

Incidence and Risk Factors for the Development of Treatment-Warranted Diabetic Macular Edema at 5 Years Following Initial Diagnosis of Type 2 Diabetes

William S. Gange, MD,^{1*} Khristina Lung, MPH,² Benjamin Y. Xu, MD, PhD,¹ Seth Seabury, PhD,² Brian C. Toy, MD¹

Affiliations: ¹Ophthalmology, University of Southern California, Los Angeles, CA;

²Keck-Shaeffer Initiative for Population Health Policy, Keck School of Medicine of USC

*=presenting author



USC Roski Eye Institute
Keck Medicine of USC



Disclosures

- William Gange: No Commercial Relationship
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- Benjamin Xu: No Commercial Relationship
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Research Participation

- Conception and design of the work/project
- Analysis and interpretation of data
- Creation and/or critical review of the presentation



Background

- Diabetic macular edema (DME) is the leading cause of vision loss in the diabetic population
- Prior epidemiological studies of diabetic retinopathy in the United States have primarily focused on the development of diabetic retinopathy rather than DME
- Additionally, many prior studies were conducted prior to the advent of OCT or widespread anti-VEGF use, were cross-sectional in nature, or did not stratify results by the duration of diabetes



Purpose

- To identify the current incidence and risk factors for developing treatment-warranted DME (TW-DME) in the first 5 years after de novo diagnosis of DM2
- To help quantify the potential for vision loss related to DME in the early period after diagnosis, as well as identify patients who may be at greater risk, and require increased screening efforts.



Methods

- Patients age 18 or older with newly-diagnosed DM2 were identified from Optum's de-identified Clinformatics® Data Mart Database (2007-2015)
- All patients had to have at least 1 year of enrollment without ICD-9 codes indicating a diagnosis of diabetes, or pharmacy codes indicating a prescription for diabetes medication, prior to index diagnosis of DM
- Patients had to have 6 years (1 pre, 5 post) of continuous enrollment to be included

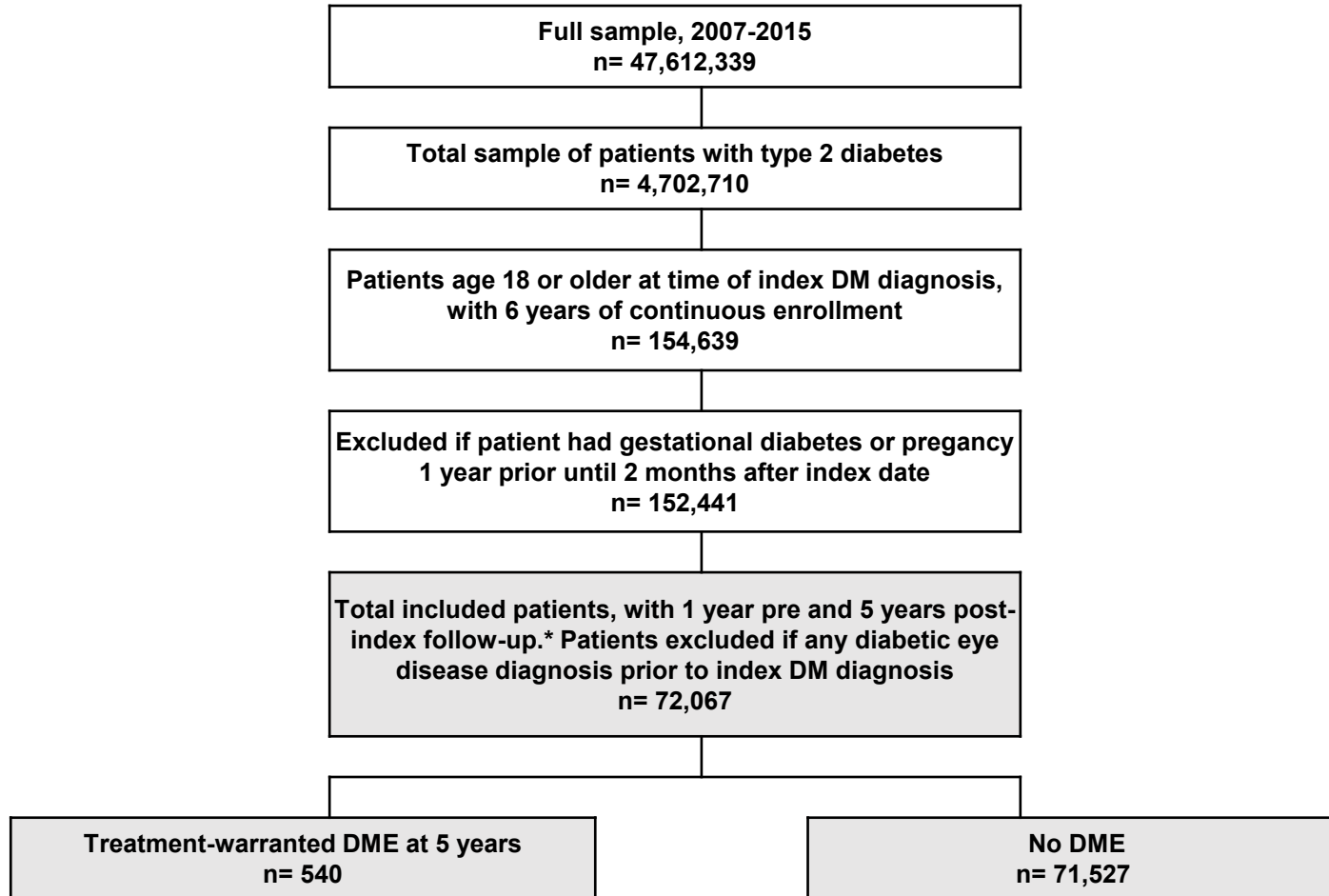


Outcome Measure

- Patients were identified as having TW-DME if they incurred the following codes:
 - ICD-9 (required)
 - **362.07: Diabetic macular edema**
 - CPT code (1 of 2 required):
 - **67028: Intravitreal injection of a pharmacologic agent (separate procedure)**
 - **67210: Destruction of localized lesion of retina (eg, macular edema, tumors), one or more sessions; photocoagulation.**



Results: Attrition Table



Results

Treatment-Warranted DME, n=540 (0.75%)		
Characteristics	Odds Ratio (95% CI)	P Value [†]
Age at Diagnosis (vs 45-54)		
18-34	0.36 (0.17 - 0.74)	0.005
55-64	1.36 (1.07 - 1.74)	0.013
65-74	1.58 (1.12 - 2.22)	0.009
Medicare	0.47 (0.32 - 0.68)	<0.001
Smoking	0.77 (0.59 - 1.00)	0.046
Renal Disease	2.59 (1.78 - 3.77)	<0.001
Neurological Disease	2.40 (1.72 - 3.36)	<0.001
Peripheral Circulatory Disorders	2.15 (1.23 - 3.75)	0.007
Morbid Obesity	0.62 (0.46 - 0.83)	0.001
Dyslipidemia	0.80 (0.65 - 0.98)	0.034
Insulin Use	4.11 (3.41 - 4.97)	<0.001
Max A1c (vs <6.5%)		
7.5-9%	2.96 (1.79 - 4.88)	<0.001
>9%	5.29 (3.32 - 8.43)	<0.001

[†]P values for all other covariates in the model, including gender, race, education level, income, hypertension, and diabetic ketoacidosis/hyperosmolar hyperglycemic state were > 0.05.



Conclusion

- A small subset of patients develop TW-DME within 5 years of diagnosis
- Patients with a history of A1c > 9%, insulin use, renal disease, neurologic disease, peripheral circulatory disease, and advanced age at diagnosis are at particularly high risk for early development of TW-DME
- Efforts should be made to improve rates of screening in patients with these characteristics



Contact

William S. Gange, MD, PGY4

USC Roski Eye Institute

William.gange@med.usc.edu



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