



**5<sup>th</sup> Annual**

# **FOCUS ON EYE HEALTH NATIONAL SUMMIT**

VISION TO ACTION: Collaborating Around a National Strategy

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National Press Club | Washington, DC



## **IRIS<sup>®</sup> Registry: Supporting Surveillance & Research**

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# Introduction to IRIS Registry

IRIS Registry (Intelligent Research in Sight) is the nation's first comprehensive eye disease clinical database

- Enthusiastic participation by the ophthalmic community in just over two years leading to the largest specialty-based clinical data registry in the world
- Supports quality improvement, patient safety, performance benchmarking, custom analytics, new knowledge generation, and future registry-based trials
- Enables ophthalmologists to use clinical data to improve care delivery and patient outcomes
- Uses HIPAA-compliant methods to collect data from patient records directly from electronic health record (EHR) systems
- Helps practices meet requirements of the federal Physician Quality Reporting System (PQRS)



# Big Data Insights

- Characterization of patient population
- Disease prevalence
- Practice patterns
- Clinical outcomes and complications
- Possible risk factors and confounders



# Applications

- Assess trends over time
- Characterize rare diseases/rare events
- Stimulate and answer clinical questions
- Lead to clinical trials/research
- Inform public policy/public health issues







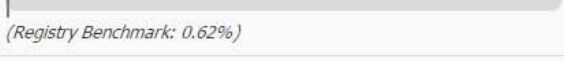

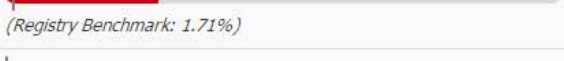


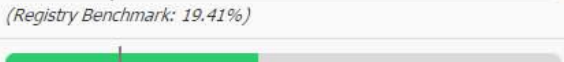

# Value of IRIS Registry

Practitioners can evaluate their own data

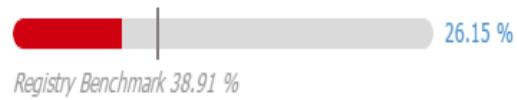
- Benchmark outcomes against their practice colleagues or national averages

Manage their patients at a population level

- Look at a specific group of patients based on conditions, risk factors, demographics or outcomes
- Identify trends and track interventions
- Answer specific clinical questions

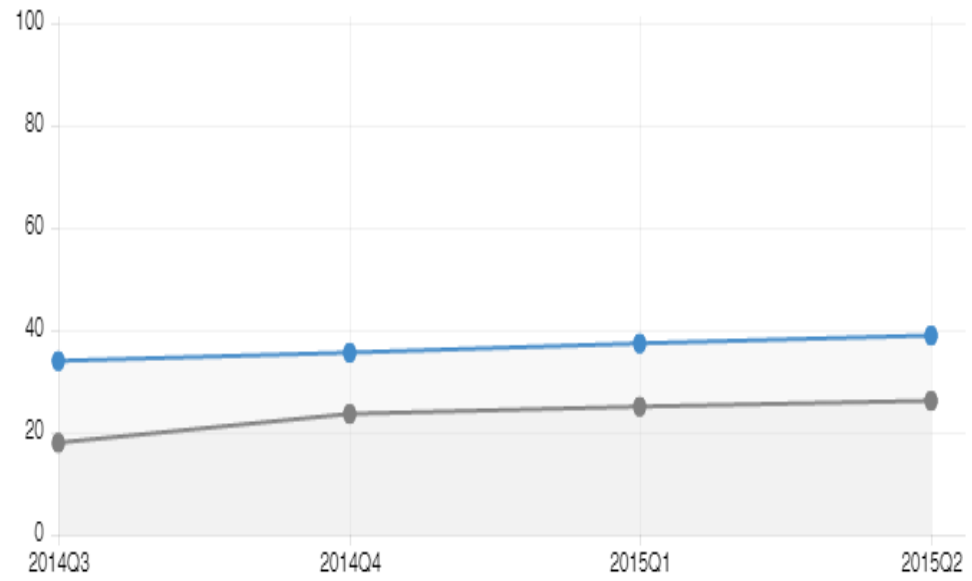
ID	MEASURE	PERFORMANCE
IRIS 1	Primary Open Angle Glaucoma (POAG): Optic Nerve Evaluation	 93.20% (Registry Benchmark: 79.42%)
IRIS 2	Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy	 50.46% (Registry Benchmark: 38.91%)
IRIS 3	Diabetic Retinopathy: Communication with the Physician Managing Ongoing Diabetes Care	 50.00% (Registry Benchmark: 27.17%)
IRIS 4	Cataracts: 20/40 or Better Visual Acuity within 90 Days Following Cataract Surgery	 98.31% (Registry Benchmark: 86.28%)
IRIS 5	Complications within 30 Days Following Cataract Surgery Requiring Additional Surgical Procedures	 0.00% (Registry Benchmark: 0.62%)
IRIS 6	Diabetes: Eye Exam	 95.74% (Registry Benchmark: 87.05%)
IRIS 14	Preventive Care and Screening Tobacco Use: Screening and Cessation Intervention	 98.23% (Registry Benchmark: 82.20%)
IRIS 15-1	Use of High-Risk Medications in the Elderly	 27.53% (Registry Benchmark: 1.71%)
IRIS 15-2	Use of High-Risk Medications in the Elderly	 0.00% (Registry Benchmark: 0.28%)
IRIS 16	Falls: Screening for Future Fall Risk	 0.00% (Registry Benchmark: 2.38%)
IRIS 17	Documentation of Current Medications in the Medical Record	 91.00% (Registry Benchmark: 88.57%)
IRIS 18	Controlling High Blood Pressure	 0.00% (Registry Benchmark: 19.41%)
IRIS 19	Closing the referral loop: receipt of specialist report	 45.45% (Registry Benchmark: 21.00%)

# IRIS 2 : Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy



- ⚡ PERFORMANCE TREND
- 📍 LOCATIONS
- 👤 PROVIDERS
- ALL

PERFORMANCE TREND ● PERFORMANCE ● REGISTRY BENCHMARK

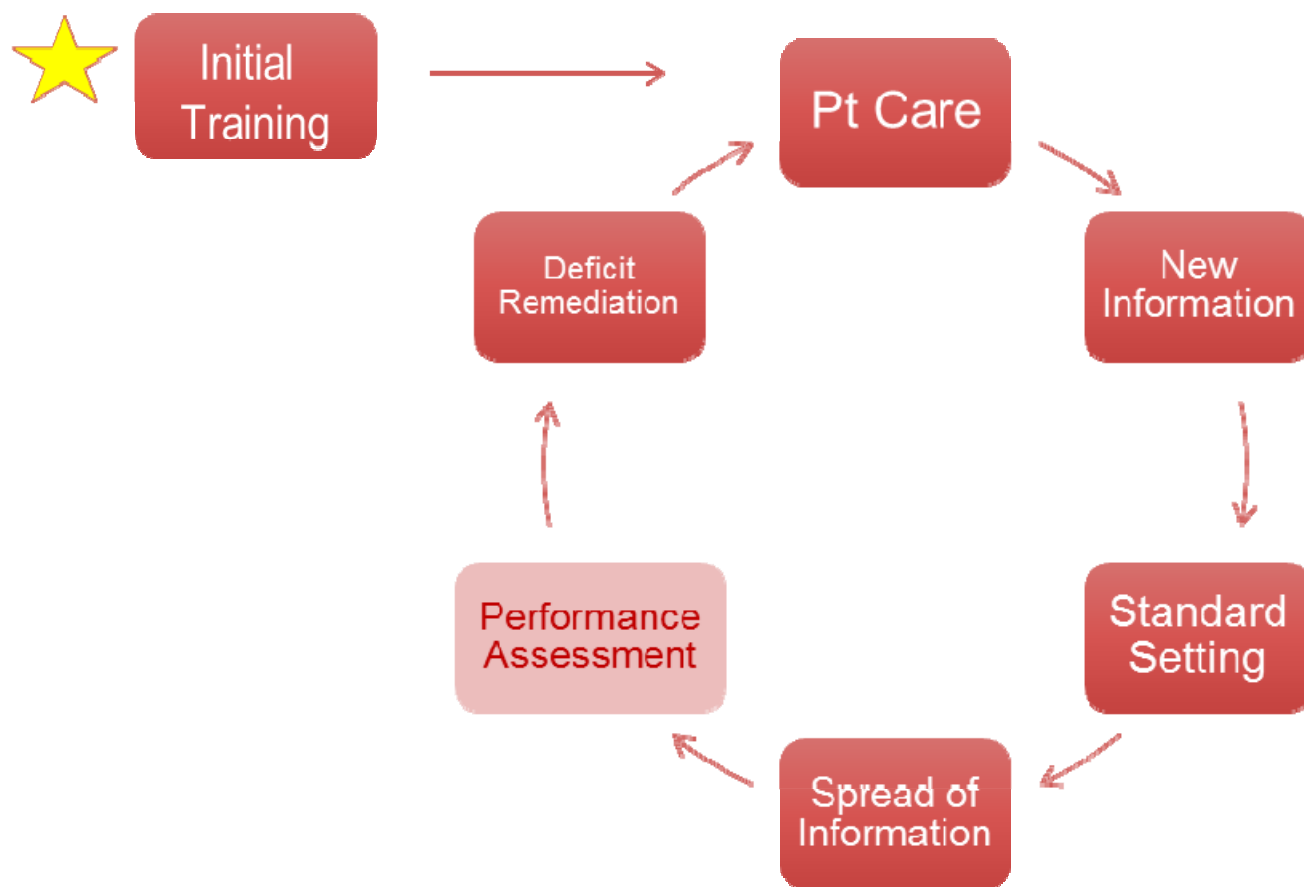


QUARTER	ALL	(+)	(-)	%
2015Q2	130	34	96	26.15 %
2015Q1	124	31	93	25.00 %
2014Q4	123	29	94	23.58 %
2014Q3	117	21	96	17.95 %





# Eye Care Quality Improvement





# Current Status



## Current Stats (June 1, 2016)

### Contracted

- **13,739** physicians from **4,446** practices

### Total for EHR Integration (43 different EHR systems)

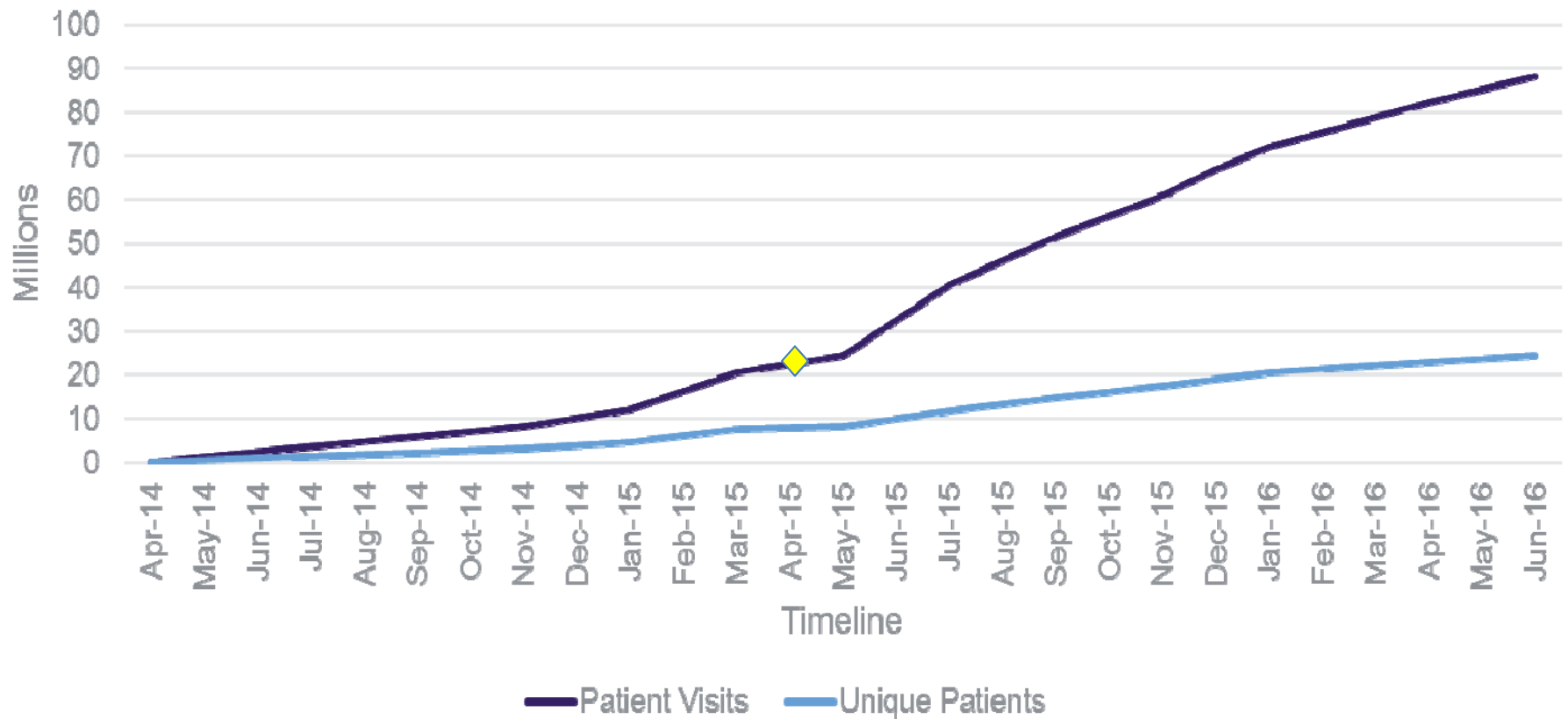
- **11,374** physicians from **2,888** practices

### Number of patient visits

- **88** million, representing **24** million unique patients



# Unique Patients and Visits





## Advantages

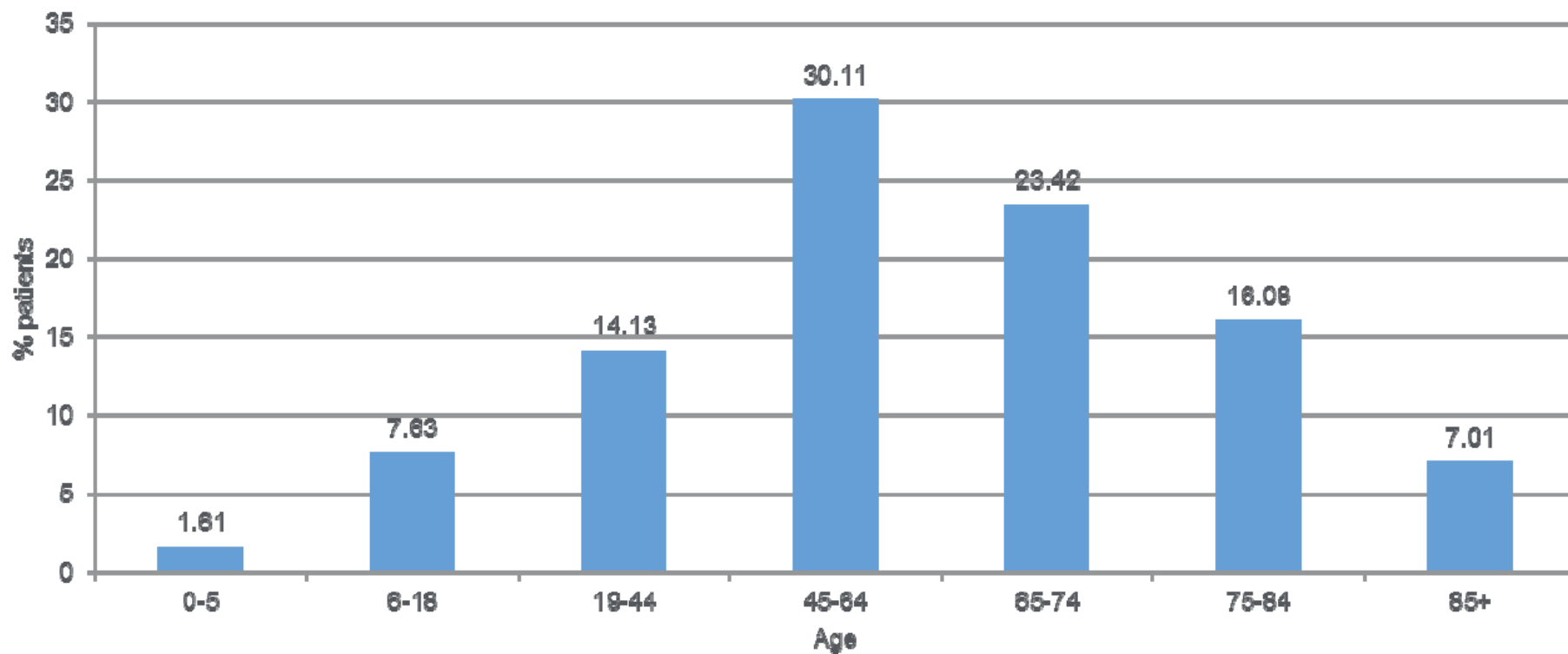
- Real world
- Big data
  - Estimated 49% of national ophthalmology visit volume – all payer (2013-present)
- Current
  - Data uploaded nightly or weekly
- Clinical data: outcomes, VA, IOP, free text
- Across all payers



# Patient Demographics

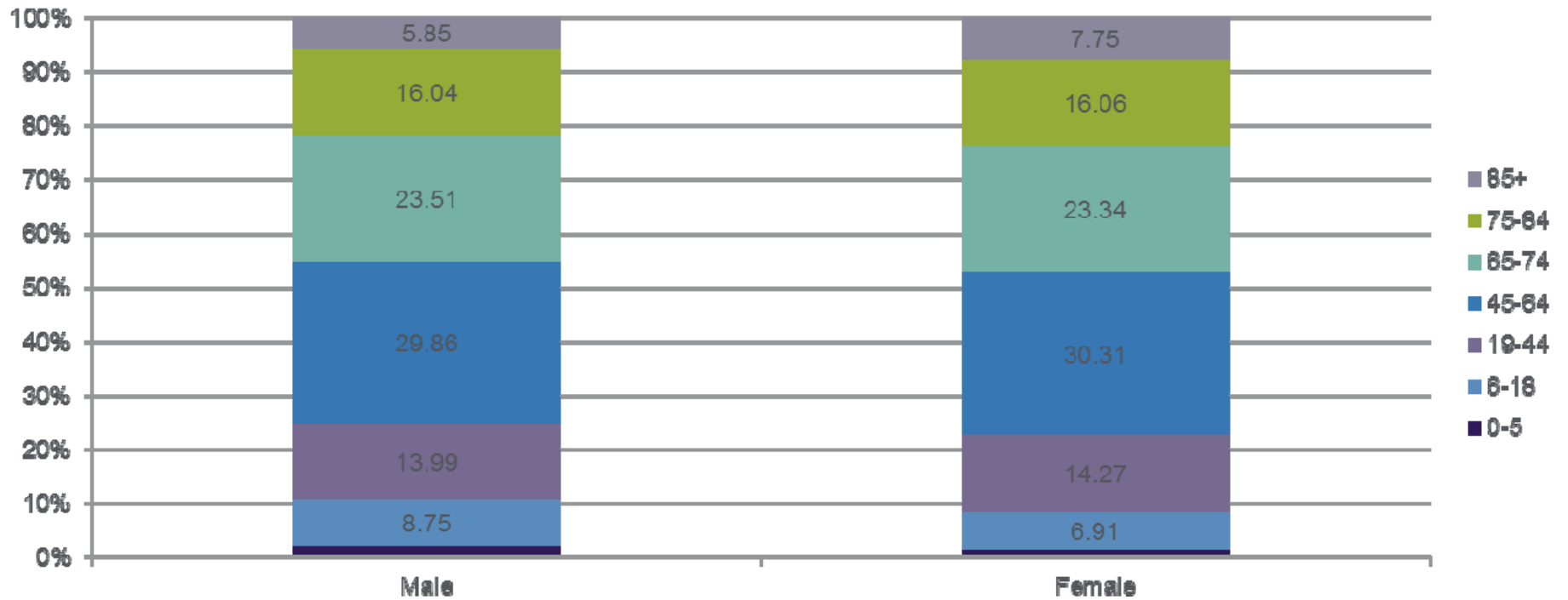


# Overall Patient Population





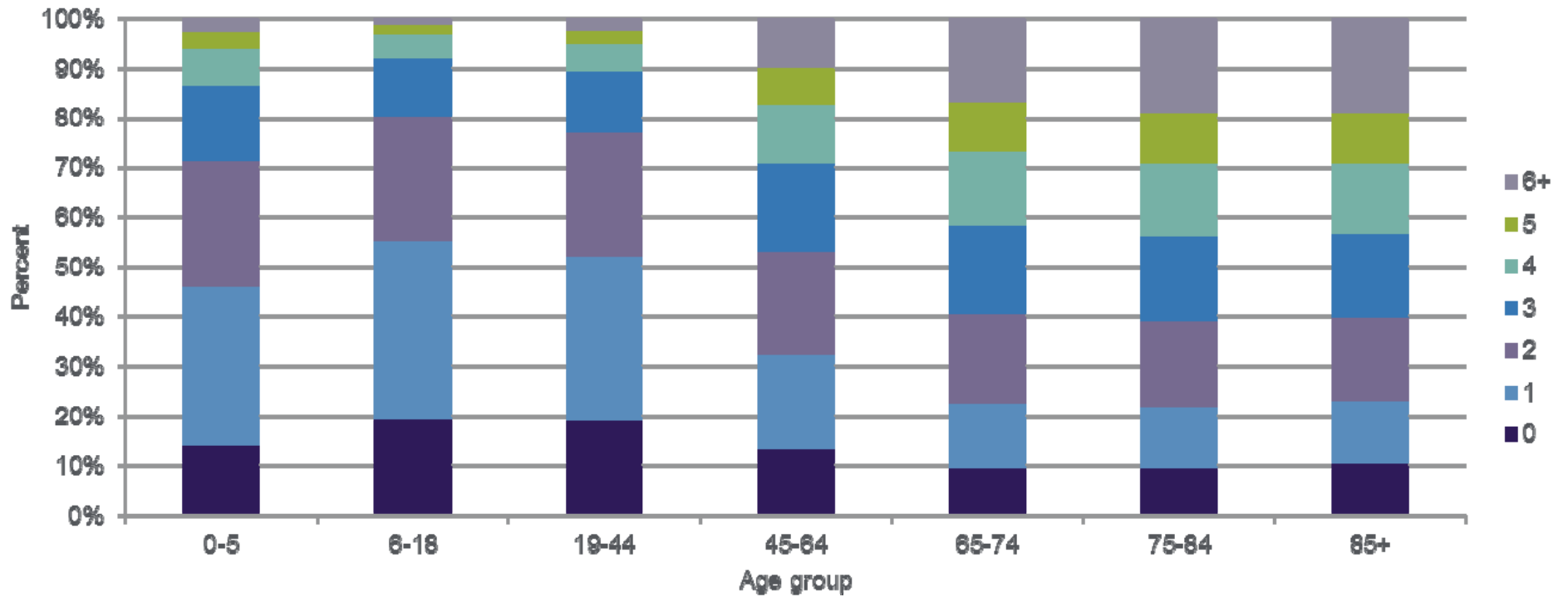
# Age Distribution by Gender





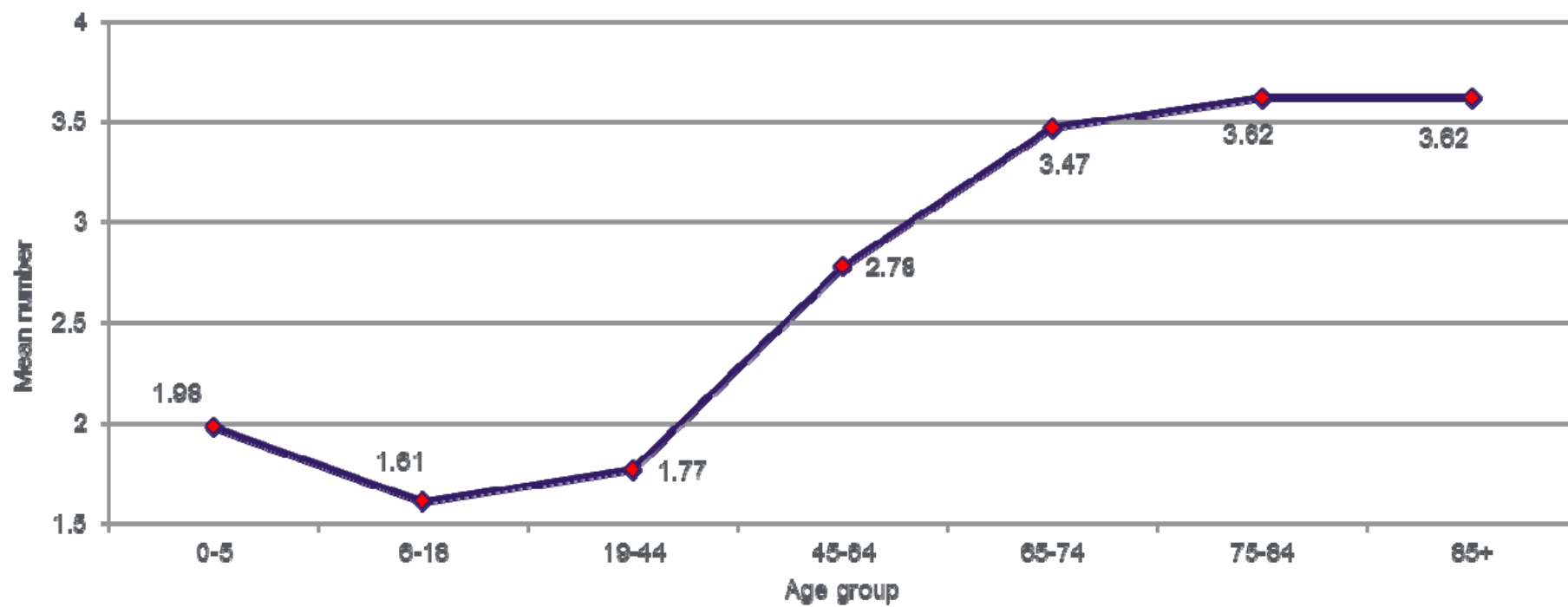


# Eye Conditions by Age





## Number of Conditions by Age





# Top Ten Conditions

ICD9 code	ICD9 description	Count	Percent
<b>366.16</b>	Senile nuclear sclerosis	1,757,588	25.83
<b>375.15</b>	Tear film insufficiency, unspecified	1,060,179	15.58
<b>367.4</b>	Presbyopia	1,040,906	15.30
<b>367.1</b>	Myopia	960,602	14.12
<b>379.21</b>	Vitreous degeneration	804,431	11.82
<b>367.0</b>	Hypermetropia	510,550	7.50
<b>367.21</b>	Regular astigmatism	498,302	7.32
<b>366.53</b>	After-cataract, obscuring vision	439,321	6.46
<b>362.51</b>	Nonexudative senile macular degeneration	410,938	6.04
<b>365.01</b>	Open angle with borderline findings, low risk	410,691	6.04



# Disease Management

## Snapshot

### Trends over time



## Glaucoma Patient Population

- 1.17 million patients 18 or older with POAG (1/13 – 12/15)
- Average age = 72.6 years
- Male = 43%; Female = 57%
- Race: White 63%; Black 13%, Hispanic 6%



## Cataract Surgery (2013-2014)

- Jackson Memorial Lecture, Anne Coleman MD
  - 511,182 unique patients
  - 44% had surgery in both eyes
  - Average age = 71.0 years
  - 0.08% had endophthalmitis
  - Postop VA at 7 days for endophthalmitis patients: 0.58 logMAR



# Disease Prevalence

- Useful for rare diseases, where clinical studies aren't representative of US general population



# Myopic CNV

- Limited data on prevalence
  - Many studies are clinic-based
  - Many studies are international

Willis, Jeffrey R. et al. (2016). The Prevalence of Myopic Choroidal Neovascularization in the United States: Analysis of the IRIS® Data Registry and NHANES. *Ophthalmology*. doi:10.1016/j.opthta.2016.04.021

- How to estimate for general US population?
  - National Health Examination and Nutritional Survey (applied to Census data to estimate prevalence of HM among US adults), PLUS
  - Sample of IRIS Registry practices (to assess burden of mCNV in US)





# IRIS Registry Sample

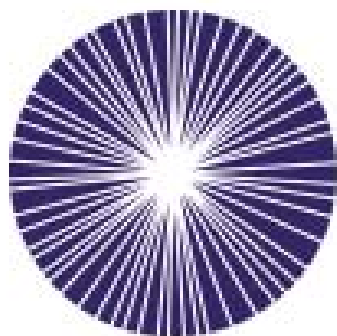
- IRIS Registry Sample
  - 259 practices with 376,057 high myopia cases
    - Pathologic myopia = 29,090
    - Myopic CNV = 2,417
  - Myopic CNV increased with worsening myopia across both sexes, all races, and all age groups



## Results

- Applied to NHANES:
  - Prevalence of CNV is 0.017 percent
  - Population burden 41,111 U.S. adults
  - Prevalence of CNV for women is double that of men

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