.
- ± There should be use of IEC material like pictorial posters in to create awareness and change in behavior of people for Diabetes and DR.
- ± Some camp should be organized here at Patna and nearby Rurban areas to detect Severity of DR and make people aware about It.

Section-3{References}

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- Article in Ophthalmic Epidemiology · May 2005 **Swati Agarwal and Rajiv Raman**
Shri Bhagwan Mahavir Vitreoretinal Services, Sankara Nethralaya, Chennai, Tamil Nadu, India, **Pradeep G. Paul** , Department of Epidemiology, Sankara Nethralaya, Chennai, Tamil Nadu, India, **Padmaja Kumari Rani** , Shri Bhagwan Mahavir Vitreoretinal Services, Sankara Nethralaya, Chennai, Tamil Nadu, India, **Satagopan Uthra and Raman Gayathree** Department of Genetics and Molecular Biology, Sankara Nethralaya, Chennai, Tamil Nadu, India, **Cathy McCarty**, Marshfield Clinical Research Foundation, Marshfield, Wisconsin, USA, **Govindasamy**

Kumaramanickavel, Department of Genetics and Molecular Biology, Sankara Nethralaya, Chennai, Tamil Nadu, India, **Tarun Sharma**, Shri Bhagwan Mahavir Vitreoretinal Services, Sankara Nethralaya, Chennai, Tamil Nadu, India

Annexure-1 Questionnaire for study

Section 1: Demographic Details:

1.1 Date:

1.2 Facility name

- a) Vision Centre
- b) Base Hospital
- c) Outreach Camp

A. If vision Centre selected, please specify: _____

B. If hospital selected, please specify: _____

C. If outreach camp selected, please enter name: _____

1.3 OPD No: _____

Patient Name:

Patient address:

1.4 Patient mobile number: *(Please ask to share the number on which patient can be contacted, if required)*

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1.5 Gender:

- a) Male
- b) Female

1.6 What is your age? _____ in years

1.7 What is your religion?

- a) Hindu
- b) Christian
- c) Muslim
- d) Other (please specify)

1.8 What is the highest level of education you have completed?

- a) Cannot read and write
- b) Can read and write but did not go to school

- c) Primary
- d) Secondary
- e) Higher Secondary
- f) Graduate
- g) Post Graduate/ Professional
- h) Others, specify_____

1.9 What is your occupation? That is, what kind of work do you mainly do?

Please Specify: _____

- i. Do you usually work throughout the year, or do you work seasonally, or only occasionally?
 - a) Throughout the year
 - b) Seasonally/Part of the year
 - c) Occasionally
- ii. Are you paid in cash or kind for this work or are you not paid at all?
 - a) Cash Only
 - b) Cash and kind
 - c) In kind, only
 - d) Not paid

Section 2: The India Equity Tool

Question	Options
2.1 Does your household have a pressure cooker?	Yes/ No
2.2 Does your household have a color television?	Yes/ No
2.3 Does your household have a table?	Yes/ No
2.4 Does your household have an electric fan?	Yes/ No
2.5 Does your household have a chair?	Yes/ No
2.6 Does your household have a refrigerator?	Yes/ No
2.7 Does your household have windows with glass?	Yes/ No
2.8 Does your household have a mattress?	Yes/ No
2.9 What type of toilet does your household use?	a) Any type of latrine or toilet

- b) Bush/no facility
- 2.10 What is the main material that the roof of your household is made of?
- a) Concrete/Cement roof
b) Any other material
c) NA
- 2.11 What is the main material that the walls of your household are made of?
- a) Cement wall
b) Any other material
c) NA

Section 3: Knowledge, attitude and practice among patients with diabetes

(Responses of different questions related to knowledge, attitude and practice among patients with diabetes)

- 3.1 How often you go for eye checkup?
- a. Monthly
b. Half yearly
c. Yearly (specify no of times)
d. This is the first time
- 3.2 How do you come to know about Diabetic Retinopathy screening center?
- a. Through advertisement
b. By other patients
c. By relatives
d. Others (please specify)
- 3.3 Does anyone in your family have
- diabetes a) yes b) no
 - high blood pressure a) yes b) no
- 3.4 Does anyone in your family have eye problems, such as
- Retinal problem a) yes b) no
 - Glaucoma a) yes b) no

Sl. No	Questions	Responses (Circle appropriate answer)				
		Fully agree	Agree	Can't decide/Don't know	Disagree	Fully disagree
3.5	Diabetes can damage eyesight	5	4	3	2	1
3.6.	Retina is the main part of eyes that gets damaged in diabetes	5	4	3	2	1
3.7	Timely treatment can prevent/ delay damage due to diabetes in eyes	5	4	3	2	1
3.8	If I am taking eye treatment, I need not worry about controlling my sugar and lipid	5	4	3	2	1

Sl. No	Questions	Responses (Circle appropriate answer)				
		Fully agree	Agree	Can't decide/Don't know	Disagree	Fully disagree
3.9	I control my blood sugar and lipid even if eye complication is being treated as controlling Blood sugar and lipids makes eye treatment effective	5	4	3	2	1
3.10	If my vision is good, my eyes are not affected. So, I do not need annual eye testing.	5	4	3	2	1
3.11	In diabetes, one eye may be affected first followed by the other eye	5	4	3	2	1
3.12	Diabetes can also occur during pregnancy	5	4	3	2	1
3.13	Children with diabetes also have risk of eye complications	5	4	3	2	1
3.14	Patients with diabetes often waste their time and money in eye checkups as most of the time eyes of diabetics are normal	5	4	3	2	1
3.15	The information on eye problems due to diabetes should be given by eye doctor only	5	4	3	2	1
3.16	I go to eye doctor regularly as advised by my family doctor	5	4	3	2	1
3.17	Staff in eye unit counselled me about prevention and treatment for eye complications	5	4	3	2	1

Section 4: Status of Diabetes and other co-morbidities and Diabetic Retinopathy Details

I. Blood Pressure

4.1 Has your blood pressure ever been checked?

- a) Yes
- b) No

4.2 Were you told on two or more different occasions by a doctor or other health professional that you had hypertension or high blood pressure?

- a) Yes
- b) No

4.3 Duration of hypertension/high blood pressure: _____ in months
(Write '00' if never had the problem)

4.4 May I take your blood pressure now?

- a) Yes
- b) No

4.5 Record the Blood Pressure: _____

4.6 Respondent's Blood Pressure Category

- a) Normal (Optimal)
- b) Normal (Mildly High)
- c) Normal (Moderately High)
- d) Abnormal (Mildly Elevated)
- e) Abnormal (Moderately Elevated)
- f) Abnormal (Severely Elevated)

II. Blood Glucose level

4.7 Has your blood glucose level ever been checked?

- a) Yes
- b) No

4.8 Where you told on two or more different occasions by a doctor or other health professional that you had diabetes or high blood glucose level?

- a) Yes
- b) No

4.9 Duration of diabetes: _____ in months (Write '00' if never had the problem)

- a) 0 to 5 years
- b) 5 to 10 years
- c) 10 to 15 year
- d) 15 years and more

4.10 Record Blood Glucose in Mg/Dl: _____

4.11 Respondent's Blood Glucose Level Category

- a) Prediabetes condition
- b) Type I diabetes
- c) Type II diabetes

III Other Diseases

4.12 Are you suffering from **any other disease/s** currently?

- a) Yes
- b) No

- | | | |
|---------------------------------|--------|-------|
| • Hypertension | a) yes | b) no |
| • Chronic Kidney Disease | a) yes | b) no |
| • Cardiovascular Disease | a) yes | b) no |
| • Depression | a) yes | b) no |
| • Dyslipidemia | a) yes | b) no |
| • Sleep Disorders | a) yes | b) no |
| • Cancer | a) yes | b) no |

4.13 Do you have/had cataract?

- a) No
- b) In at least one eye
- c) In both eyes
- d) Don't know/can't say

IV Eye Examination Details

4.14 Does patient has undergone comprehensive eye exam? (Code all applicable)

- a) Visual Acuity
- b) Dilated eye exam
- c) Fundus Photography

4.15 Testing of VA (code separately for each eye)

i. Presenting Vision	Right Eye	Left Eye
Can see 6/12	1	1
Cannot see 6/12 but can see 6/18	2	2
Cannot see 6/18 but can see 6/60	3	3
Cannot see 6/60 but can see 3/60	4	4
Cannot see 3/60 but can see 1/60	5	5
Light perception (PL+)	6	6
No light Perception (PL-)	7	7

4.16 Dilated Eye Exam

- a) Showing signs of diabetic retinopathy
- b) No sign of diabetic retinopathy
- c) Stages of diabetic retinopathy
- d) Signs of other retinal abnormality (if present, specify)
- e) State of cataract (if present, specify)

4.17 Fundus Photography

- a) Showing signs of retinopathy
- b) No signs of retinopathy
- c) Signs of other retinal abnormality (Specify if any)

V Details on Diabetic Retinopathy

5.1 What is the status of Diabetic retinopathy?

- a) No evidence of Diabetic Retinopathy (Normal
- b) Diagnosed with Diabetic Retinopathy (Treatment required)
- c) Diagnosed with Diabetic Retinopathy (No treatment is required)

Annexure-2 Data Tables

Table-1 Q- what is age and gender of patients coming?

Age Class	Total	Male	Female
31-40	26	16	10
41-50	57	41	16
51-60	43	28	15
61-70	34	27	7
71-80	6	6	0
81-90	2	1	1
Total	168	119	49

Table-2 Q- what is the spectrum of diseases patients have?

Total	DR	Other Retinal	No disease
168	21	25	122

Table-3 Q. what is the occupation of patients coming?

Business man	Housewife	Employed	Unemployed	Others	Retired
29	44	35	11	22	28

Table-4 Q. what is age is gender of DR detected patients?

Age class	No of male patient	No of female patient
31-40	1	1
41-50	2	0
51-60	5	3
61-70	6	2
71 and more	0	1

Table-5 Q, what is status of Cataract of patients screened?

Particulars	Male	Female
No symptom	89	38
In one eye	4	4
In both eyes	26	7

Table-6 Q. what is clinical status of patients screened?

Particulars	Total
Have BP and other diseases	23
Have other diseases only	38
Have BP only	37
Neither BP nor any other Disease	93

Table-7 Q. what is the economic status of patients screened?

Particulars	No. of Patients
Have toilet in house	168
Have Pressure cooker in House	164
Have Tv and Refrigerator	117
Have Electric fan but no Tv and Refrigerator	24
Have cemented house	153
Have house of other material	15
Have everything in House	101

Table-8 Q. How patients reached Vision Center?

Particulars	No. of Patients
Through Advertisement	97
Referred by Diabetologist/optometrist	33
Through relatives	12
Through other patients	26

Thank you

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