Prescription Drug Adherence

and

the Coverage Gap Discount Program

Disclosure

"I, Rebecca DeCastro, declare no conflicts of interest or financial interests in any product or service mentioned in this presentation, including grants, employment, gifts, stock holdings, or honoraria."

Learning Objectives

- Compare 2009 -2011 prescription drug adherence rates within the Initial Coverage Limit (ICL), Coverage Gap (Gap), and Catastrophic benefit phases for Medicare Part D beneficiaries of defined cohorts.

- Identify the 2011 Top 10 therapeutic drug classes with the largest dollar amounts of gap discounts and the average gap discount amount saved per beneficiary.

Additional Objectives

- Compare the odds ratios, resulting from a logistic regression on adherent and non-adherent cohorts, on these variables: gender, race, beneficiary location, plan/benefit type, and secondary payer conditions.

- Review statistically significant differences of four chronic disease populations according to variables listed above.

- Contrast generic prescription drug dispensing rates of cohorts in the ICL, Gap, and Catastrophic benefit phases for years 2009 through 2011.

Definitions

- Adherence: extent to which a person's behavior - taking medication and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider.

- Chronic disease: (one or more characteristics)
  1. Permanent
  2. Leave residual disability
  3. Caused by nonreversible pathological alteration
  4. Require rehabilitation
  5. Requires long periods of supervision/care

Facts

- Chronic diseases are the leading cause of death and disability in the United States causing 7 out of 10 deaths each year.

- Medication adherence is a main component of patient self-management of chronic diseases.

- Patients that are adherent to prescription drugs:
  - Have better health outcomes
  - Have less emergency room visits
  - Use less inpatient hospital services
  - Overall, have lower total health care costs

Facts

- In 2006, Medicare Part D beneficiaries who entered the coverage gap were 34 percent more likely to experience cost-related non-adherence to prescription drugs compared with those who did not enter the gap.
- 2011 calendar year marked the beginning of closing the coverage gap:
  - 50% discount on applicable (brand) drugs
  - 93% coinsurance on non-applicable (generic) drugs

Research Population

- Chronic Disease Drug Categories
    1. Dementia 3. Hyperlipidemia
    2. Diabetes   4. Hypertension

- Cohorts
    - Part D enrollees during 2009, 2010, and/or 2011
    - Adherent in the pre-Coverage Gap period for a given above drug category
    - Non-low income subsidy population
    - Entered the Coverage Gap prior to Oct 31st
    - Two Prescription Drug Events (PDEs) for at least one drug category prior to the Coverage Gap
    - Excluded enrollees of PACE plans and EGWPs

Chronic Diseases & Drug Classes

- Dementia – Acetylcholinesterase inhibitors, NMDA receptor antagonists.

- Diabetes – Biguanides, DPP-4 inhibitors, meglitinides, sulfonylureas, thiazolidinediones, combination drugs, insulin.

- Hyperlipidemia – HMG CoA reductase inhibitors (statins), statin combinations with niacin, calcium channel blockers, or cholesterol absorption inhibitors.

- Hypertension – ACE inhibitors, ACE inhibitor combinations with calcium channel blockers or thiazide diuretics, angiotensin II receptor blockers, angiotensin II receptor blocker combinations with renin inhibitors, calcium channel blockers, or thiazide diuretics.

Data Sources

- PDEs
  - 2009 – 2011
  - Dates of service Jan – Nov
- Health Plan Management System (HPMS)
  - Plan type
  - Benefit type
  - Benefit structure
- Common Medicare Environment (CME)
  - Low-income subsidy status
  - Demographics : age, gender, race, state
- Enrollment Database (EDB): residence region
- Metropolitan Statistical Area Business Enterprise Area (MSABEA) file: rural/urban/territory designations

Methodology - Defining Benefit Phases

	ICL					Gap							Catastrophic						
T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20
1	1	1																	
				2	2	2													
								3	3	3									
												4	4	4					
																	5	5	5

Methodology – Defining Adherence

- Adherence
  - Proportion of Days Covered Method, 80% threshold
  - Preferred method on the Pharmacy Quality Alliance website
  - Example: 90 + 90 + 90 + 60 = 330 / 365 = 90.4%

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Claim Sequence												
Drug A	Fill 1: 90 days										Fill 4: 60 days	
Drug A			Fill 2: 90 days									
Drug A					Fill 3: 90 days							
Total Days Coverage												
Drug A	Fill 1: 90 days			Fill 2: 90 days			Fill 3: 90 days				Fill 4: 60 days	

Cohorts

| Population	2009	2010	2011
Non-LIS from Jan - Nov	17,870,487	18,491,931	19,783,847
Enters coverage gap	2,880,046	2,896,711	3,233,069
Not employer plan and not PACE	2,313,228	2,316,843	2,534,634
Continuously enrolled in same plan	2,139,746	2,145,706	2,375,171
At least 2 claims for a condition (Initial Cohort)	**1,797,243**	**1,819,656**	**2,024,978**

Subcohorts by Chronic Disease

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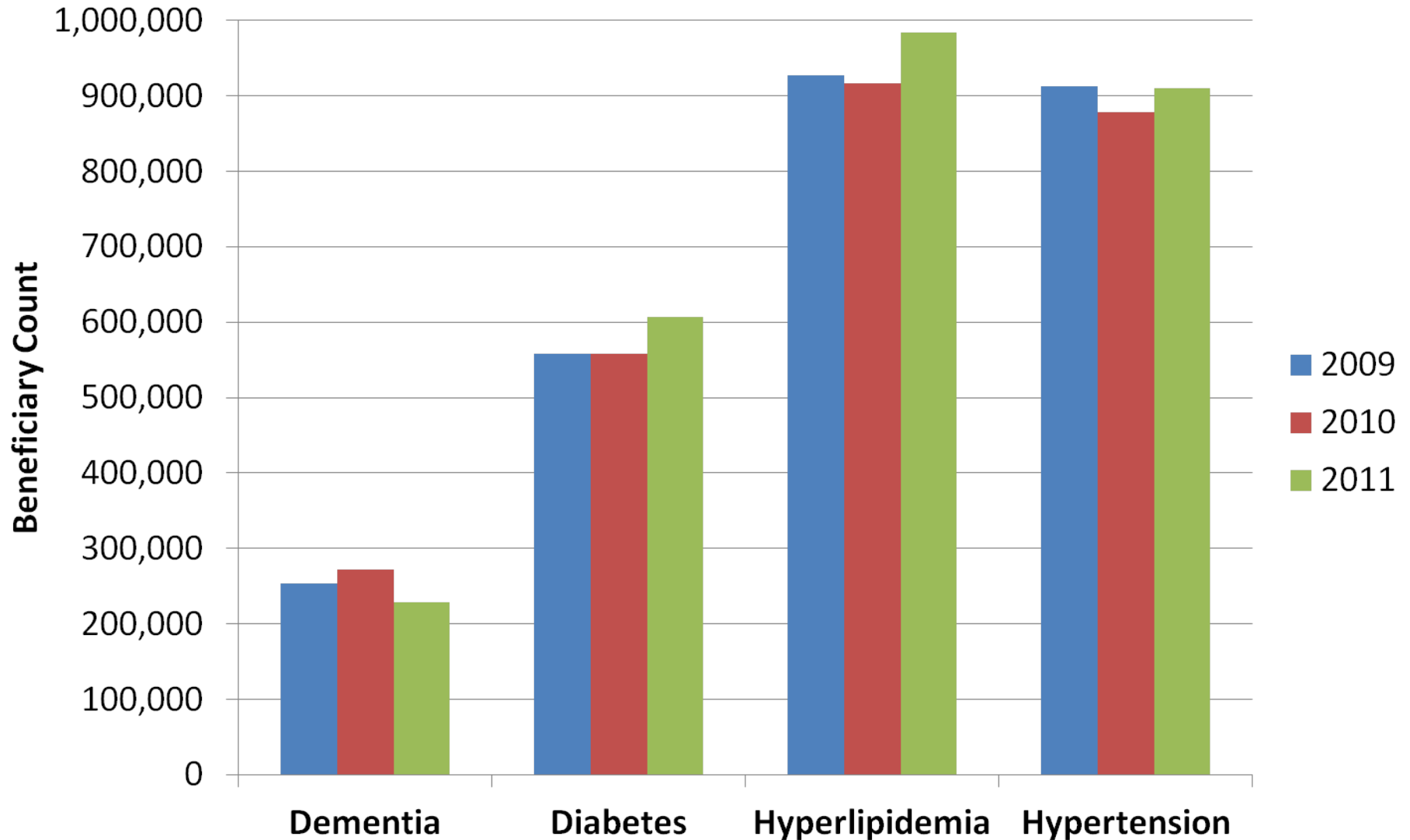
Percent Adherent in ICL
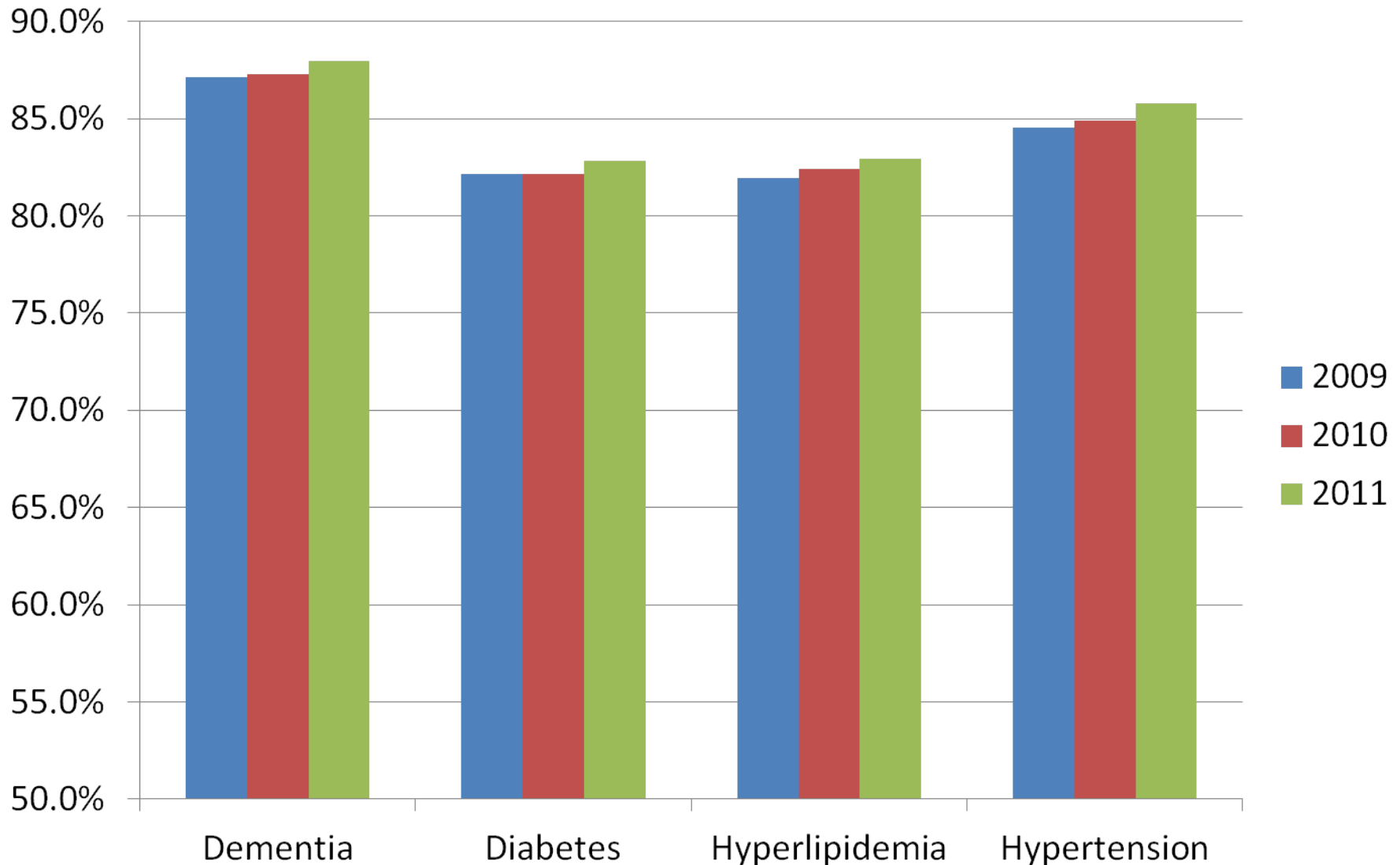
Percent Adherent in Gap
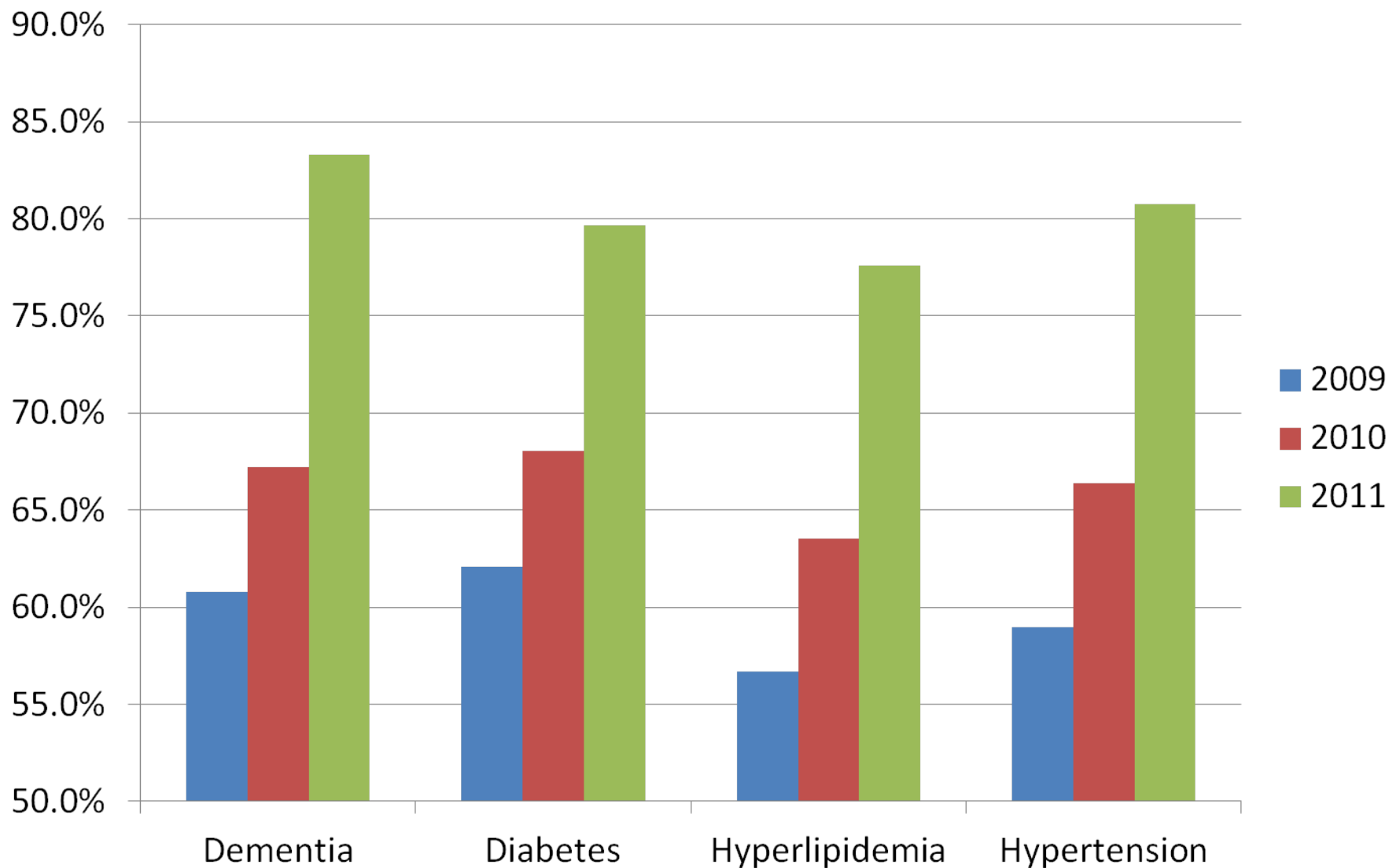
Percent Adherent in Catastrophic
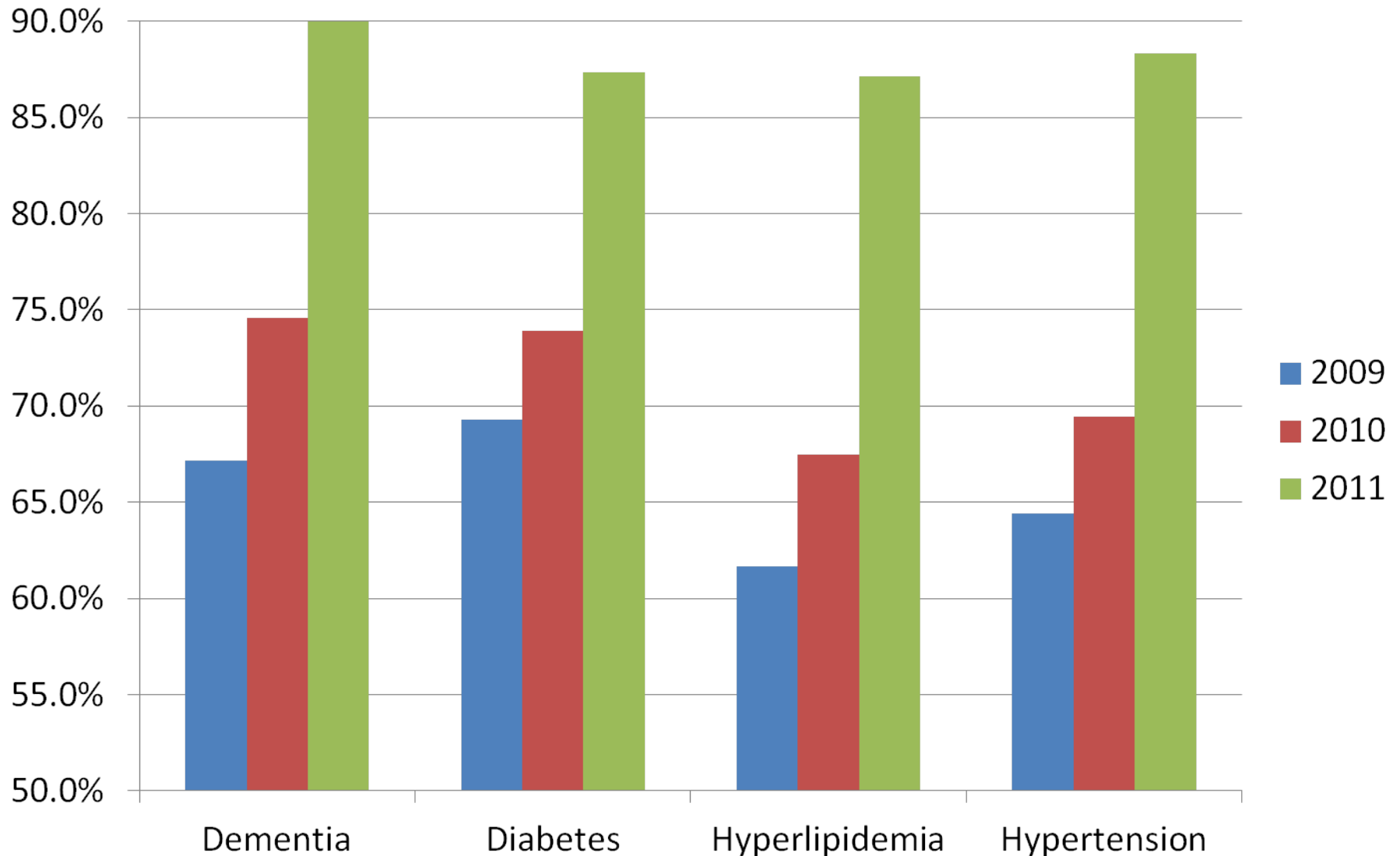
2009 – 2011 Adherent in Gap Cohort Demographics

Category	Average % of Beneficiaries	Range			
		Dementia	Diabetes	Hyperlipidemia	Hypertension
Male	42%	31% - 32%	48% - 50%	44% - 46%	40% - 42%
Age:					
Under 65	6%	1%	9%	6% - 7%	6% - 7%
65 to 74	39%	13% - 15%	51% - 52%	44% - 46%	44% - 46%
75 to 84	37%	46% - 47%	30% - 31%	34% - 36%	33% - 35%
Over 84	19%	38% - 40%	8% - 9%	13% - 14%	14% - 15%
Race					
Asian	1%	1%	1%	1%	1%
Black	4%	2% - 3%	5%	3% - 4%	4% - 5%
Hispanic	1%	1% - 2%	1%	1%	1%
North American/Alaskan Native	0%				
Other	1%	1%	2%	1%	1%
White	93%	94% - 95%	90% - 91%	93% - 94%	92% - 93%
MAPD	31%	25% - 28%	33% - 37%	28% - 31%	29% - 32%
Supplemental Gap Coverage	36%	28% - 39%	36% - 41%	34% - 39%	33% - 39%
Rural	22%	20% - 21%	23% - 24%	21% - 22%	22% - 23%
Other Coverage	3%	1% - 4%	1% - 5%	1% - 4%	1% - 4%

Forest Plot - Dementia

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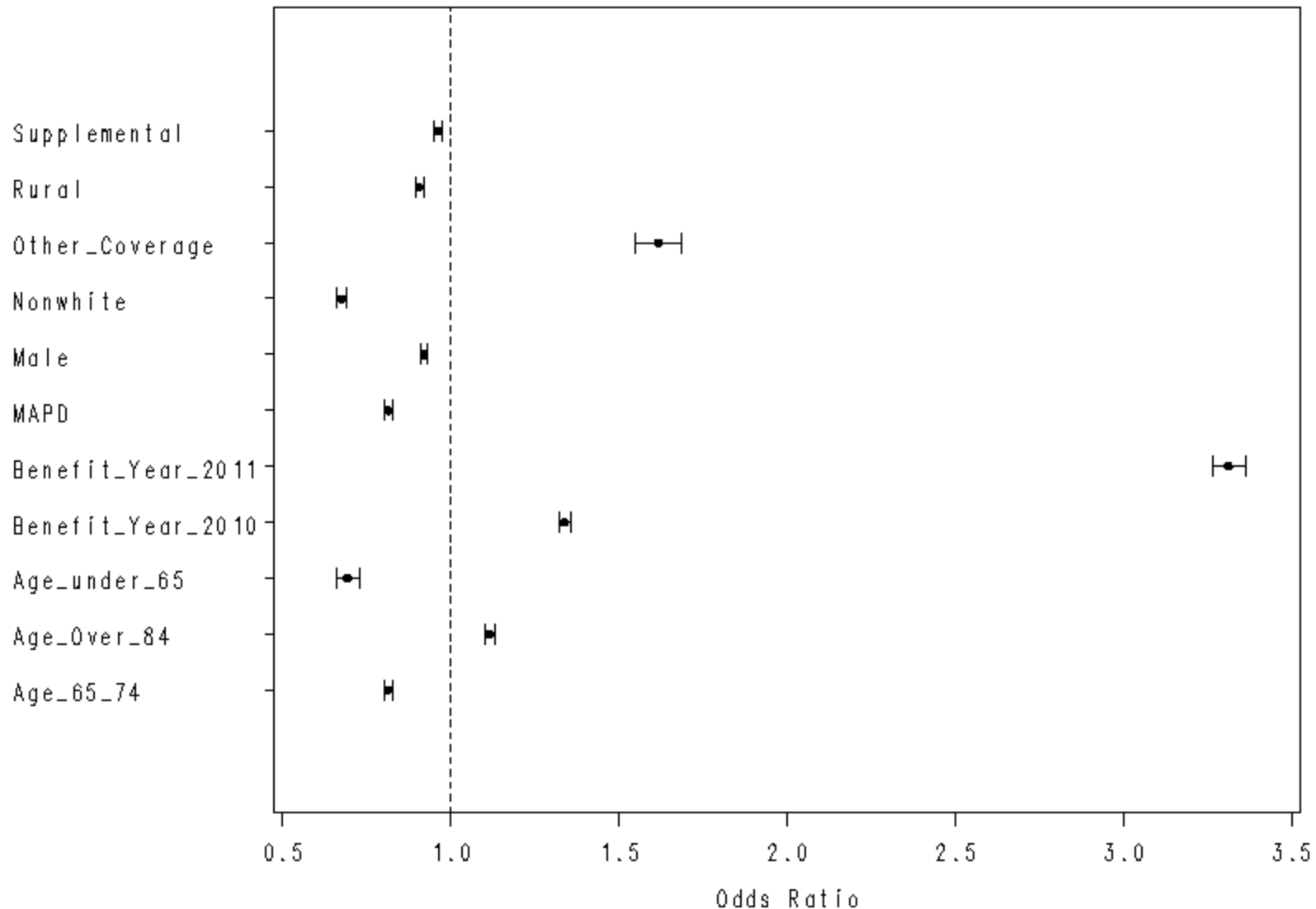
Forest Plot - Diabetes

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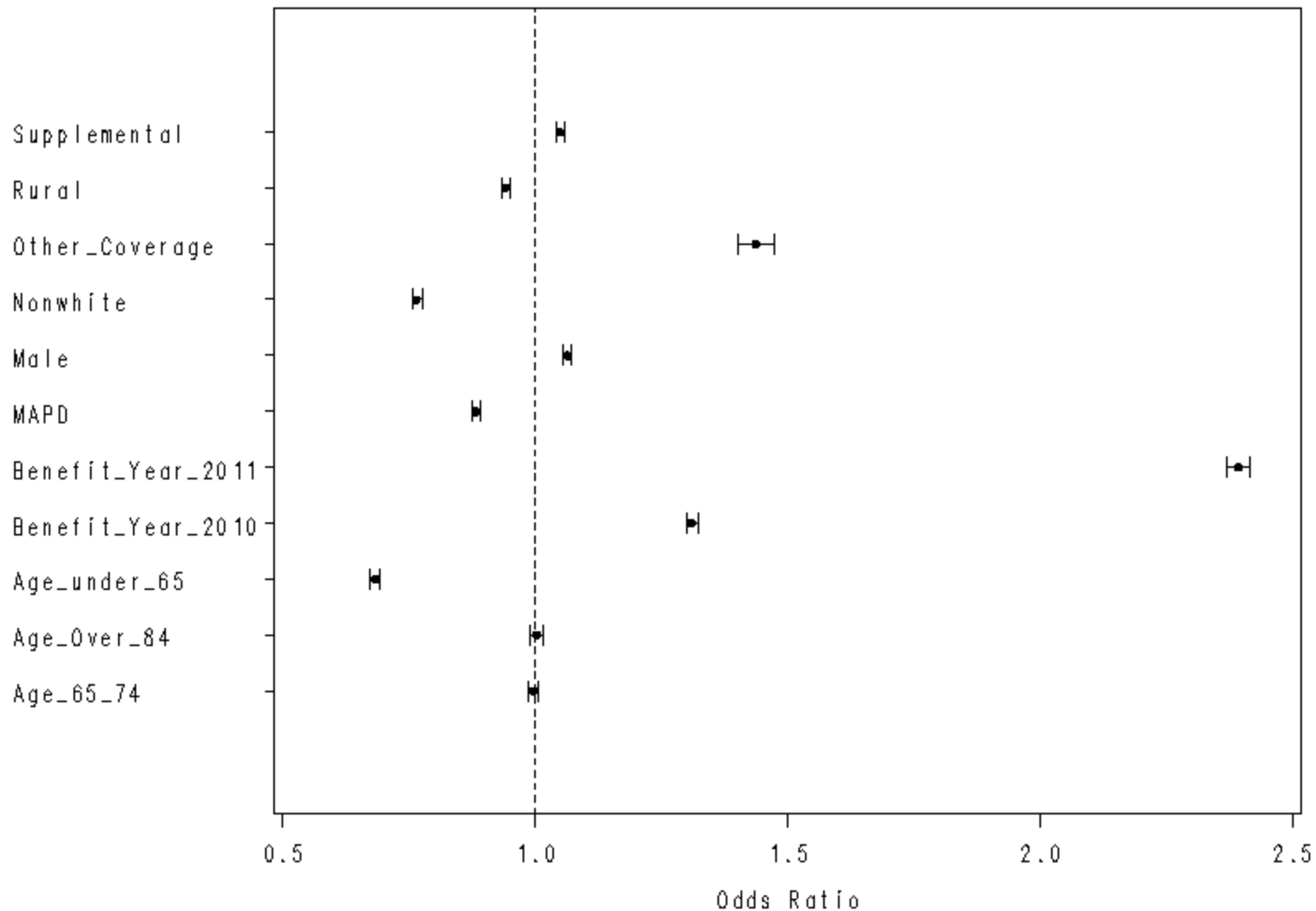
Forest Plot – Hyperlipidemia
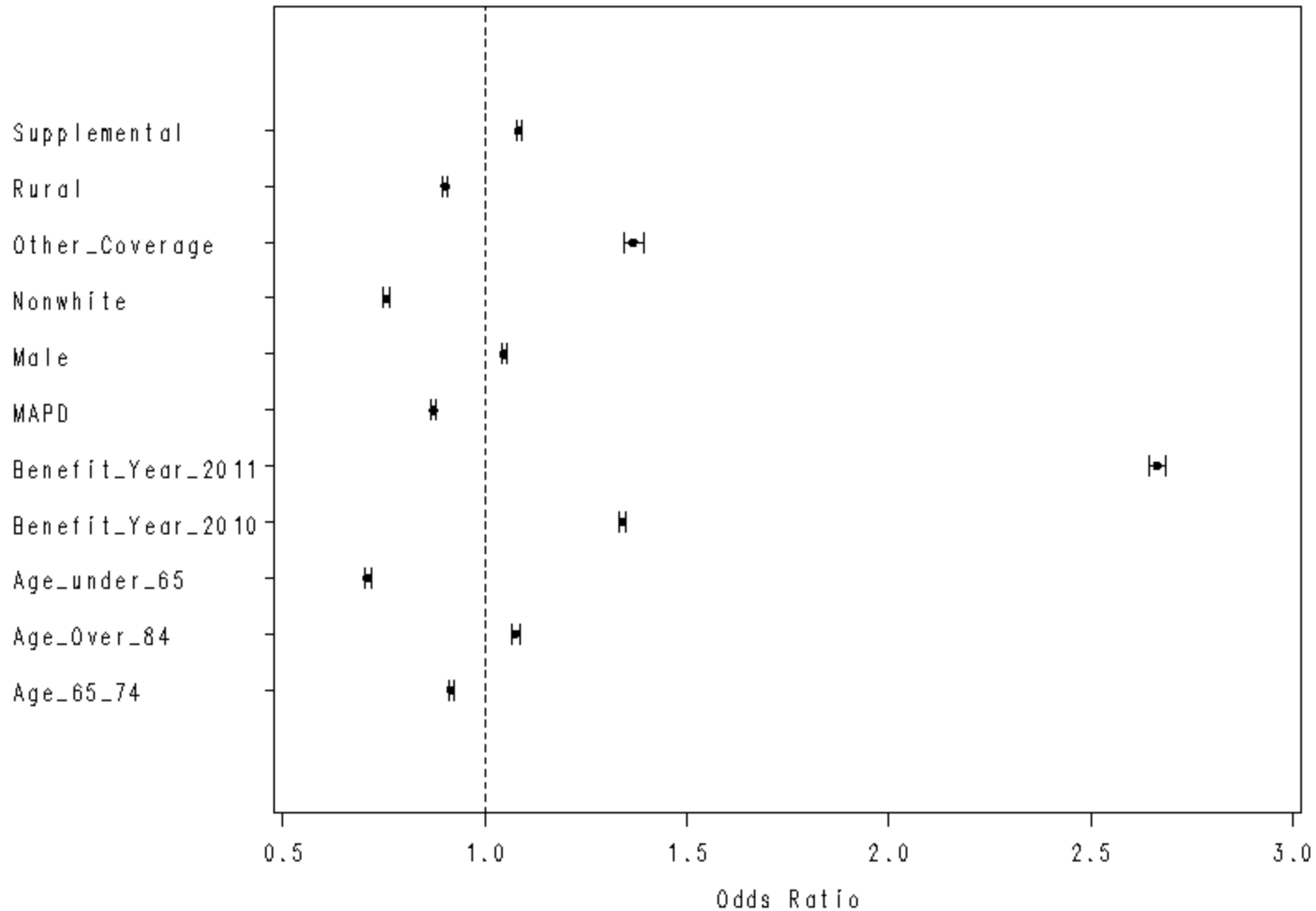
Forest Plot - Hypertension

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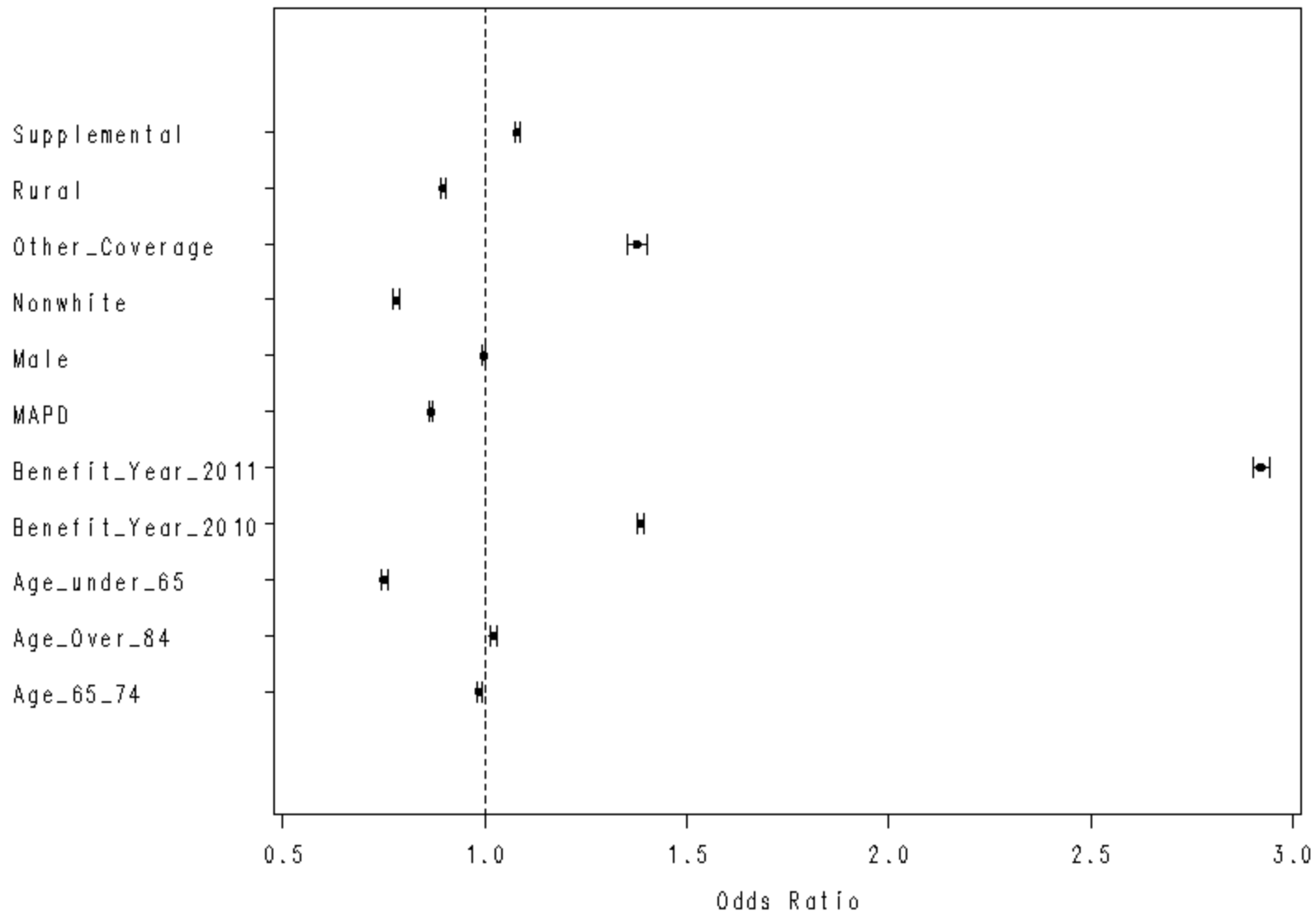
Adherent and Non-adherent Populations

Benefit Year	Non-Adherent in Gap		Adherent in Gap		Total	
	Beneficiary Count	%	Beneficiary Count	%	Beneficiary Count	%
2009	871,809	40.65	1,272,858	59.35	2,144,667	100
2010	716,245	33.70	1,409,351	66.30	2,125,596	100
2011	450,019	20.28	1,769,026	79.72	2,219,045	100
Total	2,038,073	31.41	4,451,235	68.59	6,489,308	100

Dementia – Statistical Review of Variables

Dementia N = Non-adherent A = Adherent	2009			2010			2011		
	N	A	P value	N	A	P value	N	A	P value
Male	33.16%	30.93%	< 0.01	34.48%	30.95%	< 0.01	34.88%	32.50%	< 0.01
Non-white	6.51%	4.30%	< 0.01	7.08%	4.56%	< 0.01	7.48%	5.07%	< 0.01
Rural	23.10%	20.93%	< 0.01	22.12%	21.63%	< 0.01	21.46%	21.65%	> 0.05
MAPD	27.82%	23.75%	< 0.01	31.62%	26.07%	< 0.01	31.50%	26.35%	< 0.0001
Age < 65	1.54%	1.06%	< 0.01	1.71%	1.03%	< 0.01	2.05%	1.35%	< 0.01
Age 65 - 74	16.00%	13.16%	< 0.01	17.47%	13.20%	< 0.01	18.50%	14.68%	< 0.01
Age 75 - 84	47.01%	46.94%	> 0.05	46.68%	45.85%	< 0.01	46.28%	45.85%	> 0.05
Age 85+	35.45%	38.85%	< 0.01	34.14%	39.92%	< 0.01	33.16%	38.12%	< 0.01
Other Coverage	1.30%	2.12%	< 0.01	2.09%	3.62%	< 0.01	0.88%	0.80%	> 0.05
Supplemental	33.27%	29.44%	< 0.01	30.47%	28.68%	< 0.01	40.34%	38.21%	< 0.01

Diabetes – Statistical Review of Variables

Diabetes	2009			2010			2011		
N = Non-adherent A = Adherent	**N**	**A**	**P value**	**N**	**A**	**P value**	**N**	**A**	**P value**
Male	47.82%	48.66%	< 0.01	48.23%	49.41%	< 0.01	49.19%	50.69%	< 0.01
Non-white	11.00%	8.38%	< 0.01	11.19%	8.60%	< 0.01	12.07%	9.20%	< 0.01
Rural	26.46%	23.99%	< 0.01	24.84%	24.31%	< 0.01	23.23%	25.12%	< 0.01
MAPD	33.63%	30.86%	< 0.01	35.91%	33.72%	< 0.01	38.88%	34.27%	< 0.01
Age < 65	11.54%	8.27%	< 0.01	11.74%	8.28%	< 0.01	13.27%	8.68%	< 0.01
Age 65 - 74	49.45%	51.24%	< 0.01	50.16%	51.59%	< 0.01	50.29%	52.75%	< 0.01
Age 75 - 84	30.36%	31.55%	< 0.01	29.60%	31.05%	< 0.01	28.48%	30.03%	< 0.01
Age 85+	8.65%	8.94%	< 0.01	8.51%	9.08%	< 0.01	7.96%	8.54%	< 0.01
Other Coverage	2.10%	3.01%	< 0.01	3.24%	4.86%	< 0.01	1.46%	1.34%	< 0.01
Supplemental	39.13%	38.50%	< 0.01	34.80%	36.54%	< 0.01	42.68%	41.09%	< 0.01

Hyperlipidemia – Statistical Review of Variables

Hyperlipidemia	2009			2010			2011		
N = Non-adherent A = Adherent	N	A	P value	N	A	P value	N	A	P value
Male	43.64%	43.76%	> 0.05	44.16%	44.46%	< 0.01	45.37%	46.09%	< 0.01
Non-white	7.44%	5.63%	< 0.01	7.62%	5.82%	< 0.01	8.53%	6.21%	< 0.01
Rural	24.24%	21.65%	< 0.01	23.33%	21.86%	< 0.01	22.64%	22.64%	> 0.05
MAPD	29.75%	27.55%	< 0.01	31.55%	30.03%	< 0.01	34.91%	30.01%	< 0.01
Age < 65	7.89%	5.88%	< 0.01	7.78%	6.00%	< 0.01	9.27%	6.18%	< 0.01
Age 65 - 74	45.35%	44.16%	< 0.01	46.32%	44.50%	< 0.01	47.75%	46.19%	< 0.01
Age 75 - 84	34.46%	36.30%	< 0.01	33.55%	35.33%	< 0.01	31.78%	34.28%	< 0.01
Age 85+	12.31%	13.67%	< 0.01	12.35%	14.17%	< 0.01	11.21%	13.35%	< 0.01
Other Coverage	2.04%	2.79%	< 0.01	3.06%	4.38%	< 0.01	1.24%	1.11%	< 0.01
Supplemental	35.19%	35.68%	< 0.01	31.78%	33.95%	< 0.01	40.23%	38.82%	< 0.01

Hypertension – Statistical Review of Variables

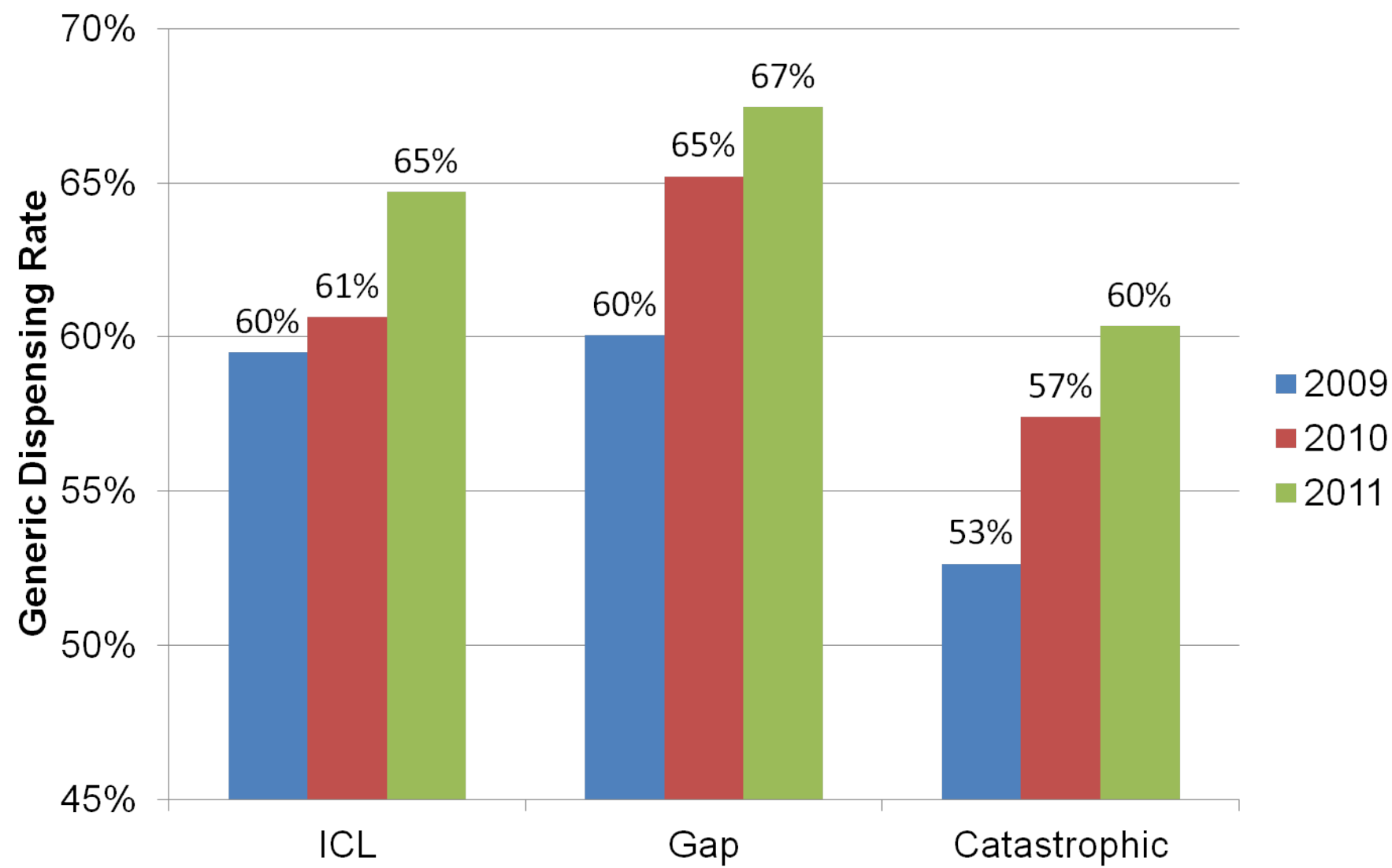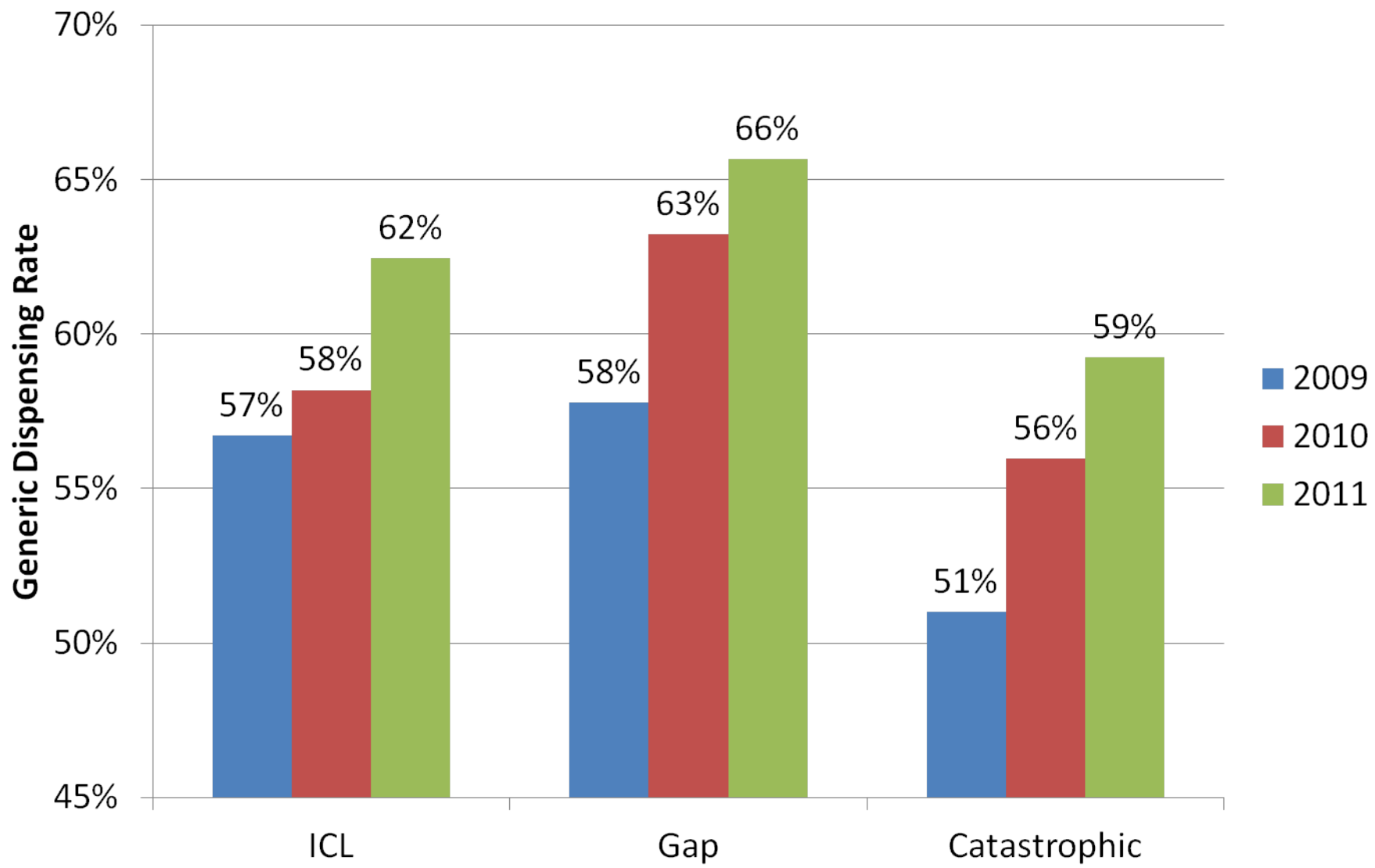| Hypertension N = Non-adherent A = Adherent	2009			2010			2011		
	N	A	P value	N	A	P value	N	A	P value
Male	40.62%	40.19%	< 0.01	41.28%	40.87%	< 0.01	43.95%	42.57%	< 0.01
Non-white	8.34%	6.47%	< 0.01	8.57%	6.70%	< 0.01	9.47%	7.27%	< 0.01
Rural	25.53%	22.77%	< 0.01	24.42%	22.87%	< 0.01	23.09%	23.64%	< 0.01
MAPD	29.53%	27.17%	< 0.01	31.43%	29.84%	< 0.01	35.26%	30.32%	< 0.01
Age < 65	7.78%	5.89%	< 0.01	7.75%	5.96%	< 0.01	9.21%	6.39%	< 0.01
Age 65 - 74	43.67%	43.85%	> 0.05	44.66%	44.46%	> 0.05	45.69%	46.50%	< 0.01
Age 75 - 84	34.24%	35.34%	< 0.01	33.51%	34.39%	< 0.01	32.25%	33.30%	< 0.01
Age 85+	14.31%	14.93%	< 0.01	14.07%	15.20%	< 0.01	12.86%	13.81%	< 0.01
Other Coverage	2.05%	2.85%	< 0.01	3.06%	4.35%	< 0.01	1.31%	1.13%	< 0.01
Supplemental	34.98%	35.05%	> 0.05	31.29%	33.67%	< 0.01	40.20%	38.71%	< 0.01

2009 – 2011 Generic Dispensing Rates (All Cohorts)
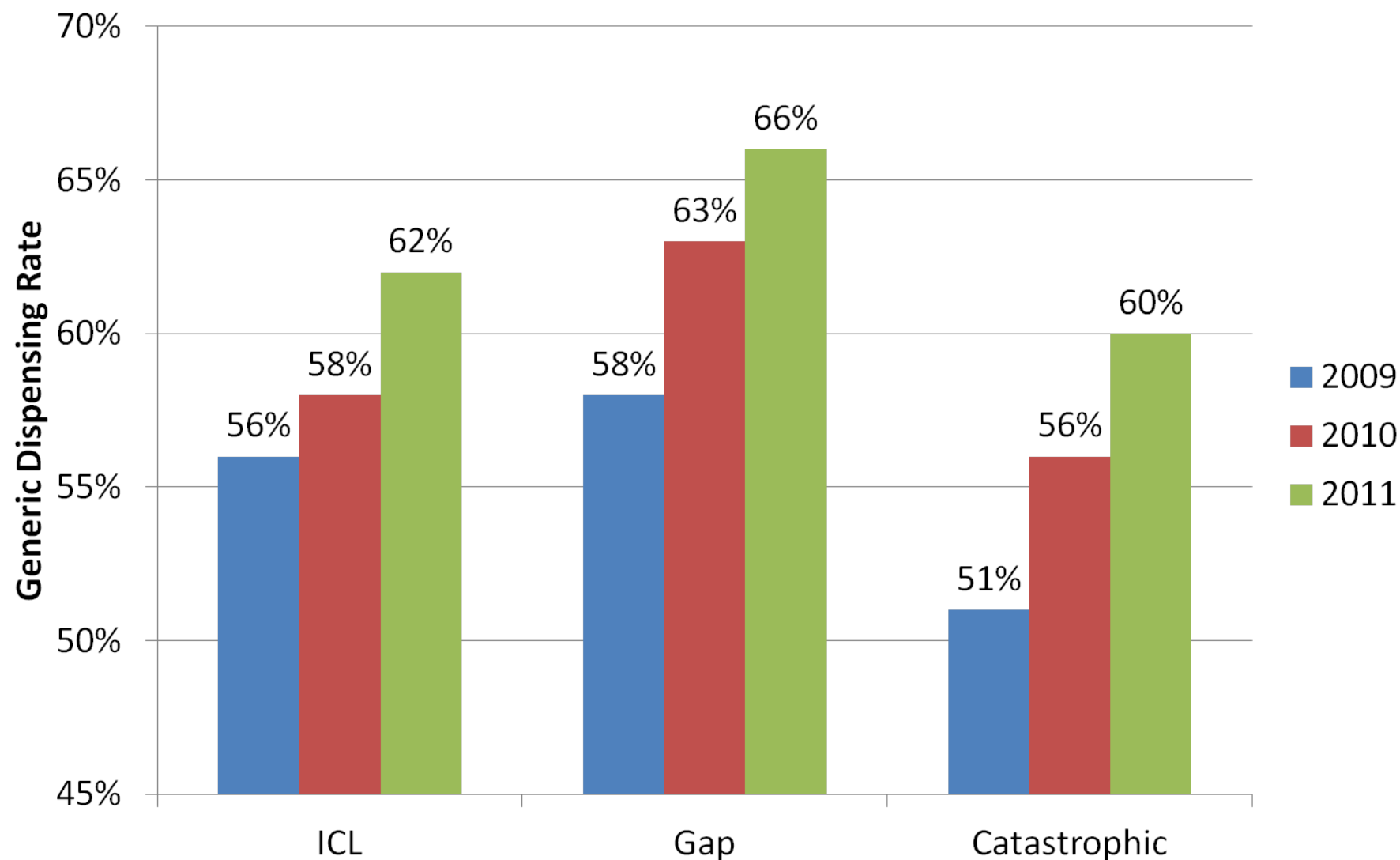
2009 – 2011 Generic Dispensing Rates (Dementia Cohort)
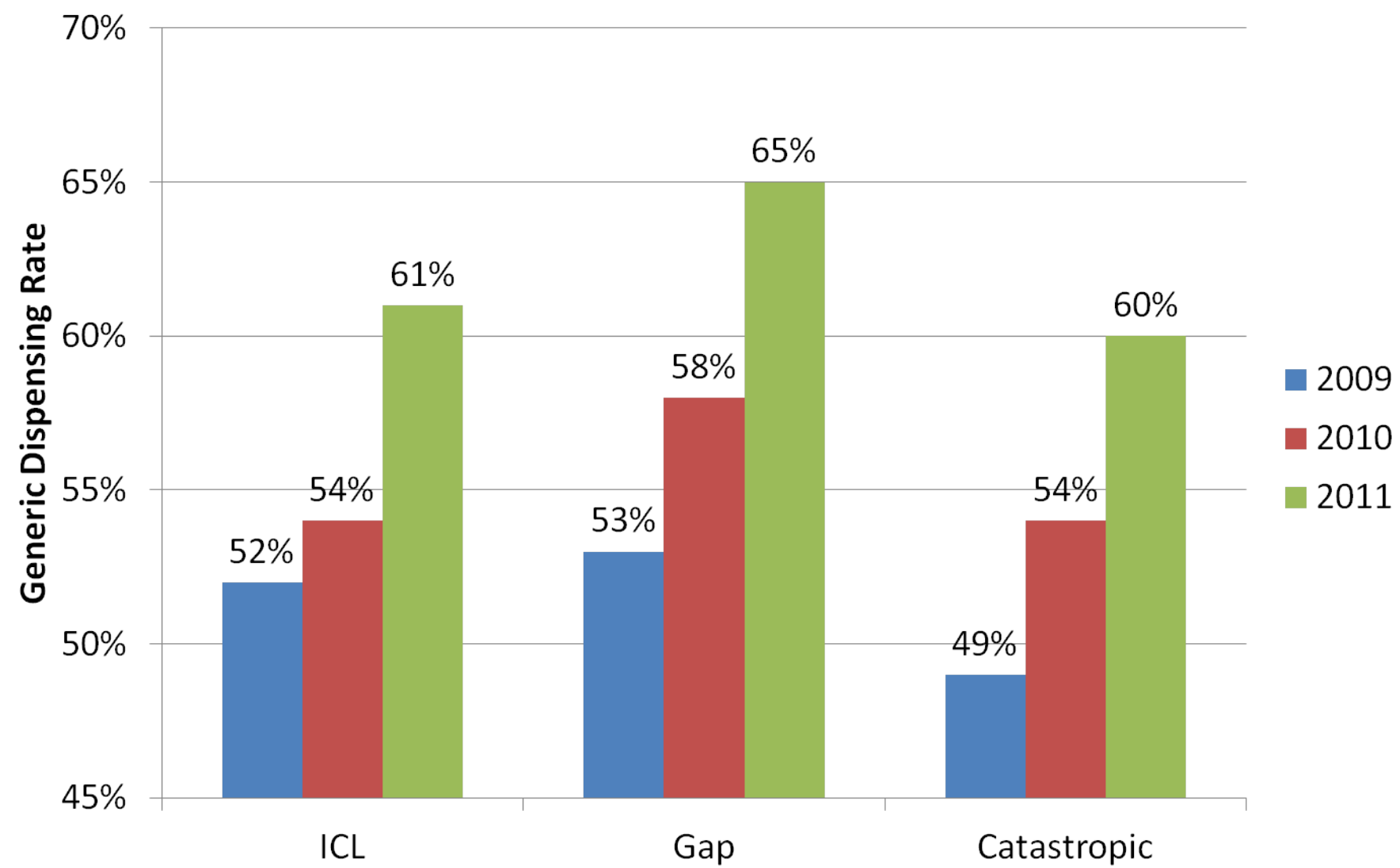
2009 – 2011 Generic Dispensing Rates (Diabetes Cohort)

Chart: Generic Dispensing Rate by phase (ICL, Gap, Catastrophic) for years 2009, 2010, 2011.

- ICL: 2009 = 60%, 2010 = 61%, 2011 = 65%
- Gap: 2009 = 60%, 2010 = 65%, 2011 = 67%
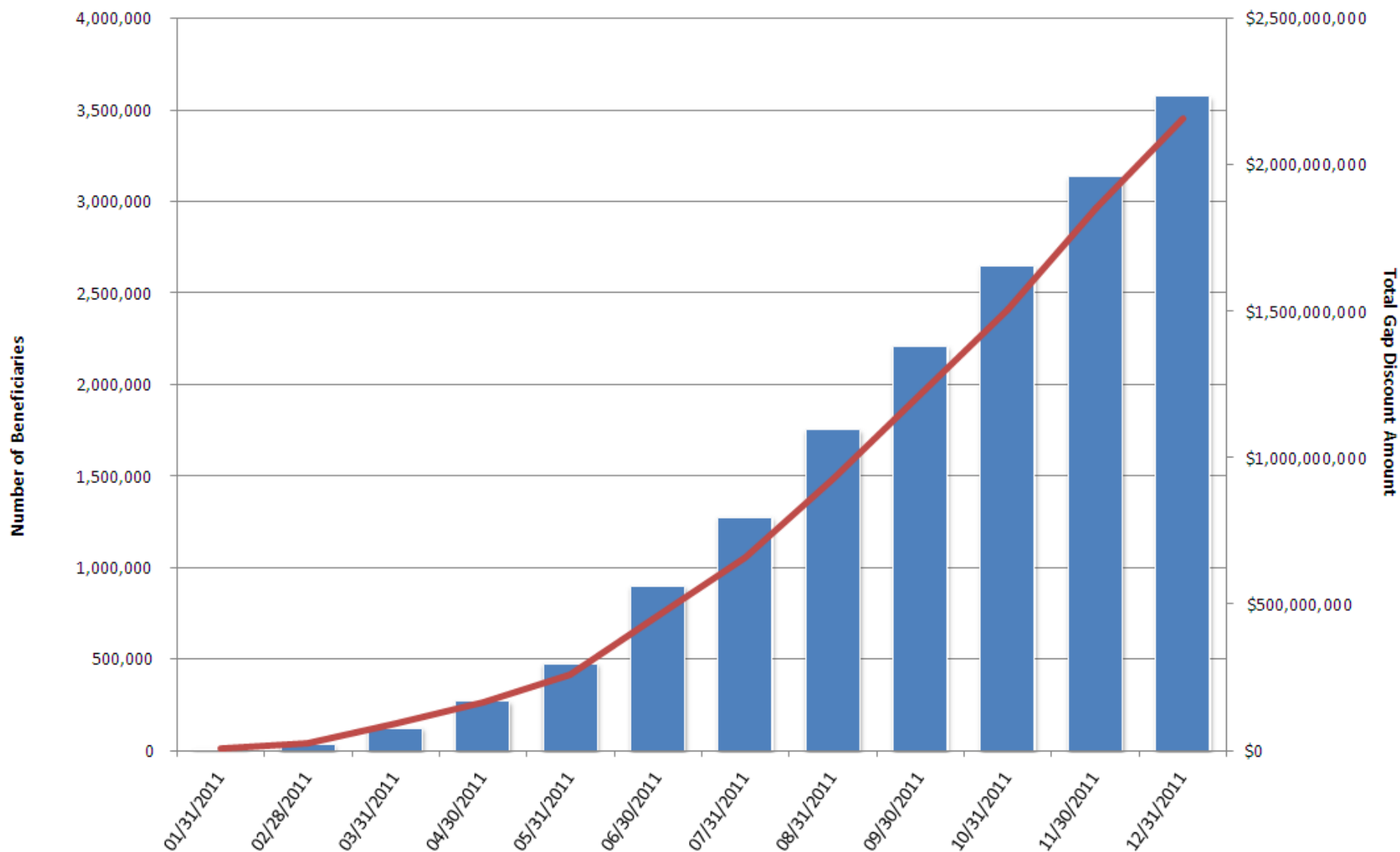- Catastrophic: 2009 = 53%, 2010 = 57%, 2011 = 60%

2009 – 2011 Generic Dispensing Rates (Hyperlipidemia Cohort)

2009 – 2011 Generic Dispensing Rates (Hypertension Cohort)
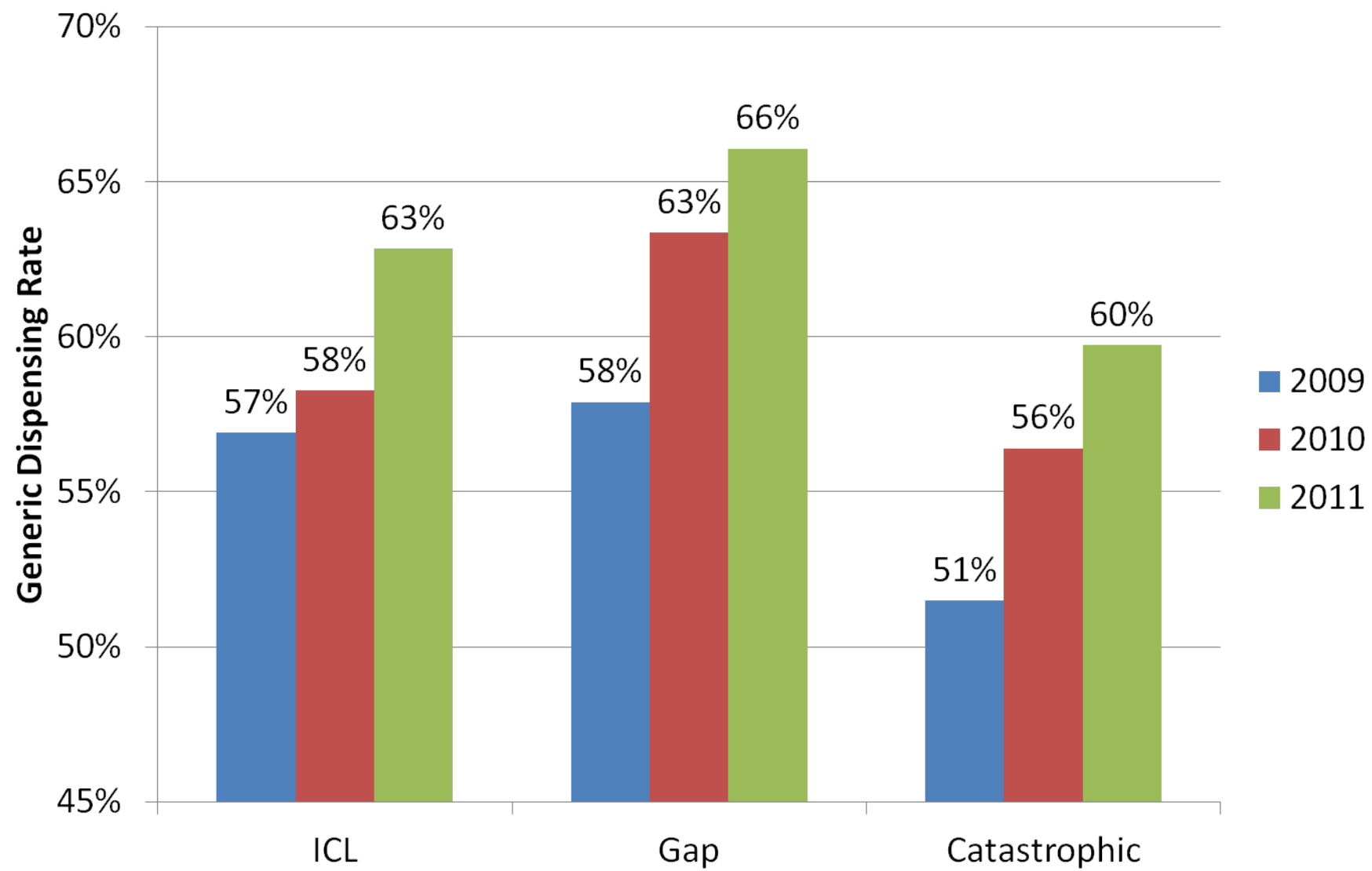
2011 Beneficiary Savings in Coverage Gap
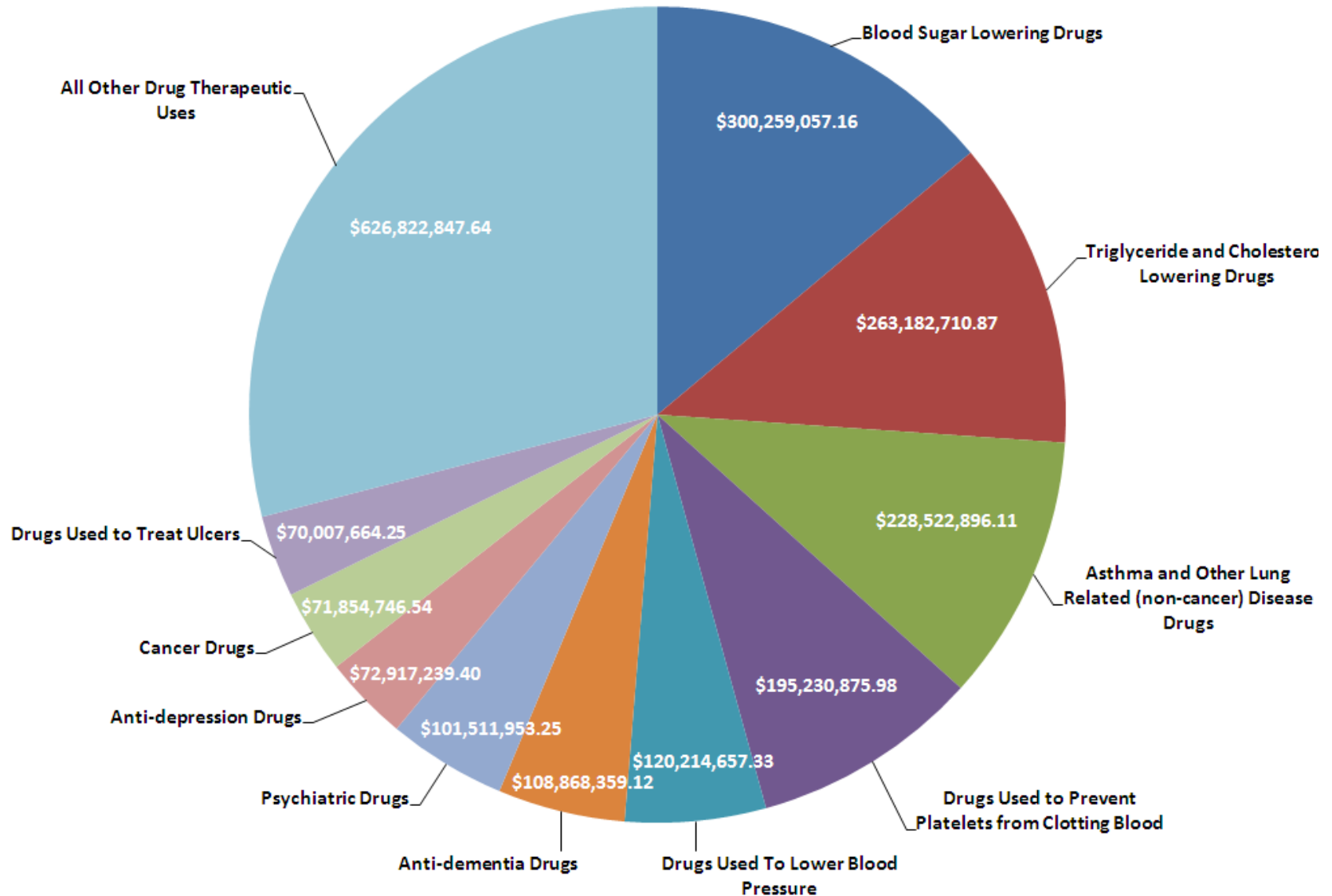
Total Gap Discount Amount by Drug Therapeutic Use as of December 31, 2011

Blood Sugar Lowering Drugs — $300,259,057.16

Triglyceride and Cholesterol Lowering Drugs — $263,182,710.87

Asthma and Other Lung Related (non-cancer) Disease Drugs — $228,522,896.11

Drugs Used to Prevent Platelets from Clotting Blood — $195,230,875.98

Drugs Used To Lower Blood Pressure — $120,214,657.33

Anti-dementia Drugs — $108,868,359.12

Psychiatric Drugs — $101,511,953.25

Anti-depression Drugs — $72,917,239.40

Cancer Drugs — $71,854,746.54

Drugs Used to Treat Ulcers — $70,007,664.25

All Other Drug Therapeutic Uses — $626,822,847.64

Assessment Questions

- The largest increases in the prescription drug adherence rates for all chronic diseases in the Coverage Gap occurs during which time span?
    1. 2009 – 2010
    2. 2010 – 2011

- Prescription drugs used in the treatment of dementia, diabetes, hyperlipidemia, and hypertension are found on the 2011 Total Gap Discount Amount by Drug Therapeutic Use graph. Which chronic disease has the largest Coverage Gap discount amount totaling over $300 million for 2011?
    1. Dementia
    2. Diabetes
    3. Hyperlipidemia
    4. Hypertension

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