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Diabetes and Your Eyes
The Importance of Annual Eye Exams

I-HSIANG SHU
MILTON FAMILY PRACTICE
DEC 2015 - JAN 2016
MENTOR: DR. TIMOTHY LISHNAK MD
Facts about Diabetes and the Eye

Diabetes is the leading cause of blindness in the United States
- There are 12,000 new cases of blindness as a result of diabetes each year

Patients with diabetes have a 25 times higher risk of blindness than people in the general population

Routine eye screening with an annual dilated eye exam can lead to early detection of retinopathy, early treatment and prevention of blindness
- Diabetic patients often do not realize the importance of a dilated eye exam

Diabetic patients believe that if they are asymptomatic their eyes are otherwise healthy
- Up to 20% of diabetic patients have diabetic retinopathy at time of diagnosis and up to 80% will develop it within 20 years of having the disease
Diabetic Eye Exam Compliance at Milton Family Practice (MFP)

Annual eye exams for diabetics are encouraged by the staff of MFP
- With assistance from the EMR system as well

Tracking annual compliance is cumbersome
- Most patients see private eye doctors who are not integrated into the EMR
- Reports from these eye doctors are typically physically delivered, read by staff and then manually entered into the EMR system

Unclear as to how compliant diabetics are to their annual eye exams at MFP
- Most practitioners consider compliance to be fairly good
- Currently no practical way to determine a numerical percentage for compliance

Data from a manual query of the EMR for one physician’s diabetic patients discovered that only 28% of patients had documented eye exams.
- Remaining 72% could be from due to either lack of compliance or failure in tracking an existing eye exam

Methods are needed to improve either compliance and/or tracking of eye exams
Public Health Costs of Diabetes and Diabetic Retinopathy

In the 2012, roughly $245 billion was spent on diabetes care in the US
- $176 billion on direct health care costs
- $69 billion on indirect costs (such as lost work days etc.)

In a comparison study, employees with diabetic retinopathy (DR) cost employers an average of 52% more per year in health costs and lost wages as compared with their cohorts
- Employer costs scaled with severity of retinopathy
- Severe DR cost employers 130% more per employee per year

Cost calculations do not include non-financial costs
- Diminished quality of life, pain and suffering, psychosocial impact from lost of function, etc.

Rural populations such as Milton have a 17% higher incidence of diabetes than more urban communities, further increasing the public health burden.
Community Perspectives

Dr. Lesley Kwan O.D. at EyeFellows Optometry in Colchester
- Dr. Kwan stated that most diabetic patients understand that there can be risks to the eye, but may not understand exactly what they are.
- She stated that in general diabetics in this area are fairly compliant with their annual exams and because of this she rarely sees advanced diabetic retinopathies.
- In terms of the type of exam required, Dr. Kwan stated that diabetic patients are often surprised that their eyes must be dilated annually and find the inconvenience of dilation a barrier to the examination.

Dr. David Little M.D. at Milton Family Practice
- Dr. Little stated that he also believes patients understand that diabetes can eventually lead to vision loss, however some of them have a “will never happen to me” mentality which may lead to decreased compliance.
- He believed that the patients at Milton Family Practice are very compliant and understand the need for an annual dilated eye exam.

RG 70 y.o. male - Diabetic Patient #1 at Milton Family Practice
- He stated that he knows that he needs to get an eye exam every year. He was unsure about how diabetes affects the eyes. He stated that it may have something to do with cataracts.

RS 45 y.o. male - Diabetic Patient #2 at Milton Family Practice
- He stated that he gets an eye exam regularly, however also did not know how diabetes affects the eyes. He felt that it could have something to do with eyes becoming blurry.
Intervention and Methodology

From reviewing the EMR at MFP as well as the information gathered from the interviews, there is uncertainty to the level of compliance of diabetics to their annual eye exam at MFP.

Diabetics at MFP may also not fully understand how diabetes affects the eyes, the type of pathologies that can result and the type of eye screening needed:
- Could potentially cause reduced compliance to eye exam.

The goal of this project was to increase the level of compliance for annual diabetic eye exams as well as to educate patients about how diabetes affects the eyes.

Intervention
- Design, create, and distribute a detailed informational document that can help diabetic patients understand how diabetes affect the eyes. Include the frequency and type of eye screening required, what eye doctors are looking for, and what kind of treatment exists if there are abnormalities.
- Integrate this document into PRISM such that practitioners can share and print for all diabetics when they leave the clinic.
Results and Responses

The clinicians at Milton Family Practice felt that the information in the handout was very useful and educational to patients.

- One physician commented that some patients enjoy the opportunity to read documents like this about their conditions.
- Another physician stated that the information was useful for diabetics

The informational handout was also well received by the small sample of patients that received them. They felt the document would be useful for them.

As the time frame of this project was short, post intervention data collection to determine if there were changes in either compliance rates or knowledge base was not performed.
Evaluation of Effectiveness and Limitations

Evaluation of Effectiveness

- One way is to track trends in the level of compliance pre and post intervention. Performing another manual query looking for compliance 6 months after handout distribution could determine if there are any positive trends.
- Additionally, general insight by nurses, clinicians, and staff members on the level of understanding of their diabetic patients with regards to eye exams could be gathered. Any improvement would dictate a positive influence of the handout.

Limitation

- A major limitation of this project is that handouts need to be printed, distributed, and then read for them to be effective. Any misstep would limit their efficacy.
- PRISM uses its own proprietary system to distribute patient handouts. Custom handouts, such as this one, therefore must be distributed in a non-seamless manner.
- This project also did not address the need for a better system to track patients that already received eye exams but who’s results were never communicated back to the PCP.
Recommendations for Future

Connecting eye doctors to PCPs
  - Implement a tighter more robust way to log the results of patients who have received eye exams from doctors outside of the EMR system.
    - Providing a form that the eye doctor easily mail and return to MFP may be helpful
    - Hiring eye doctors on site at MFP such that patients do not have to go outside of MFP for their diabetic eye exams

Numerical Markers
  - Provide an ability to generate a numerical value representing the level of compliance to annual eye exams by diabetic patients for each physician
    - This information should then be fed back to the doctor and they can address their values accordingly.

Diabetes Education
  - Advising clinicians to inquire about patients understanding of their need for a diabetic eye exam and other diabetic complications
  - Refer patients to diabetes educator more regularly

Improved Coordination
  - Utilize the community health team or other staff to streamline patient scheduling of annual eye exams immediately following their visit to the Milton clinic.


Direct and indirect costs among employees with diabetic retinopathy in the United States.