NIA IMPACT COLLABORATORY
TRANSFORMING DEMENTIA CARE

Diagnosed Dementia in Medicare

Benchmarking for Study Planning and Equity

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MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Housekeeping

- All participants will be muted
- Enter **all questions** in the Zoom **Q&A/chat box** and send to Everyone
- Moderator will review questions from chat box and ask them at the end
- Want to continue the discussion? Associated podcast released about 2 weeks after Grand Rounds
- Visit impactcollaboratory.org
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https://www.linkedin.com/company/65346172

Learning Objectives

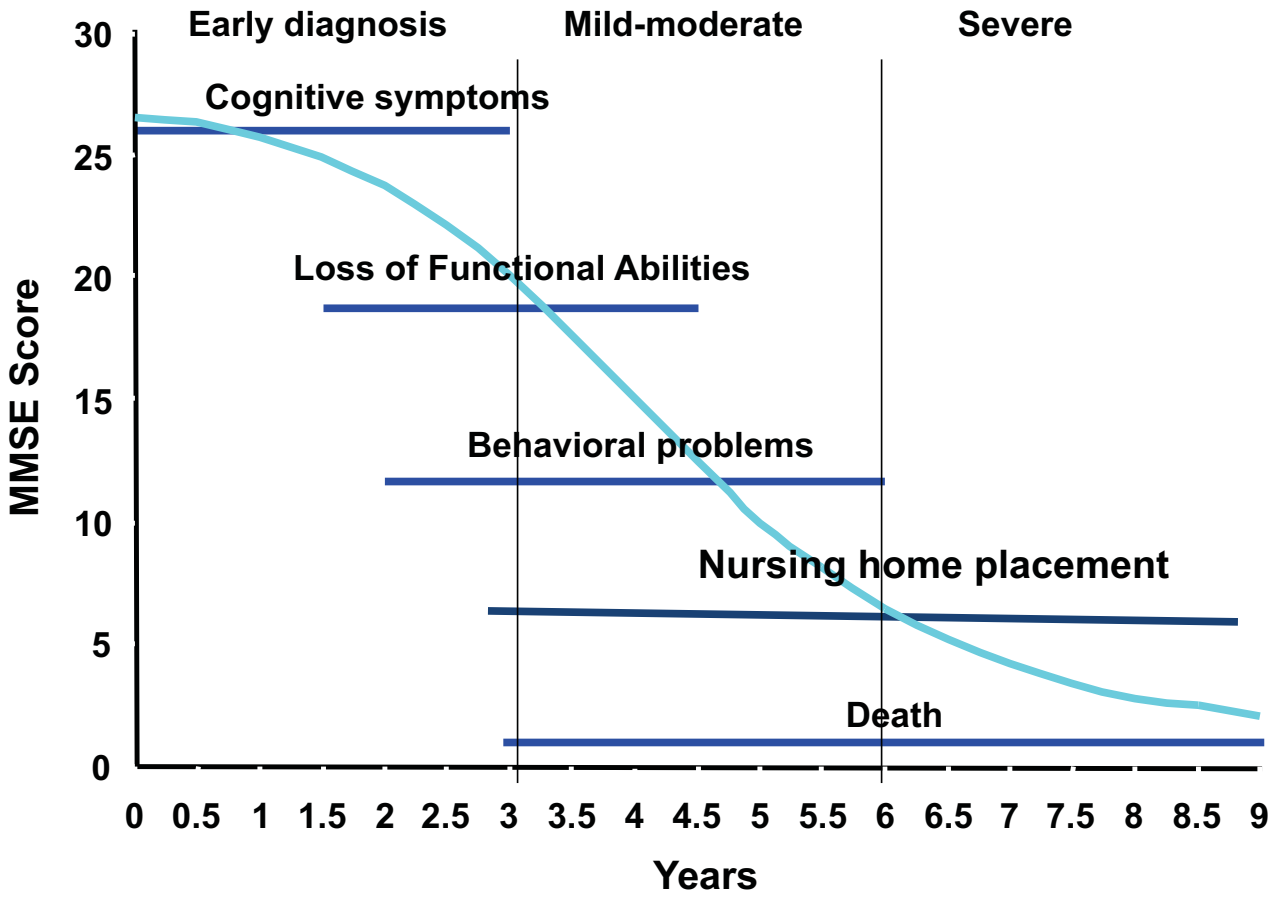
Upon completion of this presentation, you should be able to:

- Identify strengths & challenges when using Medicare data for participant identification
- Understand characteristics of diagnosed dementia cases across place
- Consider value of using population benchmarks for planning and equity

Eligibility: *Who is your target population?*

What is meant by People Living with dementia?

People living with an acquired syndrome of memory loss and other cognitive abilities serious enough to interfere with daily life.



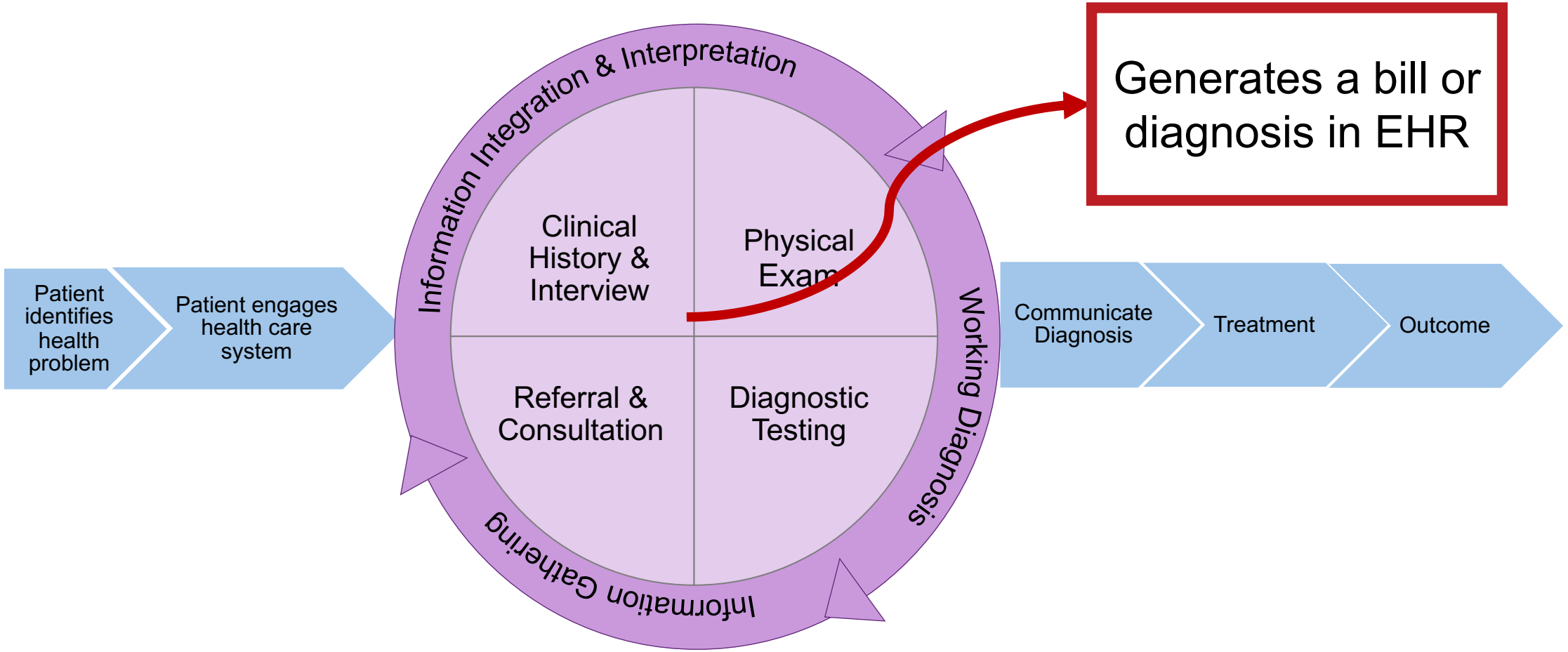
Feldman, H, Gracon S. In: *Clinical Diagnosis and Management of Alzheimer's Disease*. 1996: 239-253

Healthcare-Generated Data

Data collected in the process of health care service delivery for payment or clinical record:

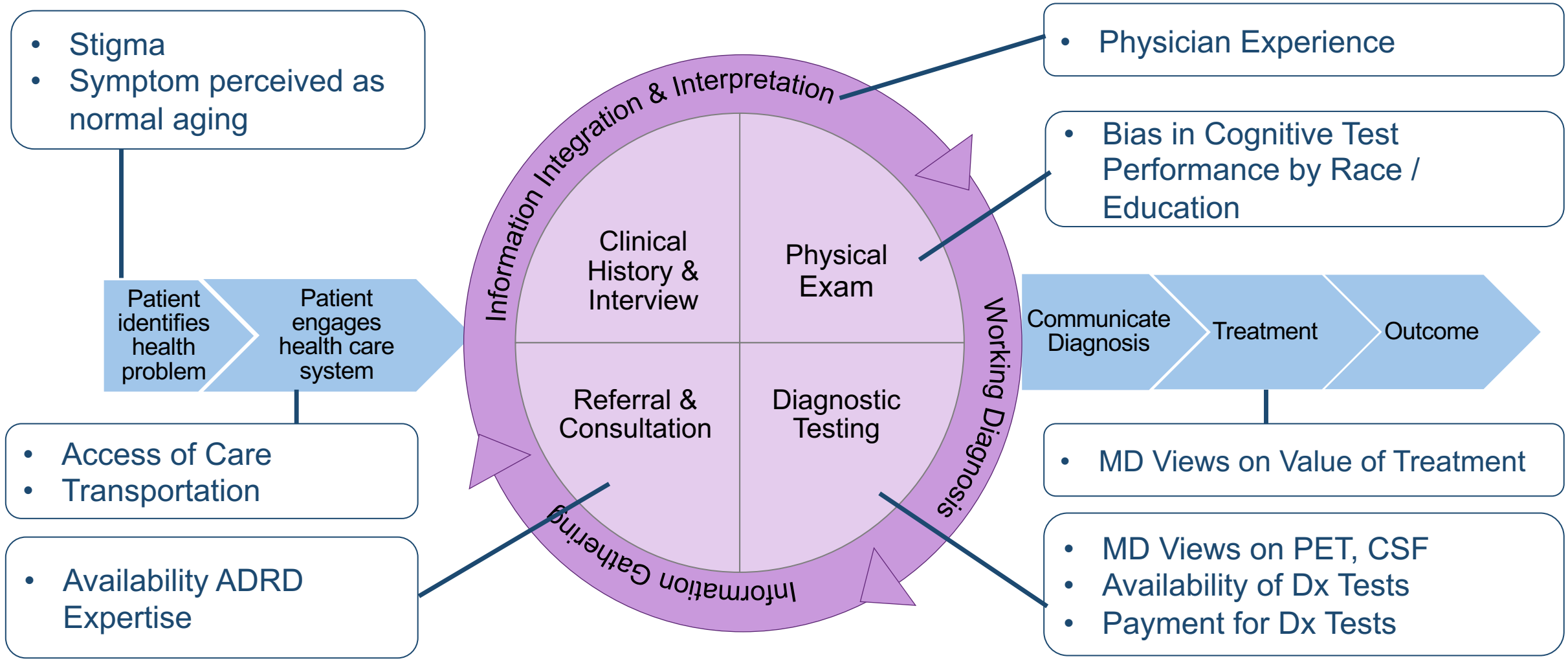
- ✓Medicare Fee-for-Service (CMS)
- ✓Medicare Advantage (CMS)
- ✓Commercial Insurance (OPTUM, Sentinel/DRN, other payers)
- ✓Medicaid (CMS, state)
- ✓Minimum Dataset/OASIS (CMS)
- ✓Electronic Health Record

Process of Obtaining a Diagnosis



Conceptual Process of Diagnosis, NAM, 2014

Many Challenges Obtaining a Diagnosis



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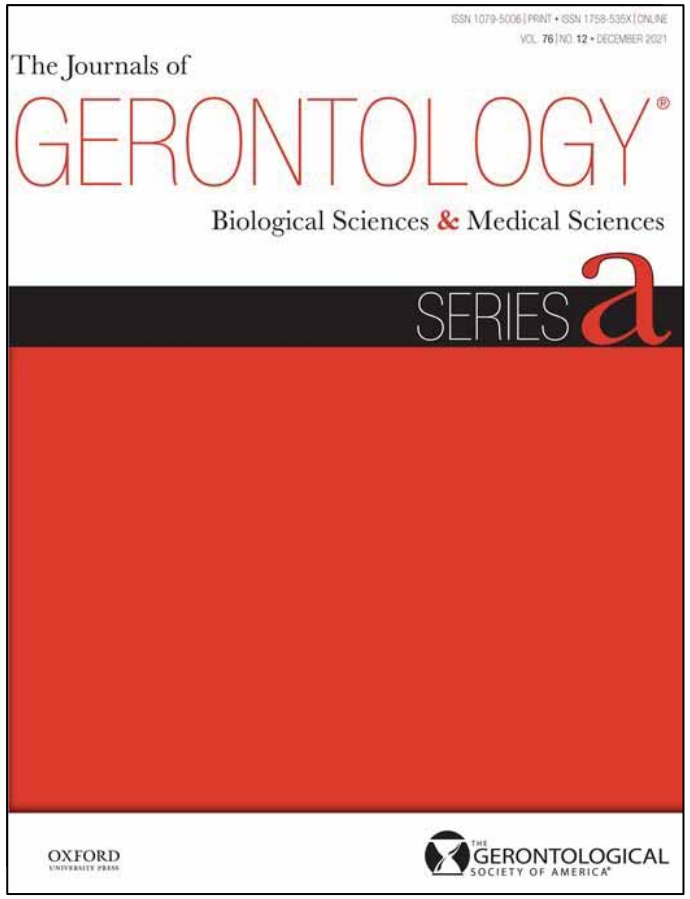
Conceptual Process of Diagnosis, NAM, 2014

Diagnostic accuracy

Example of Participants Identified in Medicare Claims



Validation of Claims Algorithms to Identify Alzheimer's Disease and Related Dementias

Ellen P McCarthy, Ph.D., MPH, Chiang-Hua Chang, Ph.D., MS, Nicholas Tilton, Ph.D, Mohammed U Kabeto, MS, Kenneth M Langa, MD, Ph.D, Julie P W Bynum, MD, MPH

The Journals of Gerontology: Series A, glab373, https://doi-org.proxy.lib.umich.edu/10.1093/gerona/glab373

Identification Of Dementia In Recent Medicare Claims Data, Compared To Rigorous Clinical Assessments

Francine Grodstein, ScD ✉, Chiang-Hua Chang, PhD, Ana W Capuano, PhD, Melinda C Power, ScD, David X Marquez, PhD, Lisa L Barnes, PhD, David A Bennett, MD, Bryan D James, PhD, Julie P W Bynum, MD Author Notes

The Journals of Gerontology: Series A, glab377, https://doi-org.proxy.lib.umich.edu/10.1093/gerona/glab377

Journal of Gerontology: Medical Science (2022)

Claims-based ADRD Diagnostic Accuracy

Interpretation of results

- Use of 1 year of data with algorithm and 2 claims, standard used for other diseases, performs well. Compared to 3 yrs and 1 claim.
- Sensitivity is the weakness of claims data
- PLWD identified in claims are in later stage disease (20% 1-yr mortality)
- Certain subgroups when flagged with ADRD are more likely to be accurately identified (older, uses a proxy, Black race, more severe disease)
- False positives are not normal cognitively or functionally
- False negatives more likely to be non-White and less functionally impaired.

Medicare Claims for Participant Identification

Strengths

- Participants and non-participants included
- Uniform data elements allow use same algorithm across sites with ease
- Uniform data use agreement across all sites if CMS source
- Validated algorithms

Weaknesses

- Inherent biases and equity issues present in usual care
- Depends on quality of diagnosis in usual care
- Managed care? Encounter data not yet validated
- Issues of timeliness are dissipating with VRDC

Regional Data Created by Technical Data Core

Methods

- ✓Age 65+
- ✓In Medicare Parts A & B (no HMO)
- ✓Algorithm in:

  McCarthy E.P et al (2022) Validation of Claims Algorithms to Identify Alzheimer's Disease and Related Dementias. *J. Gerontol.*
- ✓Based on zip code of residence

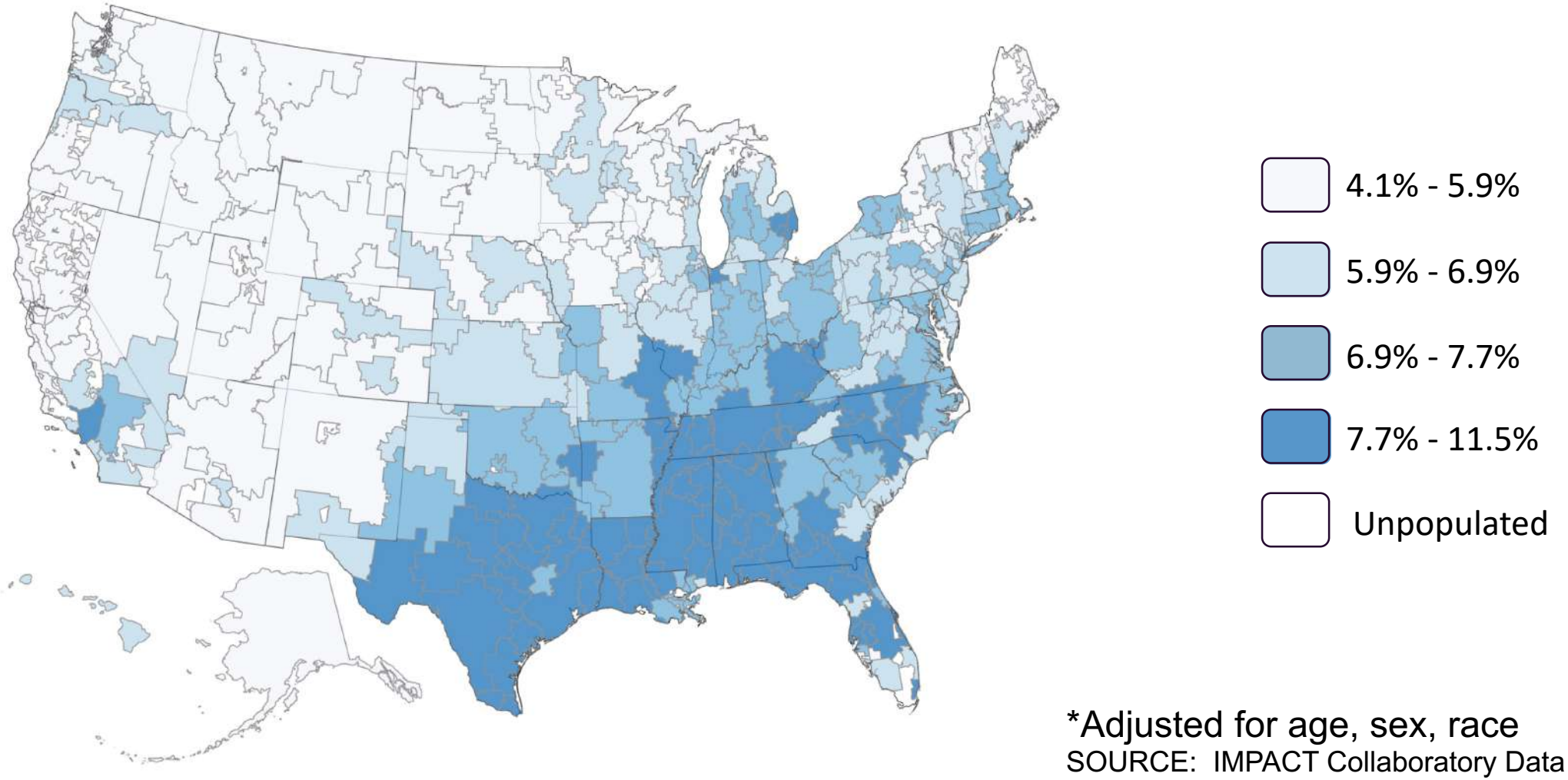
We identify the number of beneficiaries with diagnosed dementia by age, sex, race for each:

- ✓ State
- ✓ Hospital Referral Region (HRR)
- ✓ Hospital Service Area
- ✓ Primary Care Service Area

NOTE: We can query this data for investigators interested in knowing potential sample sizes

Geographic Differences in Diagnosed ADRD Prevalence

Adjusted Percentage Diagnosed ADRD in FFS Medicare (2019) by Hospital Referral Region (HRR)*



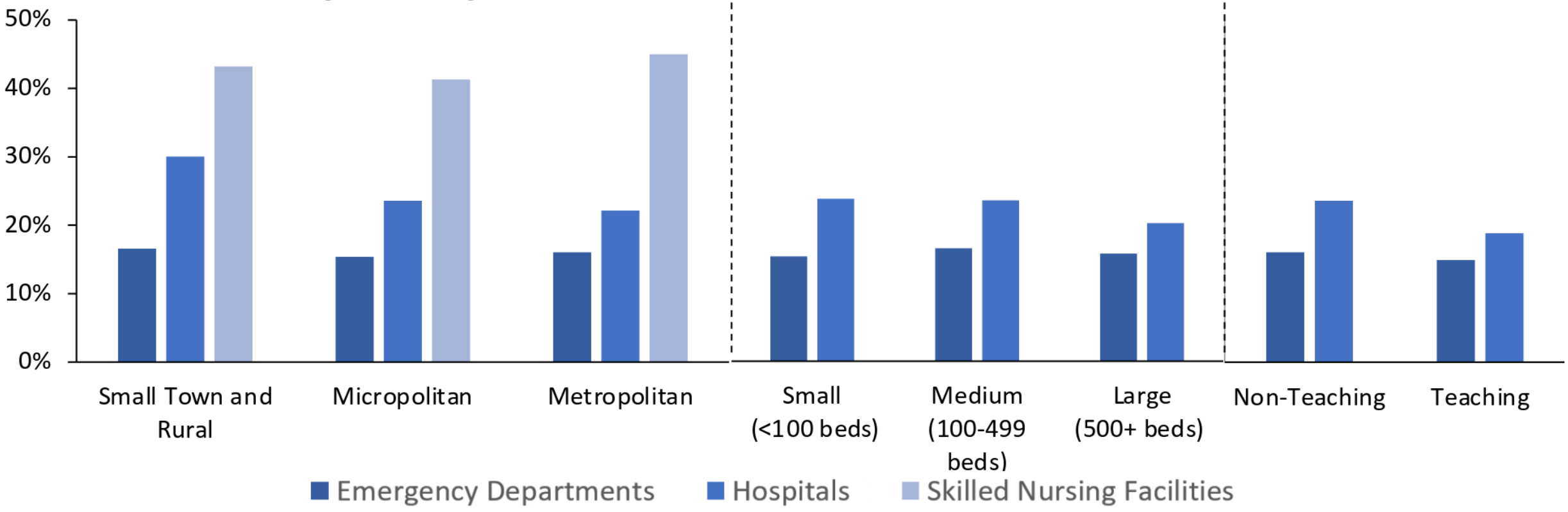
*Adjusted for age, sex, race

SOURCE: IMPACT Collaboratory Data Analysis (2024)

Setting-Specific Data Created by Technical Data Core

ADRD Distribution across ED, Hospital, SNF:

Mean Percent of Events from ADRD Patients Across Provider-Level Characteristics



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Gettel, C., Martindale, J., & Bynum, J. (2024). *Health care use patterns among older adults with dementia.* CAPRA Data Brief. https://capra.med.umich.edu/data-briefs.html

New Data: Interesting facts about the population with ADRD worth considering for study designs

- Differences in ADRD prevalence in epidemiological data vs claims identified diagnosed populations
- Variation in percentage diagnosed ADRD residing in nursing homes
- Geographic distribution of diagnosed ADRD by race/ethnic groups

- Adding Medicare Advantage enrolled
  - Difference between MA & FFS ADRD populations
  - Variation in MA across US
  - Impact of MA on observed racial distribution

Bonus – COVID changes in ADRD population MA & FFS

Key Features of the Dementia Population at the National Level in Epidemiological Study vs. Medicare Claims

	OVERALL	AGE (Years)						SEX		RACE & ETHNICITY			
		65 -69	70-74	75-79	80-84	85-89	≥ 90	Female	Male	Black	Hispanic	White	Other
HCAP National Estimates (2016)* **Dementia % (95% CI)**	10% (9-11)	3% (1-4)	4% (2-6)	9% (6-11)	18% (14-22)	26% (20-31)	35% (28-43)	10% (9-11)	10% (8-11)	15% (10-19)	10% (7-13)	11% (10-13)	26% (13-39)
IMPACT Collaboratory 100% FFS Medicare (2019) **Dementia %****	6.2%	1.3%	2.5%	5.6%	10.8%	18.1%	27.0%	7.2%	5.1%	8.5%	7.2%	6.1%	4.5%

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*Manly et al. In: *JAMA Neurology*. 2022: 1242-1249
**IMPACT Collaboratory Data Analysis (2024)

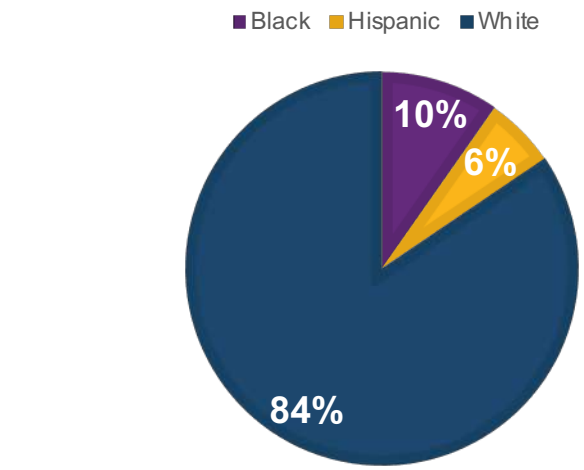
What Benchmark to Use for Assessing Representation by Race?

IMPACT Collaboratory
100% FFS Medicare
(2019)

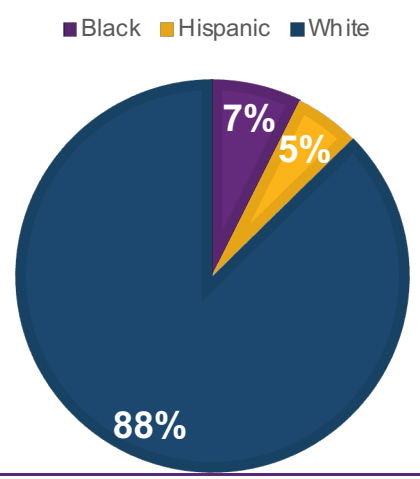
What percent of people have ADRD within racial/ethnic group?

Black	Hispanic	White
8.5%	7.2%	6.1%

What percent of people with ADRD in Medicare are in each racial/ethnic group?



What percent of people in Medicare are in each racial/ethnic group?



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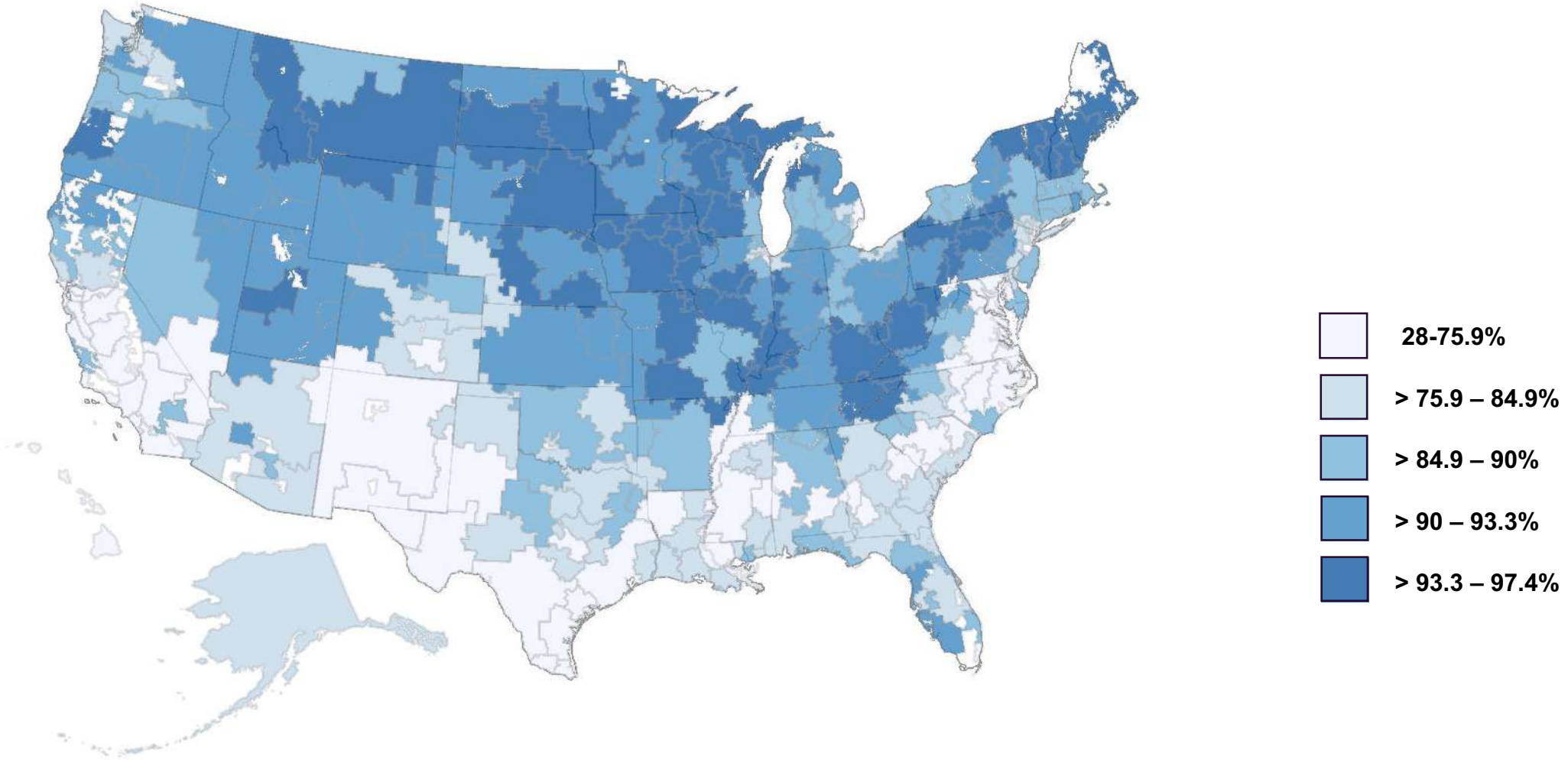
SOURCE: IMPACT Collaboratory Data Analysis (2024)

Percent White FFS Medicare Beneficiaries Age 65+ by HRR (2019)



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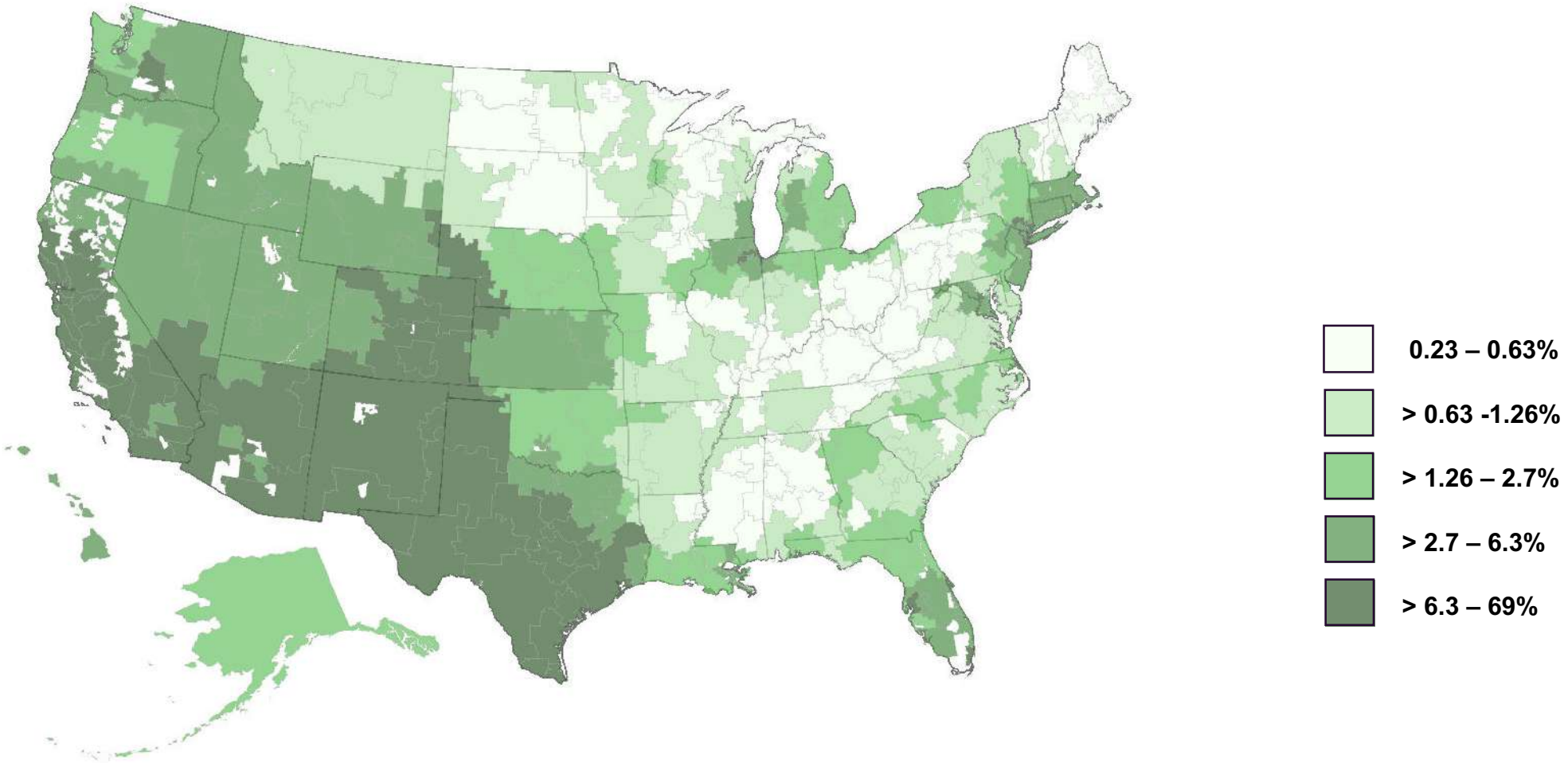
Note: showing all Medicare, not ADRD because of sample size but same concepts applies

SOURCE: IMPACT Collaboratory Data Analysis (2024)

Percent Hispanic FFS Medicare Beneficiaries Age 65+ by HRR (2019)



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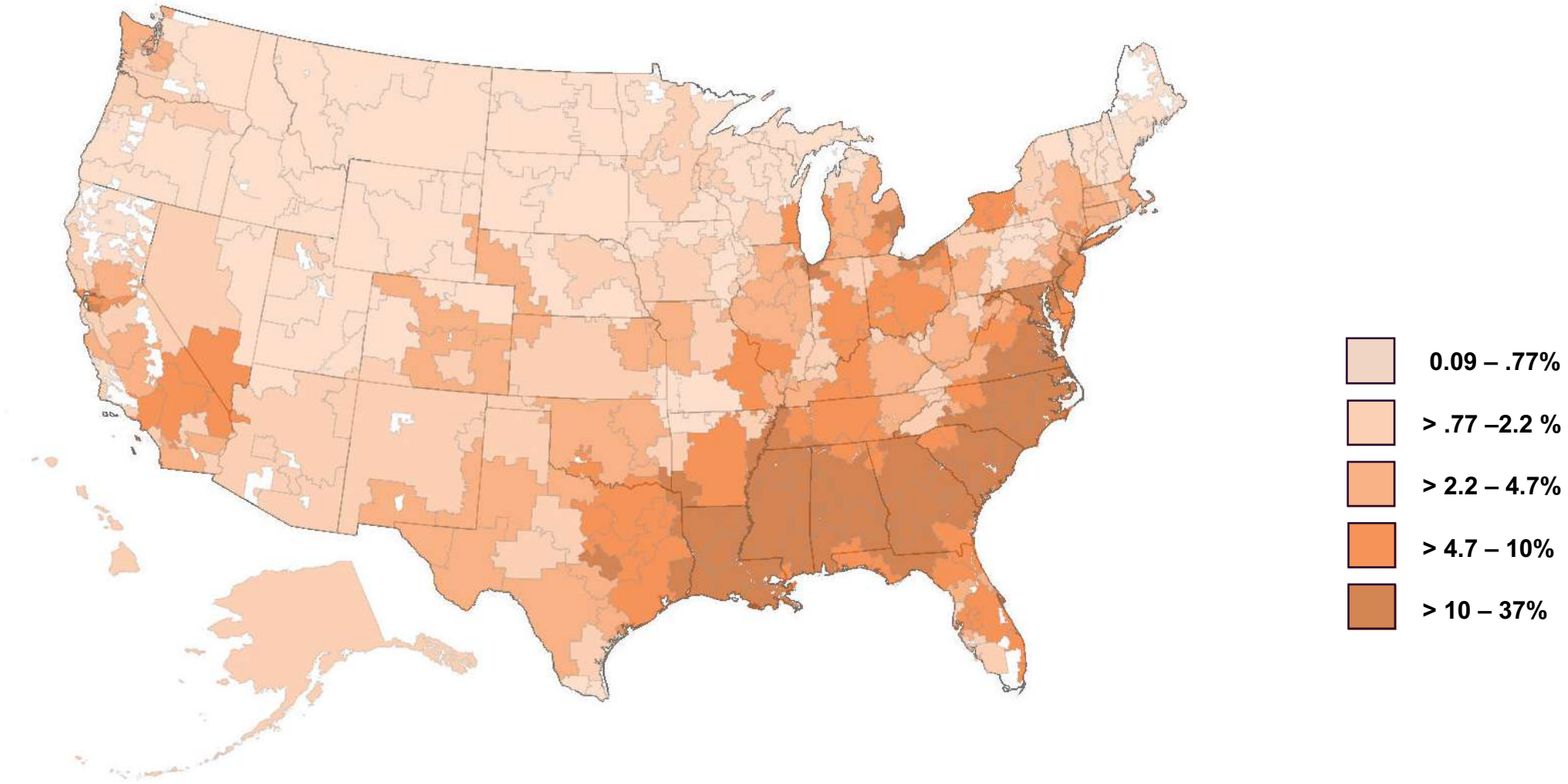
SOURCE: IMPACT Collaboratory Data Analysis (2024)

Percent Black FFS Medicare Beneficiaries Age 65+ by HRR (2019)



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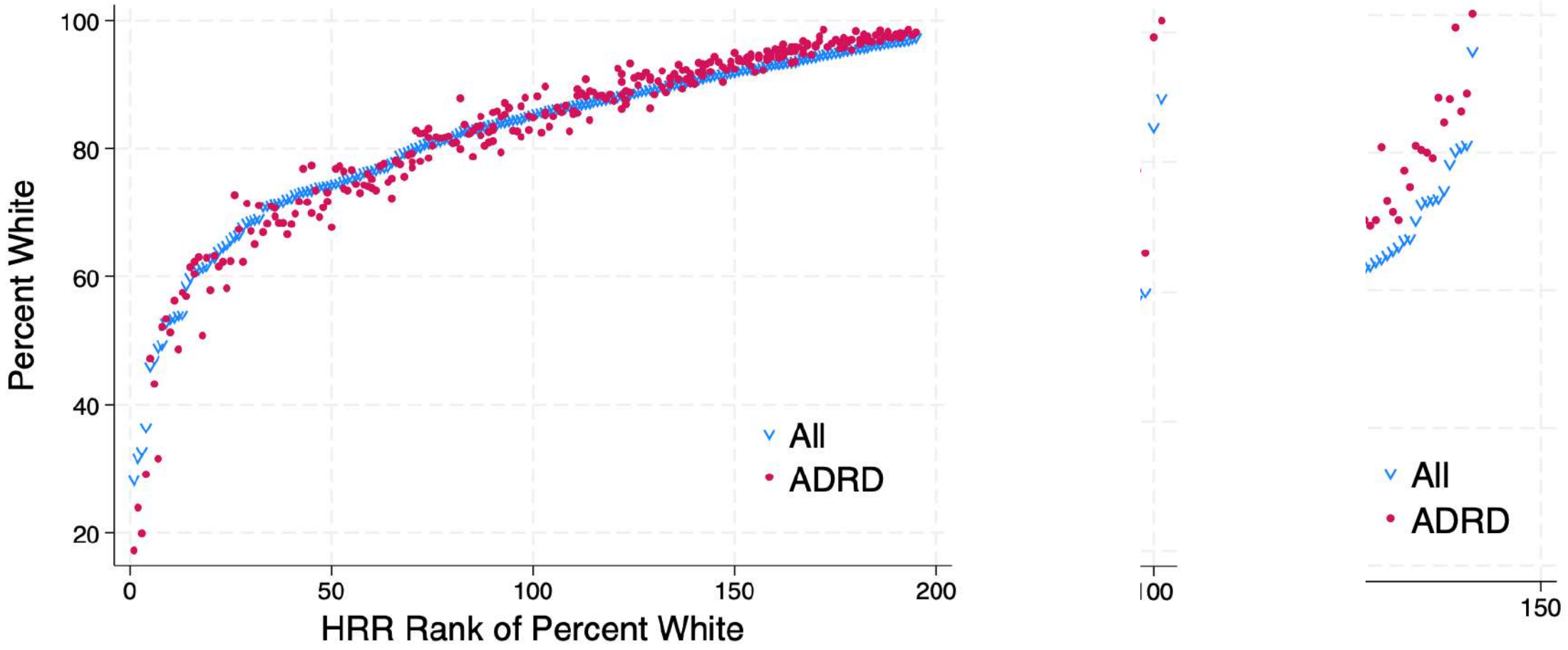
SOURCE: IMPACT Collaboratory Data Analysis (2024)

Percent by Race for All FFS Medicare compared ADRD



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SOURCE: IMPACT Collaboratory Data Analysis (2024)

What Benchmark to Use for Assessing Long Term Nursing Home Residence?

From Perspective of Nursing home

- 42% of nursing home residents have ADRD-CI[1]
- 70% of nursing home residents aged ≥ 70 have dementia.[2]

From Perspective of Population

(using the HRS Nationally representative sample, 2012)[3]

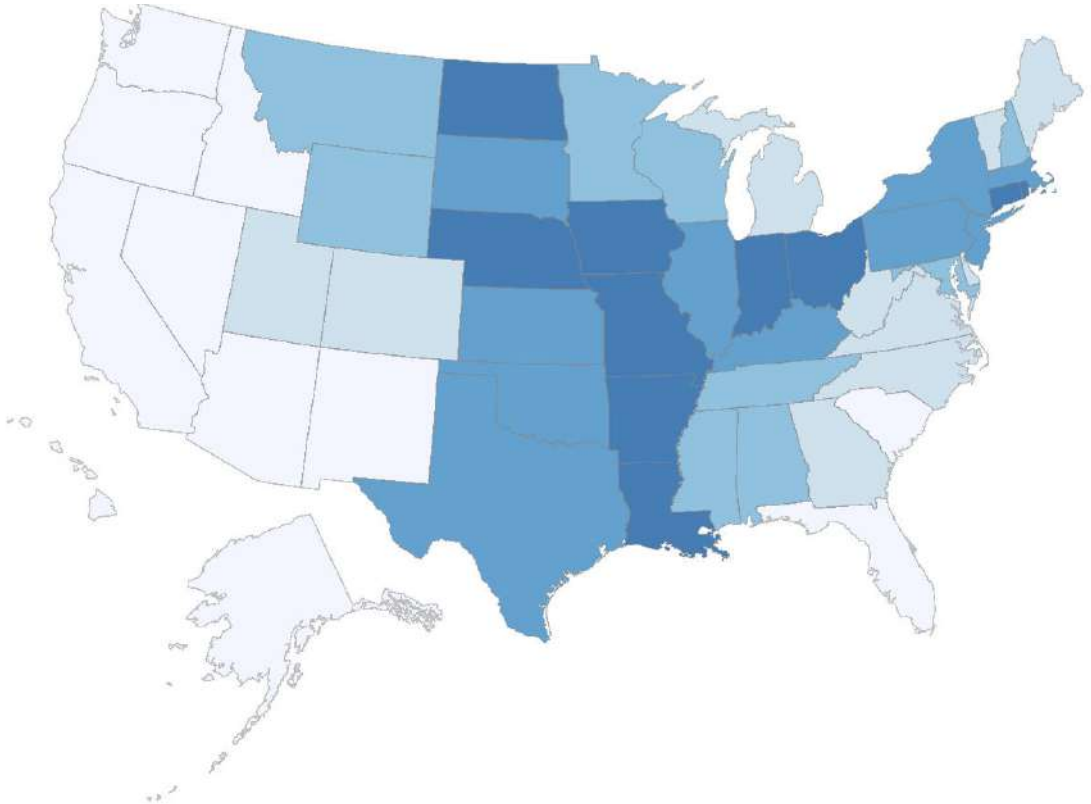
- Participants with identified with Dementia*:
  - 21% reside in NH or other health care facility

[1]Mukamel et al. (2023).Health Affairs 42(6): 795-803.
[2]Freedman, Cornman, and. Kasper, https://micda.isr.umich.edu/research/nhats-trends-dashboards/
[3] McCarthy et al. (2022). J Gerontology. 77(6): 1261-1271

*determined by study protocol

Nationally 24% Diagnosed ADRD Cases age 65+ in FFS Reside in Nursing Homes (2019)

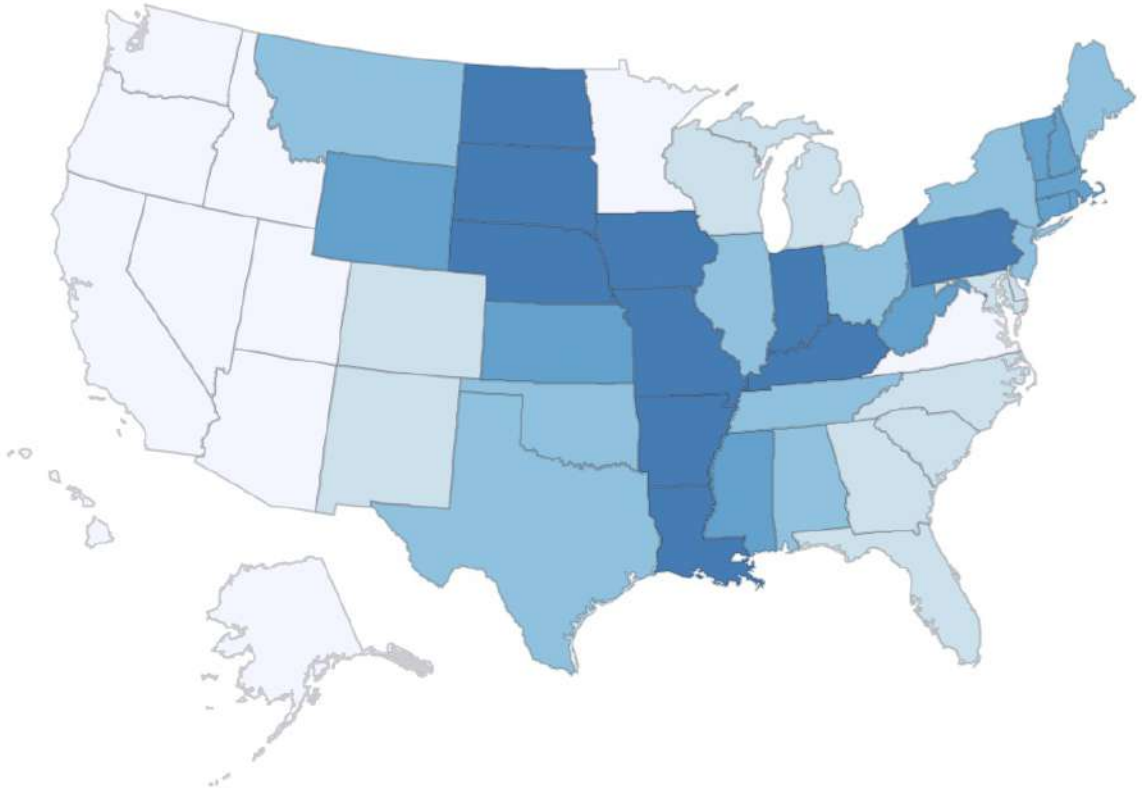
Certified NH Beds per 1000 Medicare FFS Enrollees (2019)



7.6 – 18.5 | >18.5 – 22.5 | >22.5 – 27.4 | >27.4 – 37.4 | >37.4 – 45

SOURCE: CMS, Office of Enterprise and Data Analytics, CMS Chronic Conditions Data Warehouse.

Percent Diagnosed ADRD in Long-stay Nursing Home (2019)



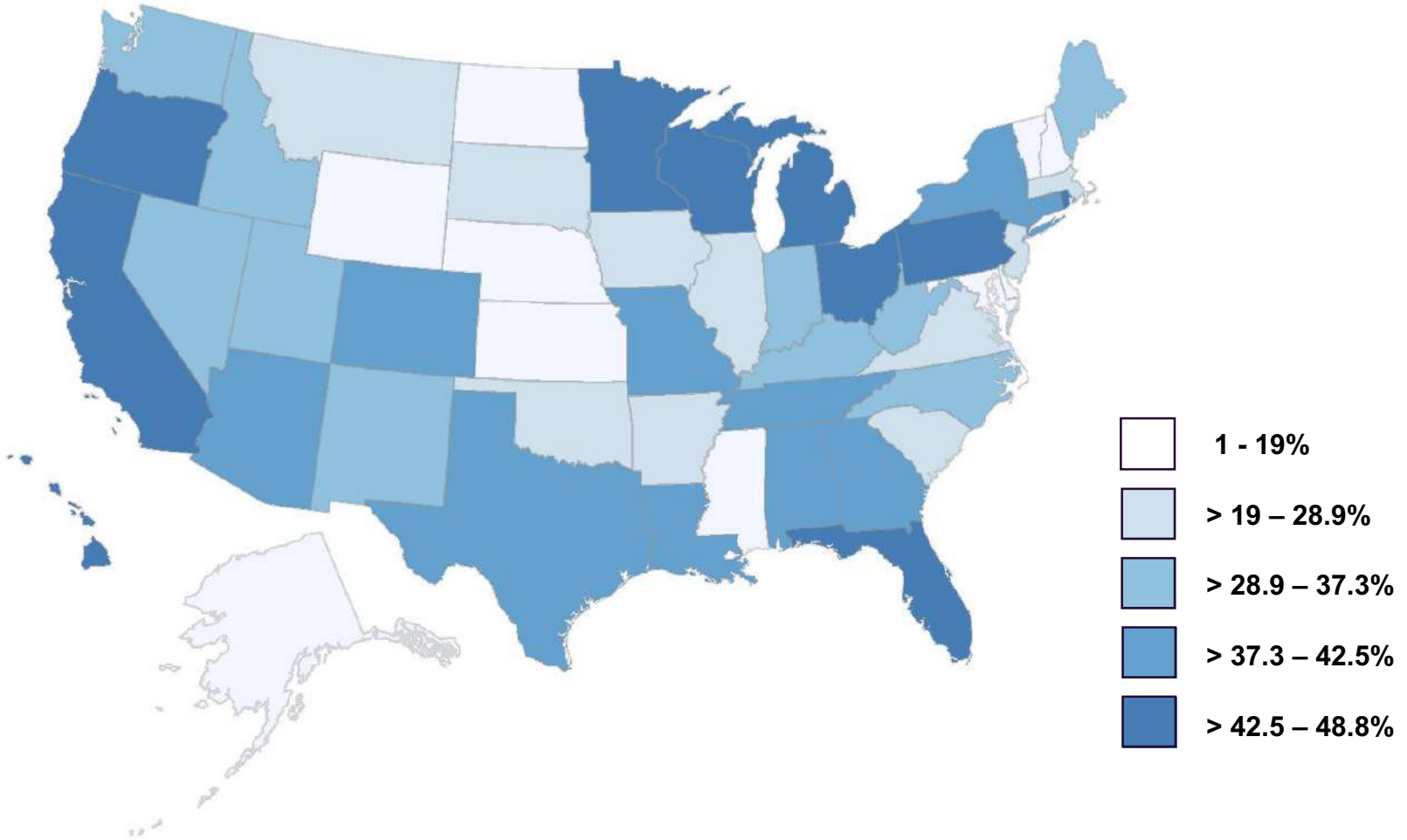
5.8 – 19.5% | >19.5 – 22.6% | >22.6 – 26.4% | >26.4 – 30.5% | >30.5 – 47%

SOURCE: IMPACT Collaboratory Data Analysis (2024)

What Benchmark to Use for in Medicare Advantage vs Fee-for-Service?

	Medicare Population 65+ (2019)
	All
FFS	52.7%
MA	36.7%
Partial Yr	10.6%

Percent of Medicare Beneficiaries aged 65+ Enrolled in MA by State (2019)



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SOURCE: IMPACT Collaboratory Data Analysis (2024)

What Benchmark to Use for in Medicare Advantage vs Fee-for-Service?

	Medicare Population 65+ (2019)	
	All	Diagnosed ADRD
FFS	52.7%	59.7%
MA	36.7%	35.7%
Part	10.6%	5.0%

	Medicare Population 65+ (2019)			
	All		Diagnosed ADRD	
	FFS	MA	FFS	MA
AGE				
65-74	56%	57%	16%	18%
75 - 84	31%	32%	38%	42%
85 +	13%	11%	46%	40%
SEX				
Female	56%	57%	64%	64%
Male	44%	43%	36%	36%
RACE				
Black	7%	11%	9%	13%
Hispanic	5%	11%	6%	11%
White	82%	71%	81%	71%
Other	6%	7%	4%	5%
DUAL ELIGIBILITY	9%	10%	34%	31%

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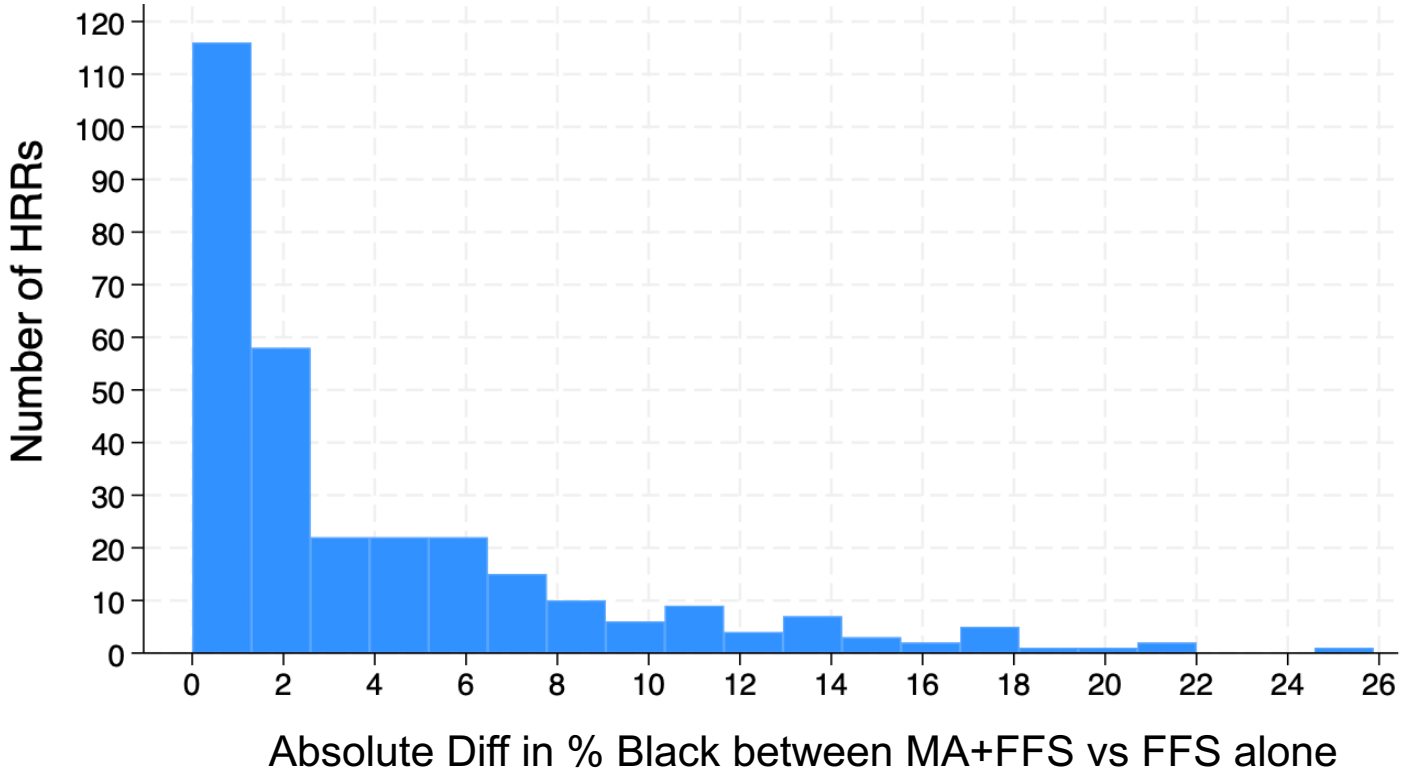
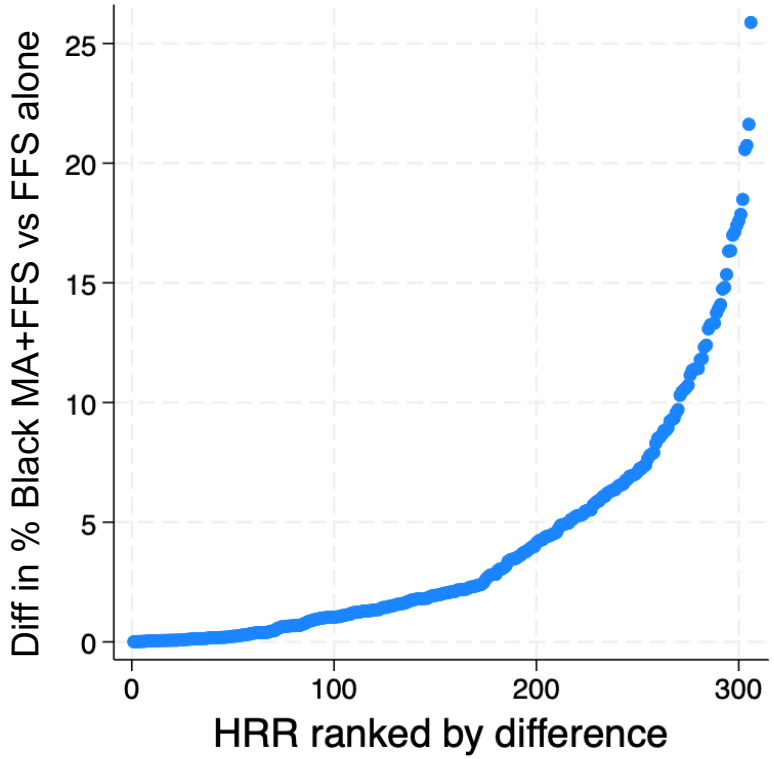
SOURCE: IMPACT Collaboratory Data Analysis (2024)

Impact of MA on Racial Distribution across U.S. in Medicare

Difference in % Black between using All Medicare (FFS + MA) vs FFS alone





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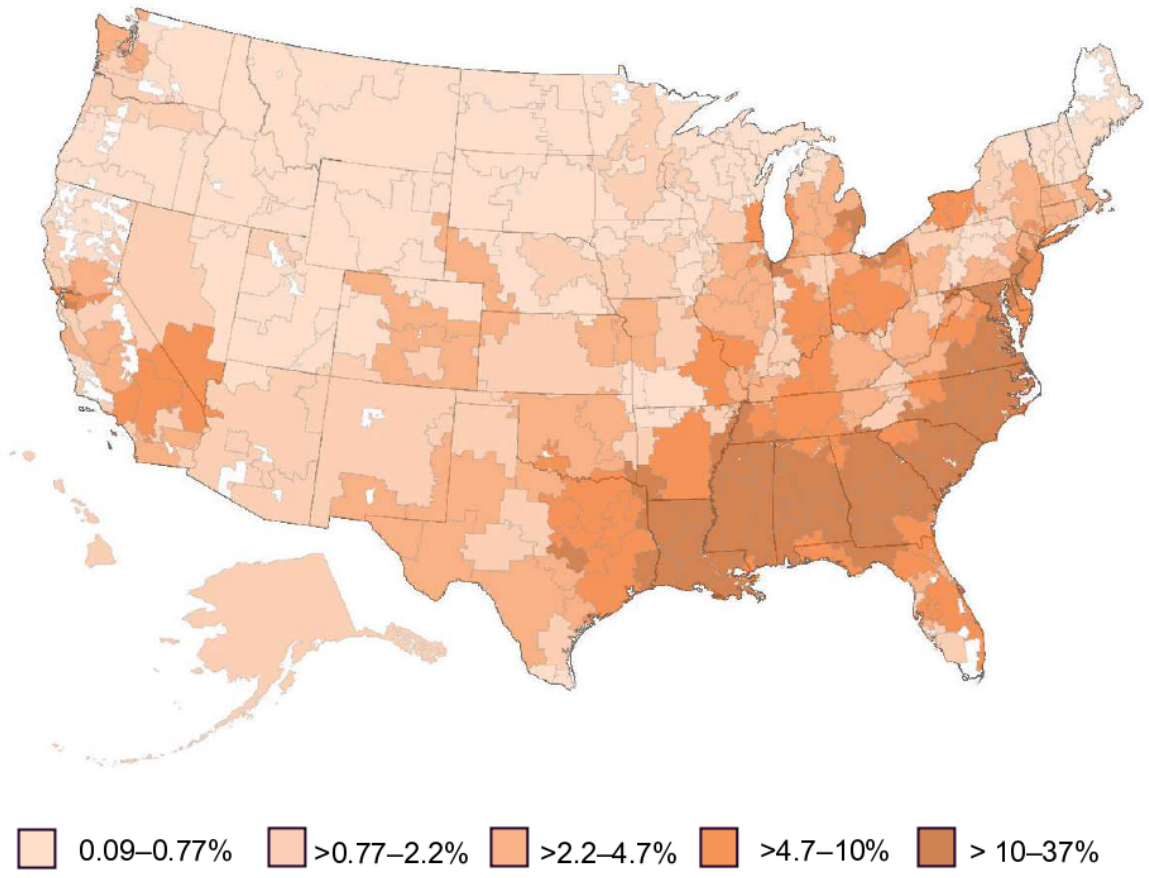
Note: showing all Medicare, not ADRD because of sample size but same concept applies

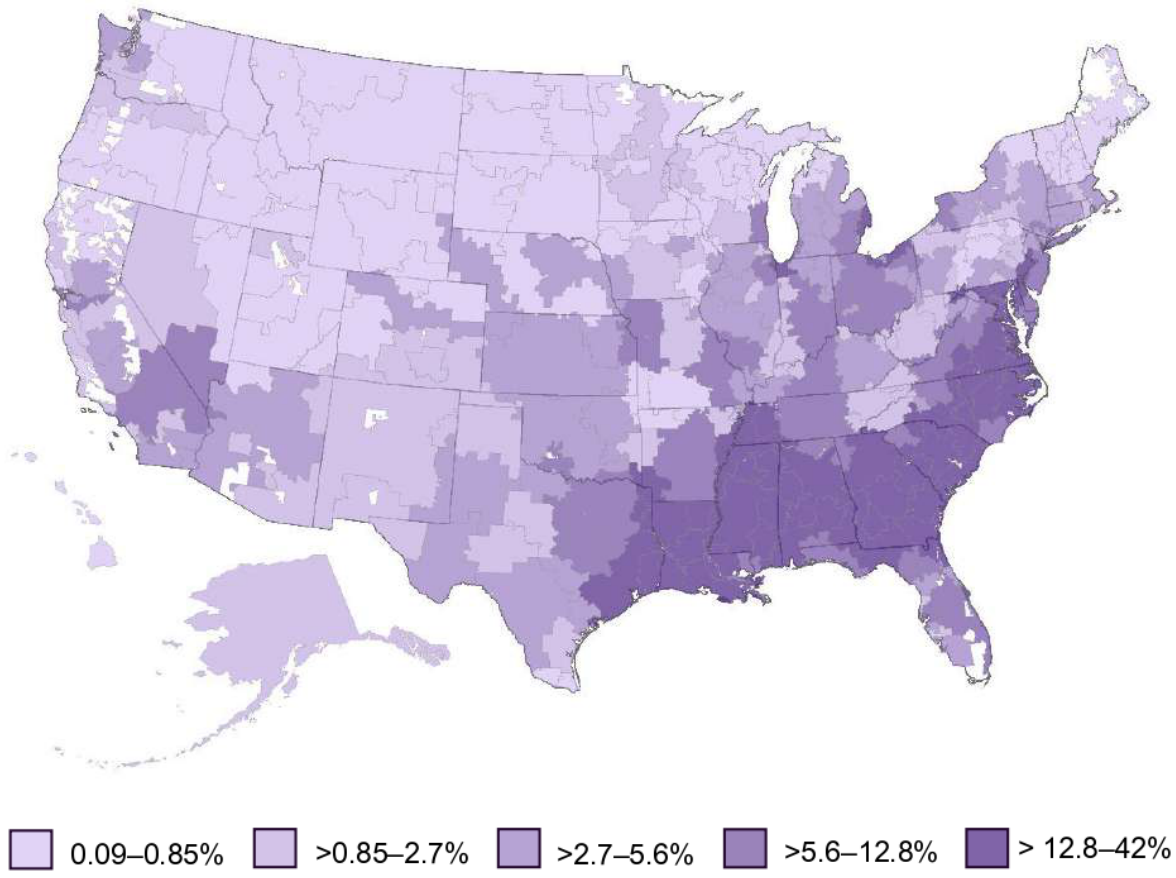
SOURCE: IMPACT Collaboratory Data Analysis (2024)

Percent Black FFS *AND* Black FFS & MA Medicare Beneficiaries by HRRs (2019)

Black FFS Medicare Beneficiaries (2019)



Black FFS Medicare & MA Beneficiaries (2019)



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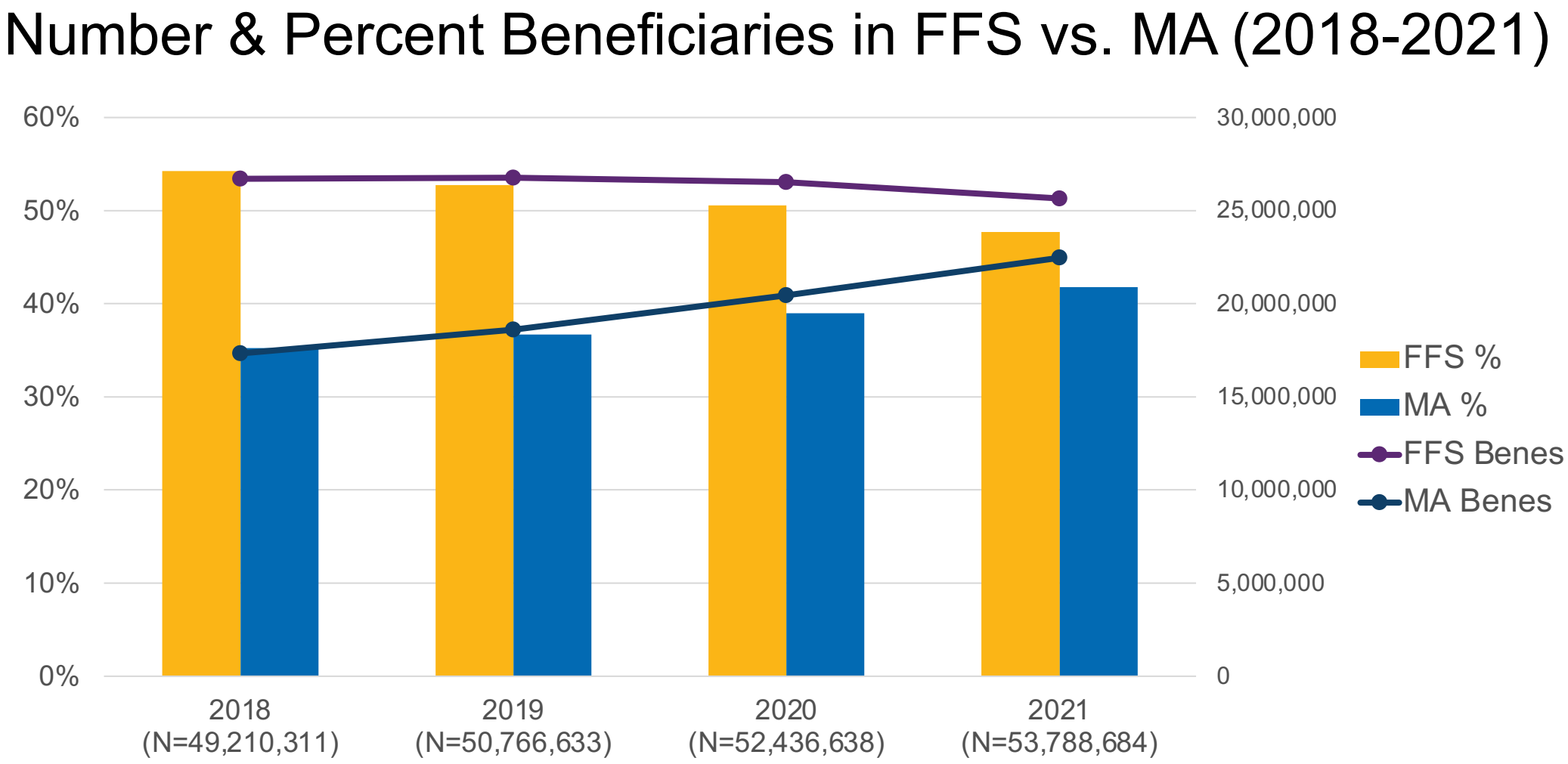
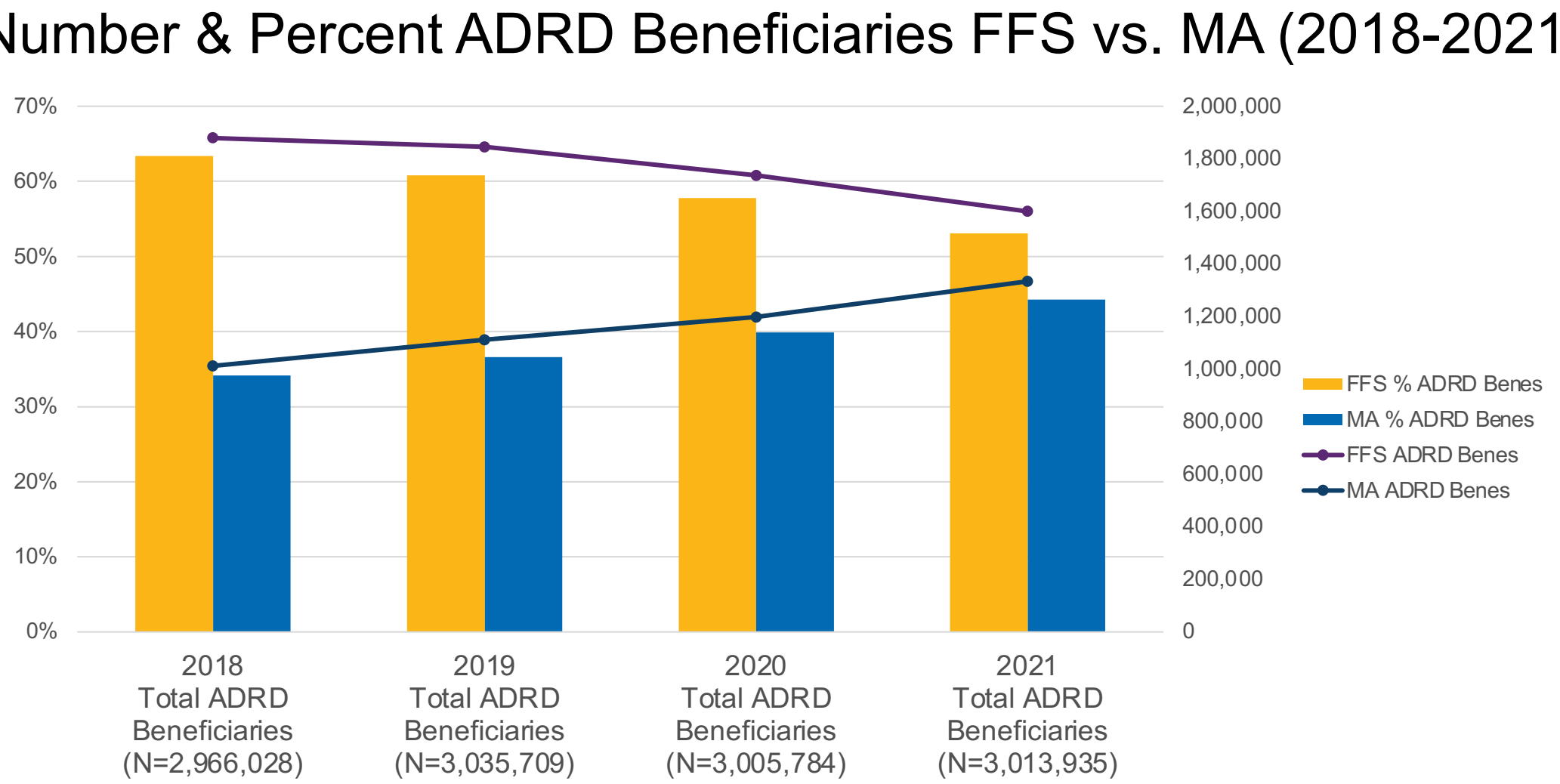
SOURCE: IMPACT Collaboratory Data Analysis (2024)

Changes Across Covid Period in FFS and MA



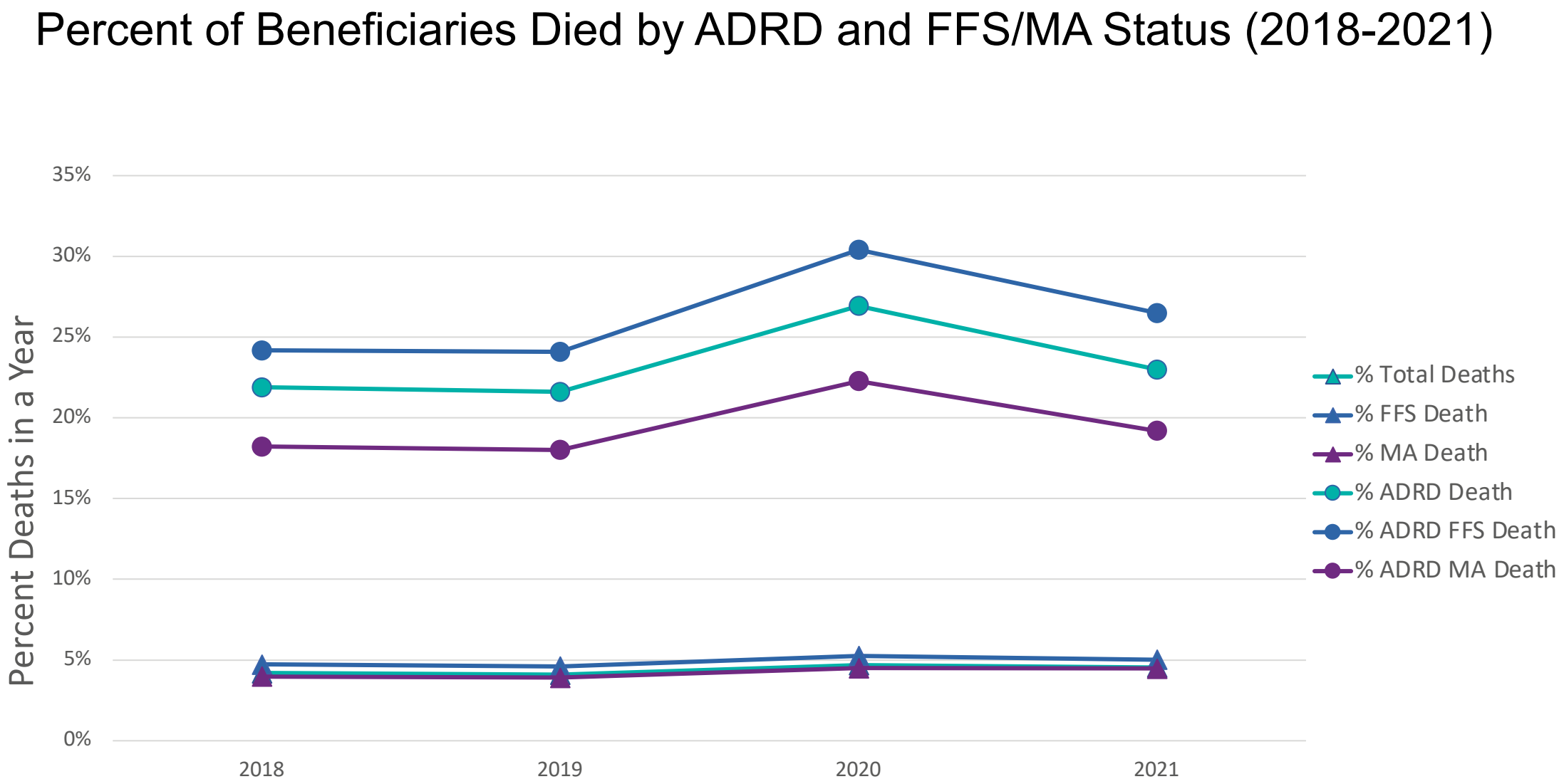
SOURCE: IMPACT Collaboratory Data Analysis (2024)

Changes Across Covid Period in FFS and MA in ADRD Population



SOURCE: IMPACT Collaboratory Data Analysis (2024)

Changes Across Covid Period in FFS and MA in Pre and Post Covid on ADRD Population

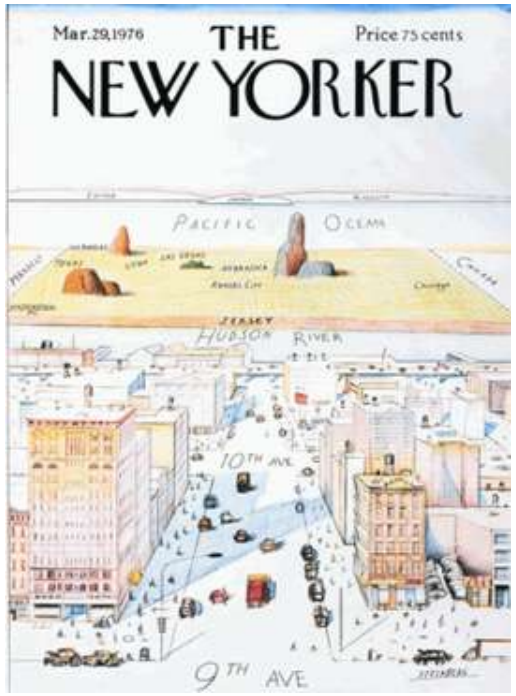


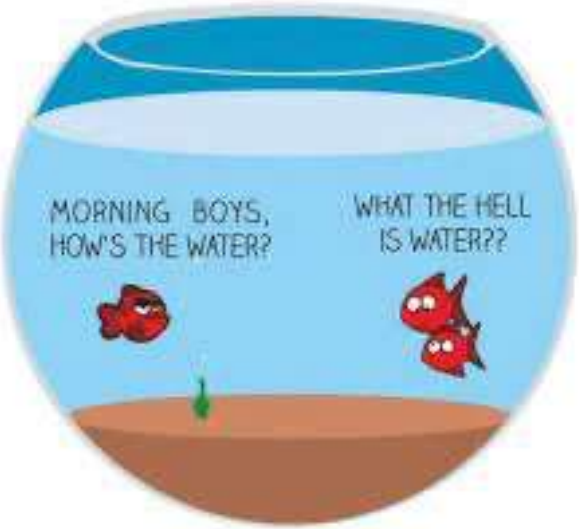
SOURCE: IMPACT Collaboratory Data Analysis (2024)

Why pay attention to these population data or benchmarks?

- Feasibility
- Power
- Planning for health equity
- Assess potential bias

Getting Outside One's Localized Perspective





Closing

- Medicare data identifies fewer people with dementia than epidemiological data with known biases; most important of which is more severe/later stage of disease
  - Since these data driven by EHRs, same bias likely in other healthcare generated data
- National averages do not reflect local benchmarks
- Intersection of Place with Race - or any other demographic characteristic - important to recognize and address
- Less visible context variables (such as MA vs FFS) can also impact bias

Thanks

Team at Michigan

Slim Benloucif

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Jonathan Martindale

Jason Mann

TDC Executive C'ee

David Dorr (OHSU)

Julie Lima (Brown)

Ellen McCreedy (Brown)

David Meyers (Brown)

Vinod Vydiswaran (Mich)

Richard Platt (Harvard)

Liaisons – Vince Mor & Ellen McCarthy

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Questions?