

Severity of Diabetic Retinopathy in the IRIS Registry

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Introduction

- Diabetic retinopathy (DR) is a complication of diabetes caused by progressive damage to small blood vessels in the retina.
- Over 7.7 million adults are affected by DR in the United States, and this number is expected to increase to 14 million by 2050.
- Progression of diabetic retinopathy can cause severe vision loss and is a leading cause of blindness among adults¹.
- In 2016, the federally-mandated, pay-for-performance Merit-Based Incentive Payment System (MIPS) consolidated existing incentive quality programs, and added quality improvement activities².
- Evaluation for DR during a retinal exam among adults diagnosed with diabetes is one of the quality measurements.
- Earlier detection of DR, in addition to managing one's diabetes, can prevent or delay vision loss.
- This study aimed to look at changes in diagnosis documentation patterns in electronic health record (EHR) data before and after the 2016 MIPS implementation.

Results

Table 1. Patient Baseline Demographic Characteristics for Patients, by Year

	Year					
	2013	2014	2015	2016	2017	2018
N	22,907	25,530	24,043	75,061	289,221	256,246
Mean Age (SD)	61.9 (12.8)	61.6 (12.8)	61.6 (12.5)	61.7 (12.3)	62.2 (12.3)	61.9 (12.2)
Sex						
Male	49.8%	51.0%	51.4%	52.6%	52.0%	52.7%
Female	50.2%	49.0%	48.6%	47.4%	48.0%	47.3%
Race						
Asian	2.3%	3.2%	4.0%	3.1%	3.1%	2.9%
Black	16.9%	14.8%	14.1%	14.0%	13.3%	12.6%
Caucasian	58.8%	57.8%	55.2%	52.8%	48.0%	43.9%
Other	3.2%	2.9%	2.1%	2.0%	1.7%	1.5%
Unknown	18.7%	21.3%	24.7%	28.1%	33.9%	39.0%

Diabetic Retinopathy Stage at Diagnosis between 2013 and 2018

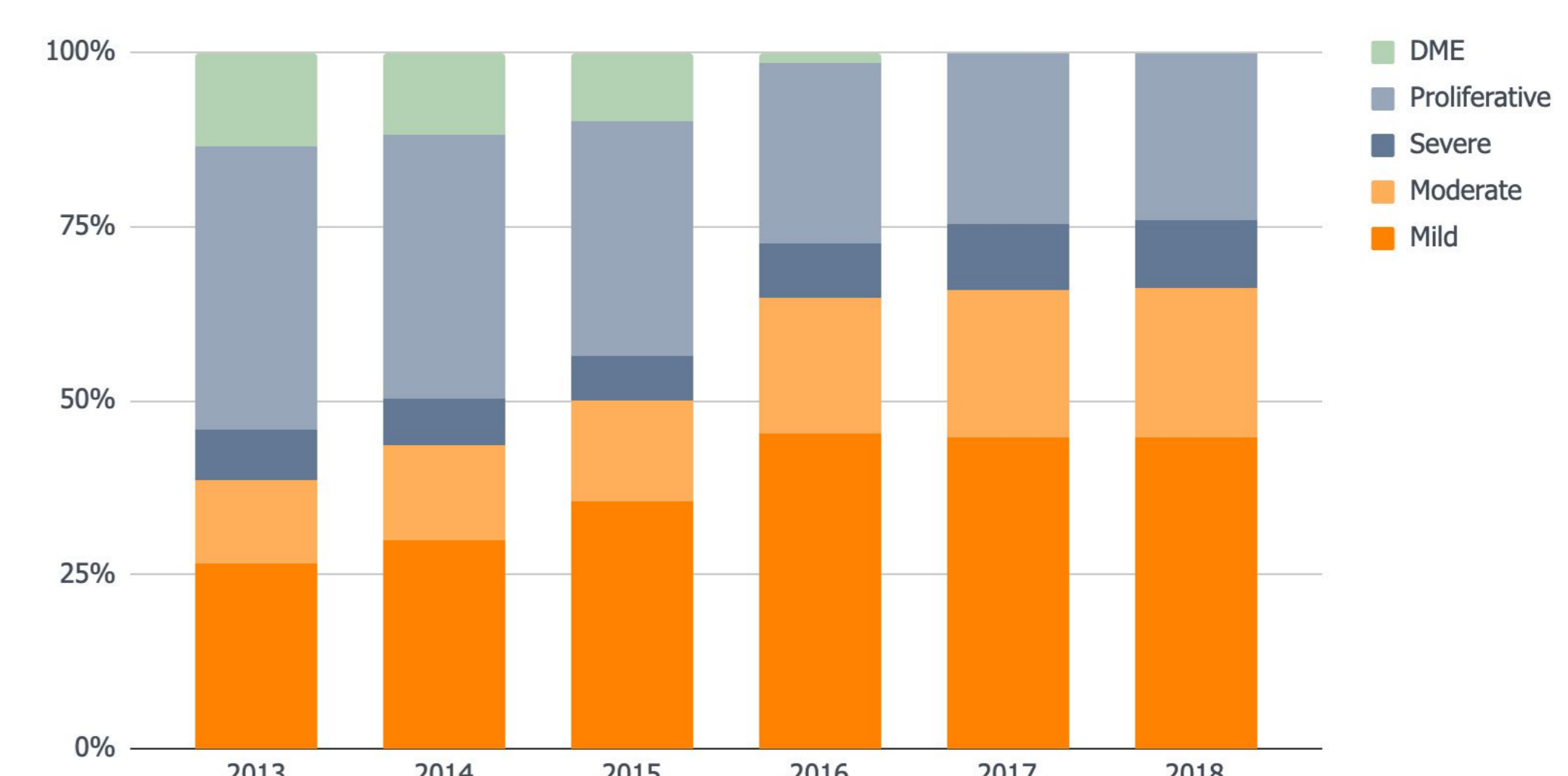


Figure 1. Diabetic retinopathy stage at diagnosis of patients in the IRIS Registry between 2013 and 2018.

Methods

- The American Academy of Ophthalmology's IRIS Registry (Intelligent Research in Sight), established in 2013, was used to index patients with a first diagnosis of documented DR from 2013 through the most available data.
- Severity was determined from diagnosis codes and was categorized into mild, moderate, severe, or proliferative DR or diabetic macular edema (DME).
- Demographic characteristics including age, gender, and race were documented at baseline and reported by year. Temporal diagnosis trends between 2013 and 2018 were analyzed annually.

Limitations

- This descriptive analysis cannot be used to determine a causal relationship between the implementation of MIPS and DR diagnoses
- As this analysis looked at available practices in the IRIS registry, different practices may contribute to different years. A future sensitivity analysis could follow the same practices every year

Conclusions

- We studied patients from the IRIS registry who were diagnosed with diabetic retinopathy between 2013 and 2018 to investigate diagnosis documentation patterns after the implementation of value-based reimbursement programs.
- Since increased adoption of MIPS in 2016, temporal EHR diagnosis documentation patterns for diabetic eye disease have changed to primarily include milder disease stages.
- Early screening and diagnosis of diabetic eye disease enables patients to receive care earlier, ultimately slowing disease progression.

References

1. Centers for Disease Control and Prevention, Diabetic Retinopathy, 2010, [cdc.gov/features/diabetic-retinopathy/index.html](https://www.cdc.gov/features/diabetic-retinopathy/index.html). Accessed March 1, 2020.
2. Kinker, Brenton, et al. "The impact of the Medicare Access and CHIP Reauthorization Act on the field of ophthalmology." *American Journal of Ophthalmology* 179 (2017): 1-9.
3. Feng, Paula W., et al. "Ophthalmologists in the First Year of the Merit-based Incentive Payment System." *Ophthalmology* (2020).
4. IRIS Registry. American Academy of Ophthalmology, 2020, www.aaopt.org/iris-registry

Results

- We identified 514,109 patients diagnosed with DR in the IRIS database between 2013 and 2018.
- Mean age of patients at first DR diagnosis was consistent across years.
- The proportion of male patients studied increased slightly over the study period.
- We observed an increase in the frequency of mild and moderate incident DR diagnoses. In 2013, 13% of patients with an incident diagnosis of DR was DME vs. < 1% in 2018. By 2018, approximately two thirds of all new diagnoses were for mild or moderate DR (66%), compared with 39% in 2013.