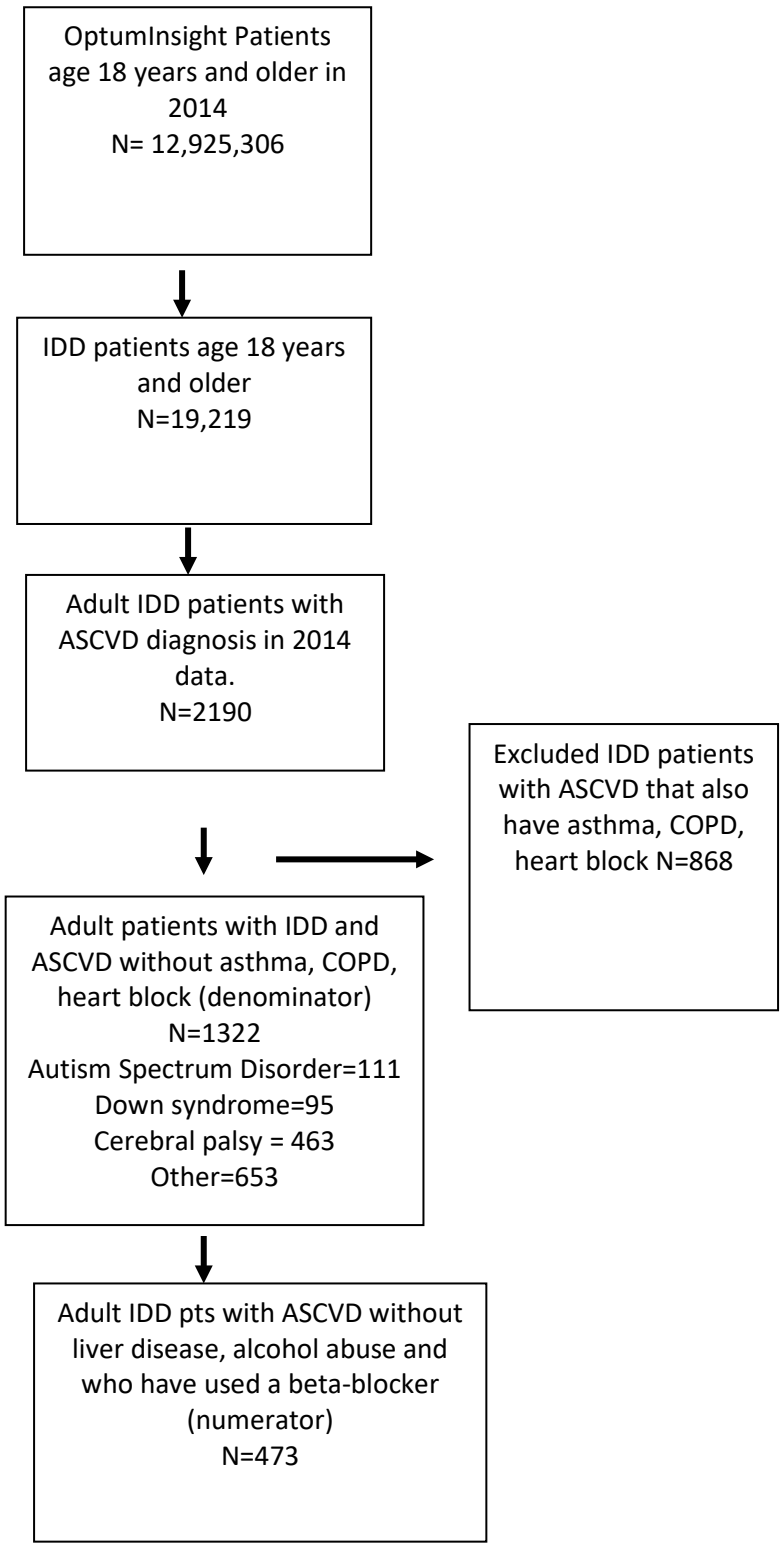
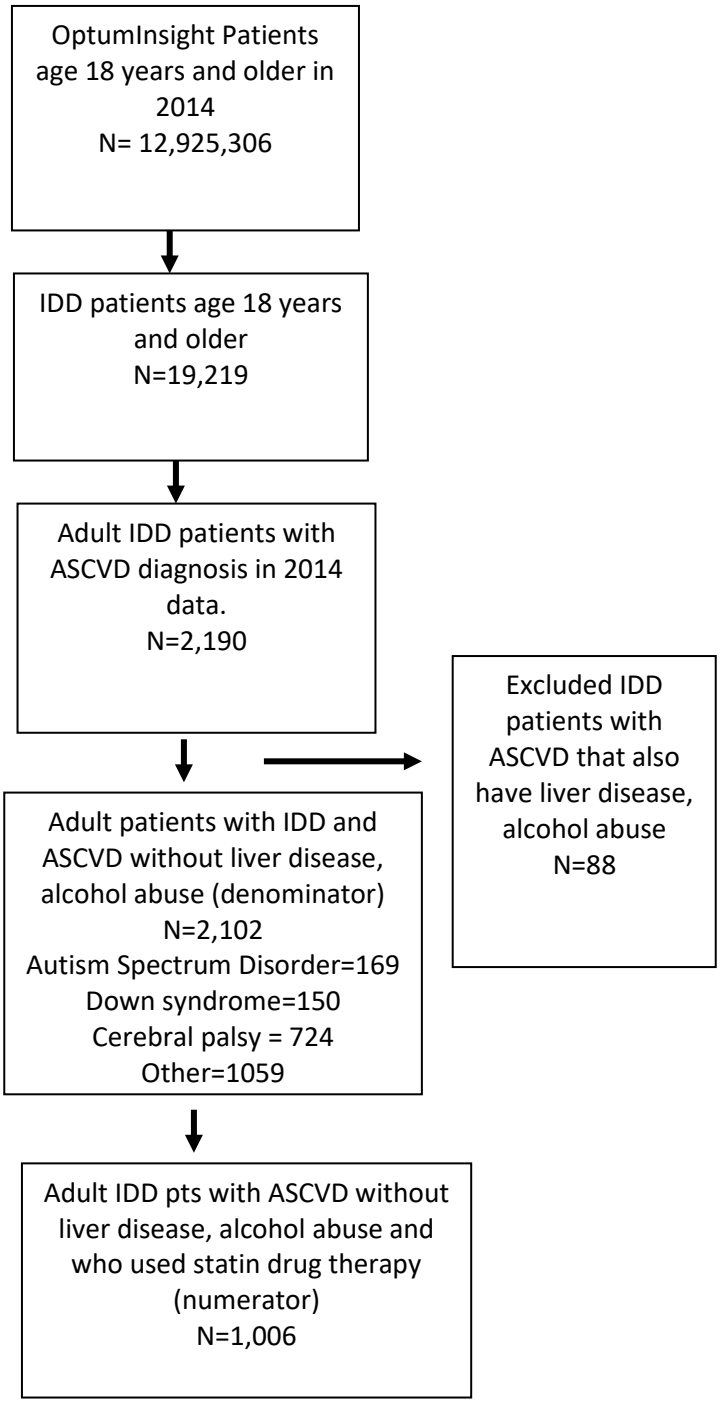
E Figures. Diagrams of Patient Selection

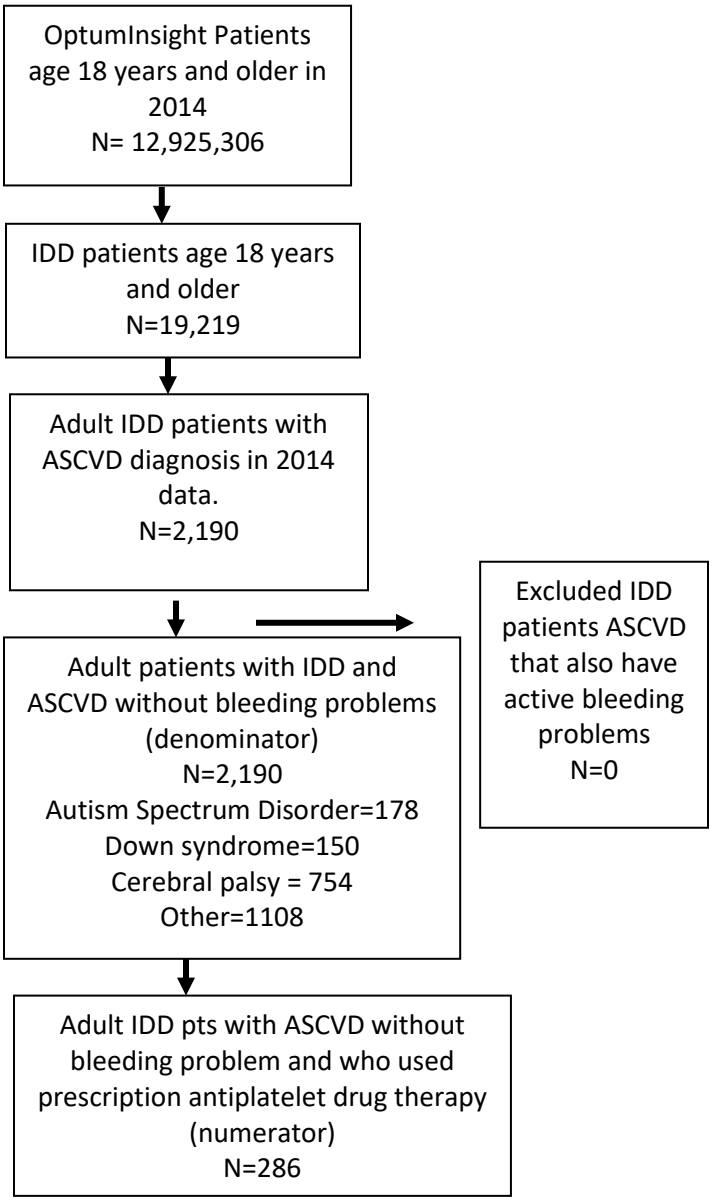
eFigure 1. Patients with Intellectual/Developmental Disabilities (IDD) and Atherosclerotic Cardiovascular Disease (ASCVD) who used Beta-Blocker Therapy



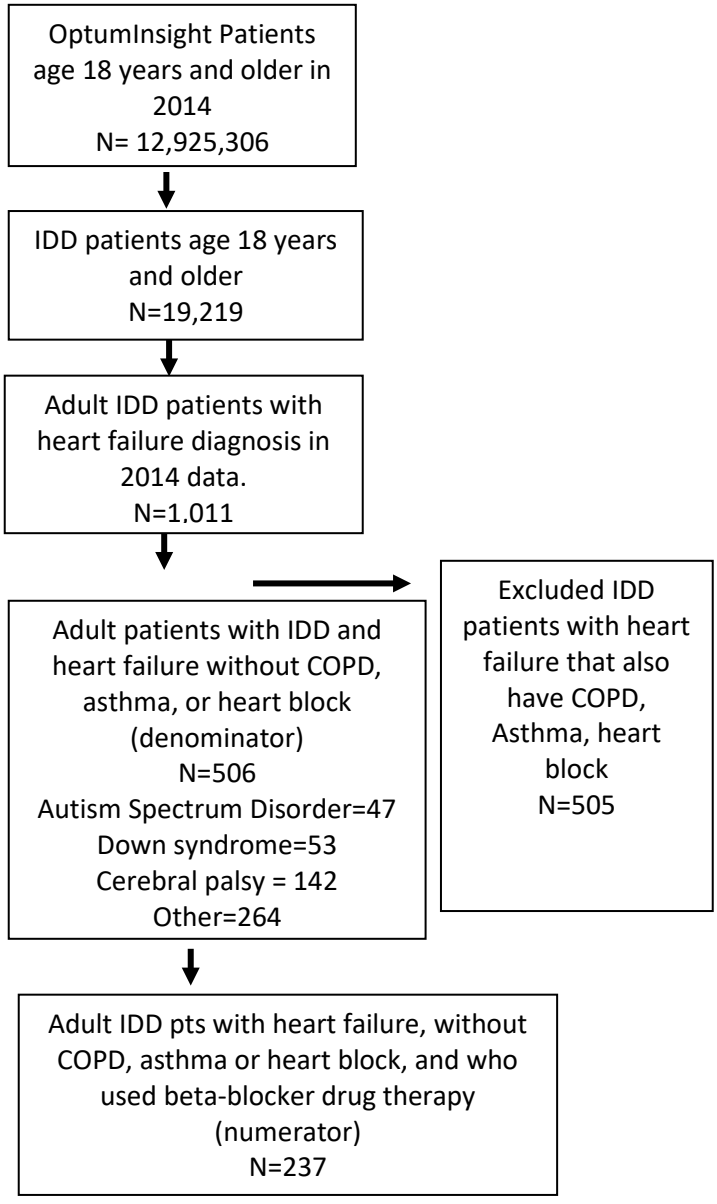
eFigure 2. Patients with Intellectual/Developmental Disabilities (IDD) and Atherosclerotic Cardiovascular Disease (ASCVD) who used Statin Therapy



eFigure 3. Patients with Intellectual/Developmental Disabilities (IDD) and Atherosclerotic Cardiovascular Disease (ASCVD) who used Prescription Antiplatelet Therapy



eFigure 4. Patients with Intellectual/Developmental Disabilities (IDD) and Heart Failure who used Beta-Blocker Therapy



eFigure 5. Patients with Intellectual/Developmental Disabilities (IDD) and Heart Failure who used ACEi/ARB Therapy

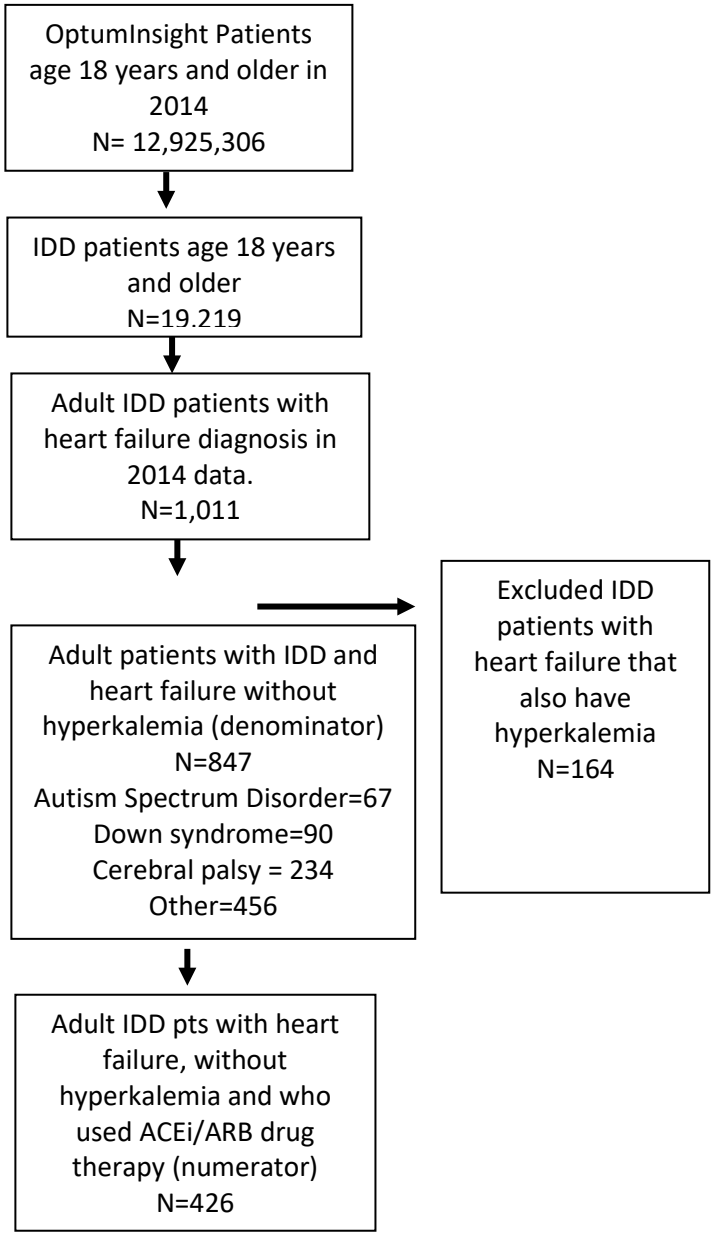
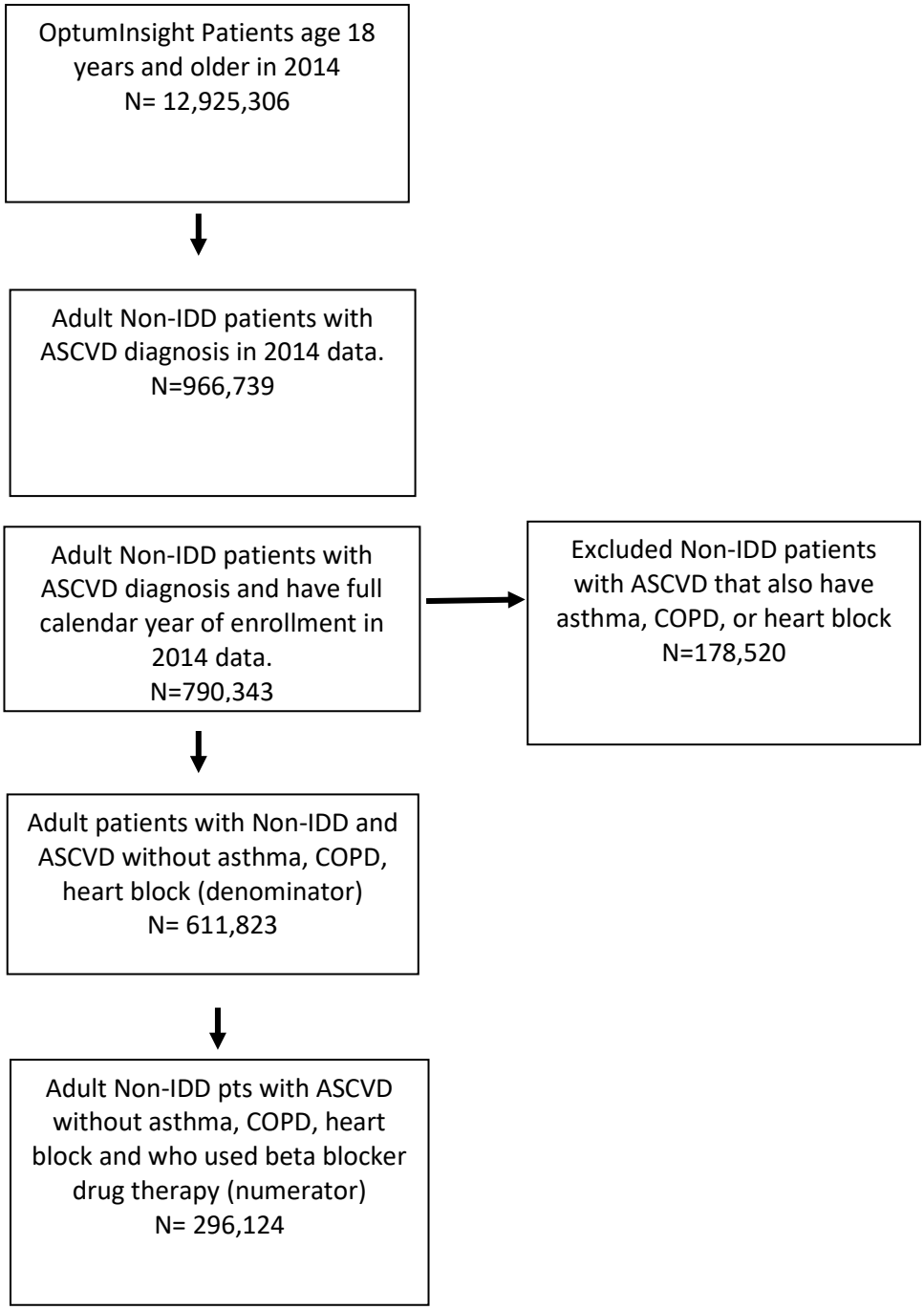
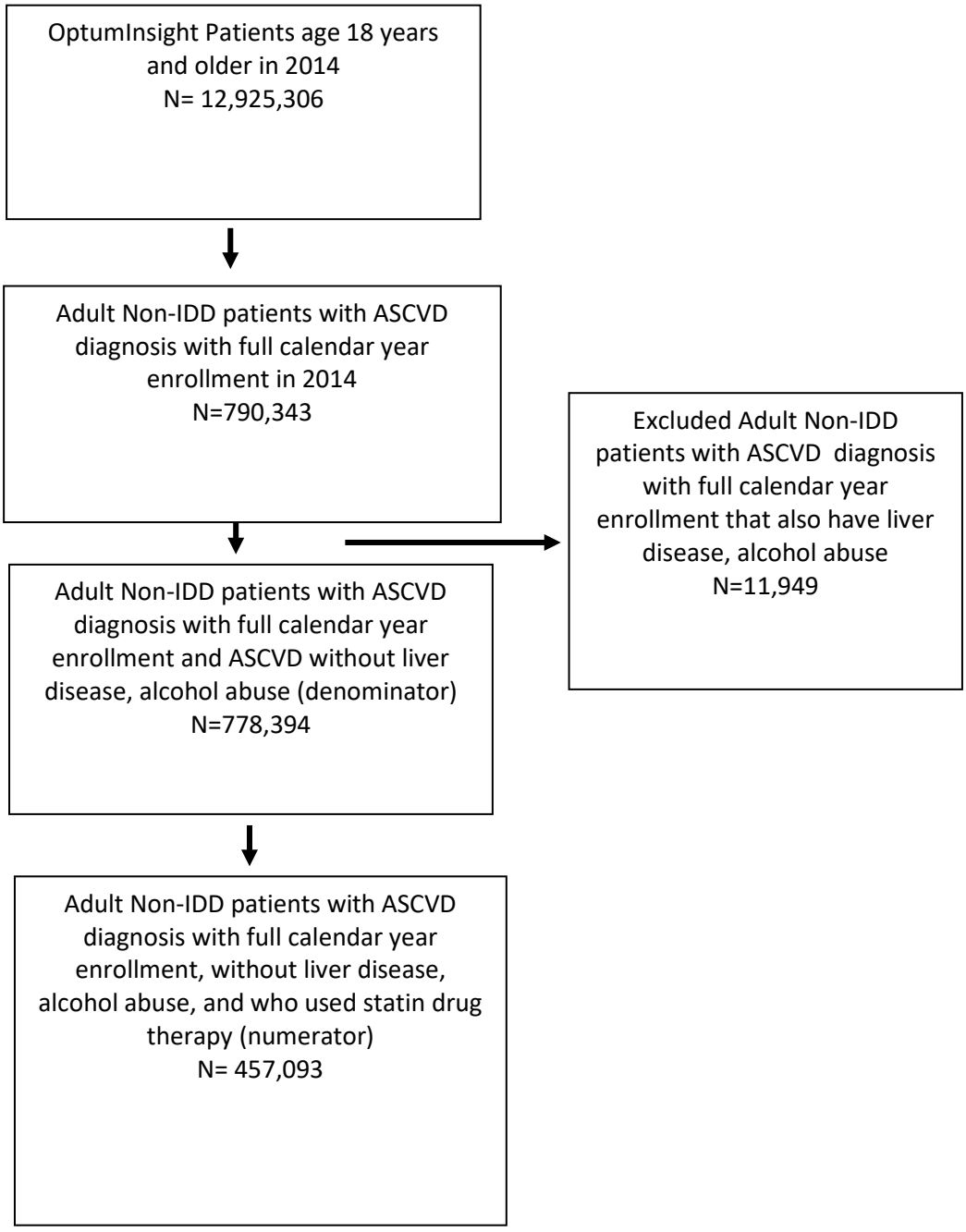


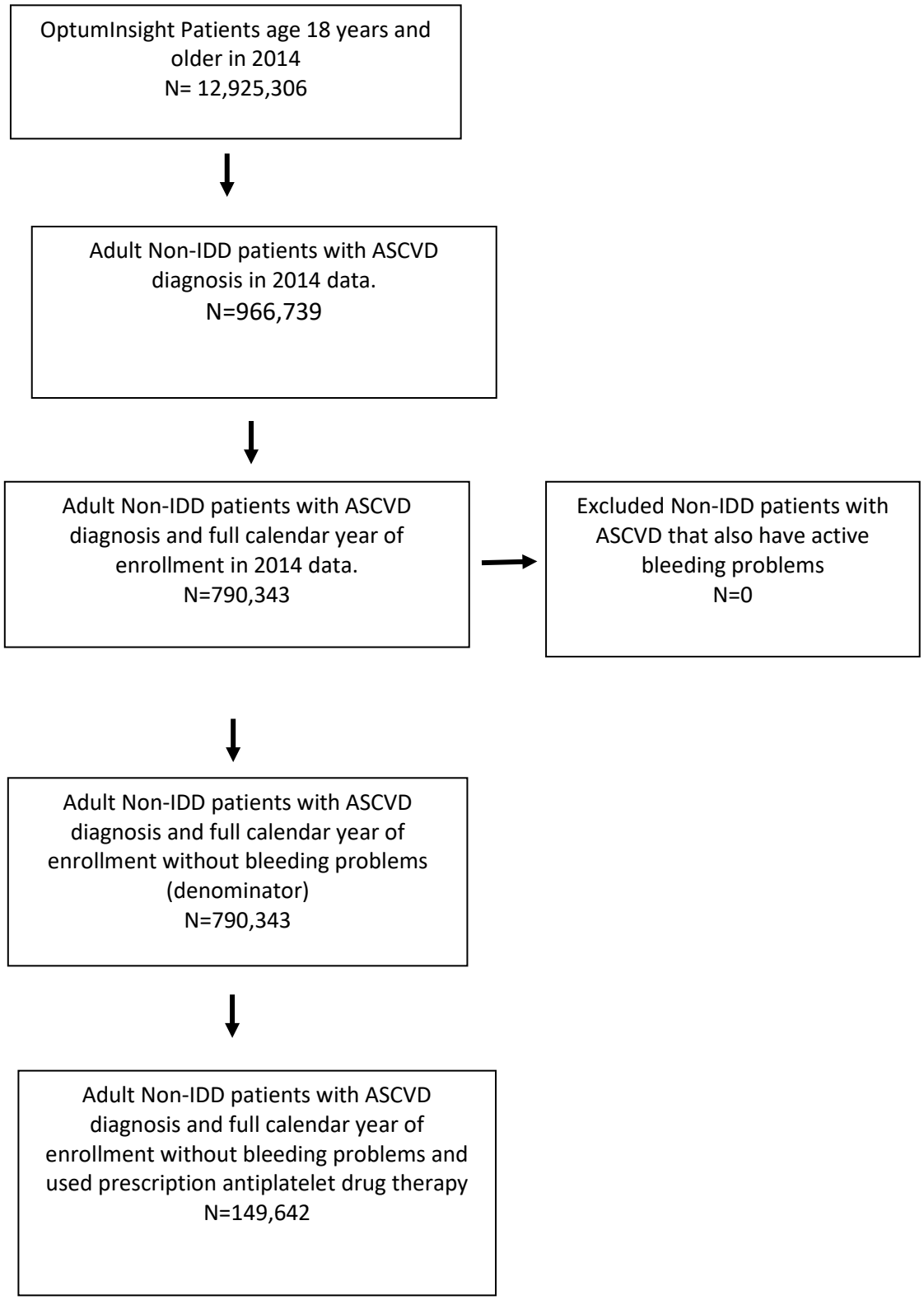
Figure E6. Non-IDD Patients with Atherosclerotic Cardiovascular Disease (ASCVD) who used Beta-Blocker Therapy



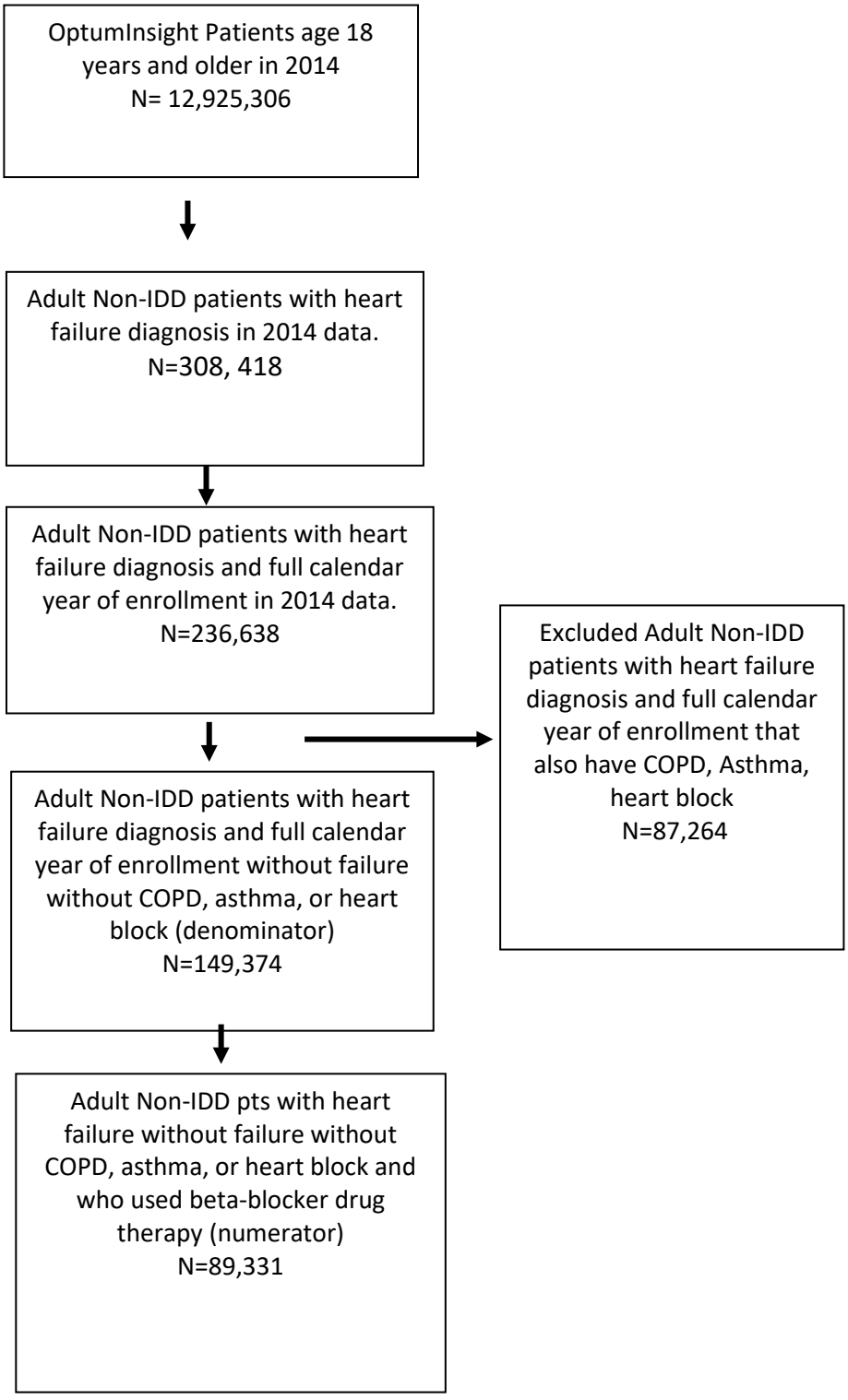
eFigure 7. Non-IDD Patients with Atherosclerotic Cardiovascular Disease (ASCVD) who used Statin Therapy



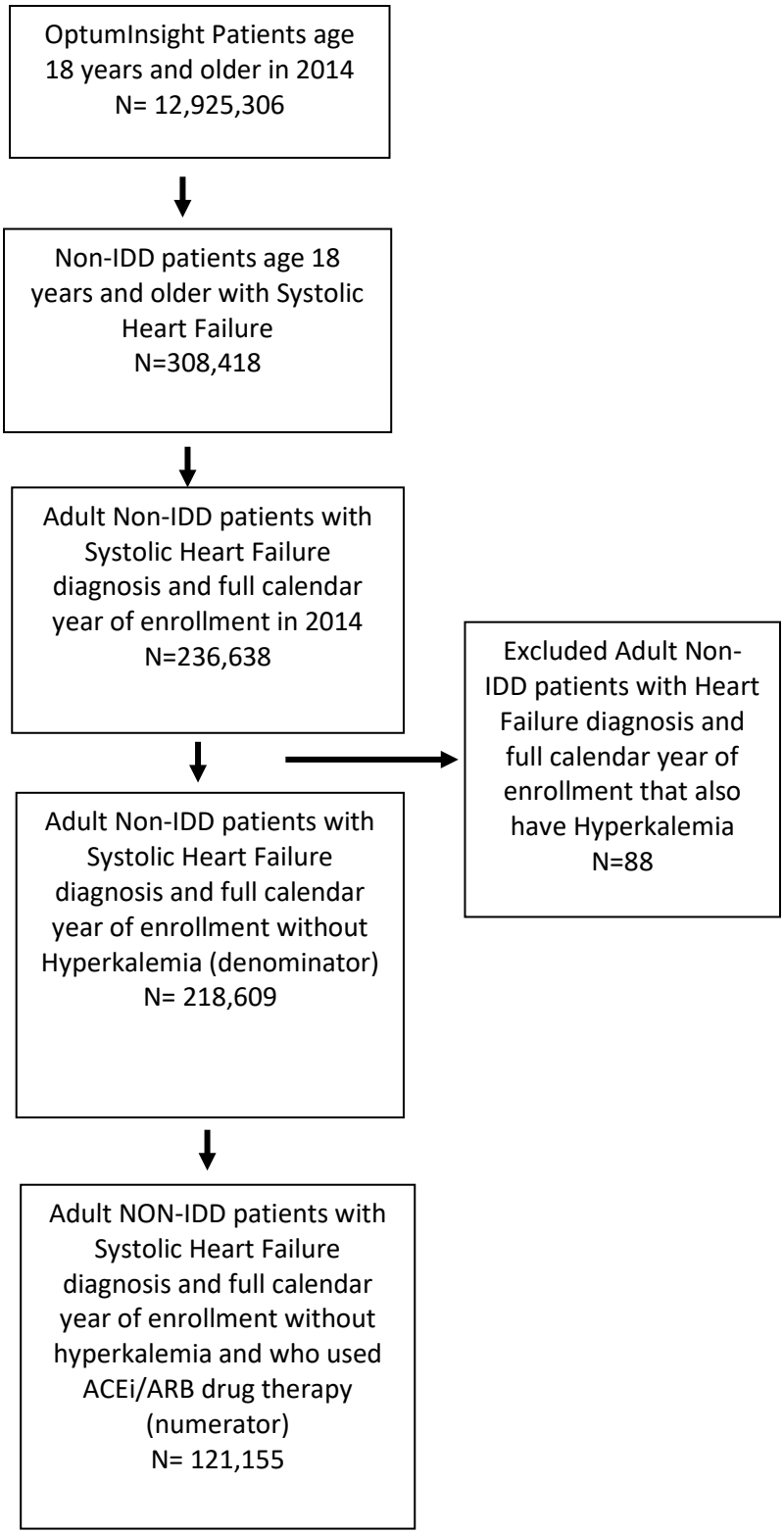
eFigure 8. Non-IDD Patients with Atherosclerotic Cardiovascular Disease (ASCVD) who used Prescription Antiplatelet Therapy



eFigure 9. Non-IDD Patients who had Heart Failure and were used Beta-Blocker Therapy



eFigure 10. Non-IDD Patients who had Systolic Heart Failure and who used ACEi/ARB Therapy



Appendix

eTable 1. ICD9 Codes used to Identify Patients with Selected Conditions

Condition	ICD-9-CM Code	Clinical Description
Atherosclerotic Cardiovascular Disease	414.0	Coronary atherosclerosis
	414.2	Chronic total occlusion of coronary artery
	414.8	Other specified forms of chronic ischemic heart disease
	412	Old myocardial infarction
	443.9	Peripheral vascular disease
	413	Angina pectoris
	411	Intermediate coronary syndrome
	410	Acute myocardial infarction
	434.9	Cerebral thrombosis
	V12.54	Transient ischemic attack
	414.2	Chronic total occlusion of coronary artery
	414.8	Other specified forms of chronic ischemic heart disease
Heart failure	428.0, 428.1, 428.2, 428.4	Systolic heart failure or mixed systolic/diastolic heart failure

Intellectual and Developmental Disabilities		
Autism Spectrum Disorder	299-299.99	Pervasive developmental disorders
Down syndrome	758.0	
Cerebral palsy	343, 343.0-4, 343.9	
Other	317-317.99 318-318.99 319-319.99 760.71 759.81 759.821 759.827 759.28 759.83 759.89	Mild mental retardation Other specified mental retardation Unspecified mental retardation Fetal alcohol disorder Prader-Willi syndrome De Lange syndrome Seckel syndrome Smith-Lemli-Opitz syndrome Fragile X syndrome Menkes disease, Laurence-Moon-Biedl Taybi syndrome

eTable 2. ICD9 Codes used to Identify Patients with Selected Contraindications used for Exclusion

Measure	**ICD-9-CM**	**Clinical Description**
ACEi/ARB for heart failure	276.7	Hyperkalemia
ACEi/ARB for heart failure	428.3	Diastolic heart failure
Beta Blocker for heart failure	428.3	Diastolic heart failure
Beta Blocker for heart failure	426	Heart block
Beta Blocker for heart failure	493	Asthma
Beta Blocker for heart failure	491.20-491.22	Chronic obstructive pulmonary disease (COPD)
Beta Blocker for heart failure	492.0-492.8	Chronic obstructive pulmonary disease (COPD)
Antiplatet therapy for ASCVD	286	Bleeding conditions
Antiplatet therapy for ASCVD	287	Bleeding conditions
Beta Blocker for ASCVD	426	Heart block
Beta Blocker for ASCVD	493	Asthma
Beta Blocker for ASCVD	491.20-491.22	Chronic obstructive pulmonary disease (COPD)
Beta Blocker for ASCVD	492.0-492.8	Chronic obstructive pulmonary disease (COPD)
Statin for atherosclerotic cardiovascular disease	571	Liver disease
Statin for atherosclerotic cardiovascular disease	305	Alcohol abuse

eTable 3. Multivariable Logistic Regression Analyses of Patients who have Atherosclerotic Cardiovascular Disease or Heart Failure for each of the Guideline Based Pharmacotherapy Medication Classes.

Atherosclerotic Cardiovascular Disease Measures	**Beta blocker**	**Statin**	**Anti-platelet**
	AOR (95% CI)	***AOR (95% CI)***	***AOR (95% CI)***
IDD	0.65 (0.58,0.73)	0.73 (0.67,0.8)	0.64 (0.56,0.73)
Non-IDD			
Age in years	1 (1,1)	1 (1,1)	1 (1,1)
Sex			
Female	0.85 (0.84,0.86)	0.86 (0.85,0.87)	0.79 (0.78,0.8)
Male			
Race			
Asian	0.99 (0.96,1.03)	1 (0.97,1.03)	1.2 (1.16,1.24)
Black	1.06 (1.04,1.08)	1.08 (1.06,1.1)	1.06 (1.04,1.08)
Hispanic	0.95 (0.93,0.96)	0.96 (0.95,0.98)	1.08 (1.06,1.1)
Unknown/missing	0.89 (0.88,0.91)	0.89 (0.88,0.9)	0.98 (0.97,1)
White			
Region			
Midwest	0.84 (0.83,0.85)	0.83 (0.82,0.84)	0.96 (0.94,0.97)
Northeast	1.04 (1.02,1.06)	1.03 (1.01,1.04)	0.99 (0.97,1.01)
South	1.05 (1.03,1.06)	1.04 (1.03,1.06)	1.18 (1.17,1.2)
Unknown	1.05 (0.95,1.15)	1.05 (0.97,1.14)	1.08 (0.97,1.2)
West			
House hold income			
<$40K	1.07 (1.05,1.09)	1.1 (1.08,1.12)	1.06 (1.03,1.08)
$40K-$49K	1.16 (1.14,1.18)	1.15 (1.14,1.17)	1.18 (1.16,1.13)

$50K-$59K	1.12 (1.09,1.14)	1.11 (1.09,1.13)	1.13 (1.1,1.16)
$60K-$74K	1.1 (1.08,1.13)	1.1 (1.08,1.13)	1.1 (1.07,1.13)
$75K-$99K	1.1 (1.08,1.13)	1.1 (1.08,1.12)	1.08 (1.06,1.11)
<$40K	1.07 (1.05,1.09)	1.1 (1.08,1.12)	1.06 (1.03,1.08)
Unknown	0.83 (0.82,0.85)	0.84 (0.83,0.86)	0.93 (0.92,0.95)
$100K+			
Elixhauser comorbidity index			
Comorbidity index 0 to 4	0.44 (0.43,0.45)	0.43 (0.43,0.44)	0.71 (0.7,0.73)
Comorbidity index 5 to 9	0.64 (0.63,0.66)	0.64 (0.63,0.65)	0.83 (0.82,0.85)
Comorbidity index 10 or more			
Heart Failure Measures	**Beta blocker**	**ACEi/ARB**	
	AOR (95% CI)	***AOR (95% CI)***	
IDD	0.66 (0.55,0.79)	0.87 (0.76,1.003)	
Non-IDD			
Age	1 (1,1)	0.98 (0.98,0.98)	
Sex			
Female	0.89 (0.88,0.91)	0.96 (0.94,0.97)	
Male			
Race			
Asian	1.02 (0.94,1.1)	1.32 (1.24,1.41)	
Black	1.2 (1.16,1.25)	1.38 (1.34,1.43)	
Hispanic	1.08 (1.03,1.12)	1.45 (1.4,1.49)	
Unknown/missing	0.86 (0.84,0.89)	0.94 (0.91,0.96)	
White			
Region			
Midwest	0.67 (0.65,0.69)	0.63 (0.61,0.64)	

Northeast	0.92 (0.89,0.95)	0.81 (0.79,0.84)	
South	1 (0.97,1.03)	0.98 (0.96,1)	
Unknown	1 (0.84,1.19)	0.76 (0.66,0.84)	
West			
House hold income			
<$40K	1.14 (1.1,1.18)	1.16 (1.13,1.19)	
$40K-$49K	1.09 (1.04,1.15)	1.08 (1.04,1.12)	
$50K-$59K	1.12 (1.07,1.18)	1.11 (1.07,1.15)	
$60K-$74K	1.09 (1.04,1.14)	1.06 (1.02,1.1)	
$75K-$99K	1.09 (1.05,1.14)	1.07 (1.04,1.11)	
Unknown	0.8 (0.77,0.83)	0.81 (0.79,0.84)	
$100K+			
Elixhauser comorbidity index			
Comorbidity index 0 to 4	0.56 (0.54,0.58)	0.78 (0.76,0.8)	
Comorbidity index 5 to 9	0.78 (0.75,0.8)	1.01 (0.99,1.03)	
Comorbidity index 10 or more			

eTable 4. Multivariable Logistic Regression Analyses of Only Patients who have Intellectual/Developmental Disabilities and either Atherosclerotic Cardiovascular Disease or Heart Failure for each of the Guideline Based Pharmacotherapy Medication Classes.

Atherosclerotic Cardiovascular Disease Measures	**Beta blocker**	**Statin**	**Anti-platelet**
Effect	**AOR (95%CI)**	**AOR (95%CI)**	**AOR (95%CI)**
IDD type			
Cerebral palsy	0.53 (0.34,0.84)	0.78 (0.55,1.1)	0.96 (0.59,1.58)
Down syndrome	0.26 (0.13,0.51)	0.51 (0.32,0.8)	0.66 (0.32,1.38)
Other	0.54 (0.35,0.84)	0.8 (0.58,1.12)	0.97 (0.6,1.56)
Pervasive developmental disorders – autism spectrum disorder (reference)			
Age	1.03 (1.02,1.04)	1.02 (1.01,1.02)	1.02 (1.01,1.03)
Sex			
Female	0.65 (0.51,0.83)	0.82 (0.69,0.98)	2.36 (1.13,4.96)
Male (reference)			
Race			
Asian	0.98 (0.38,2.51)	1.25 (0.68,2.32)	0.86 (0.55,1.35)
Black	1.13 (0.76,1.69)	1.22 (0.9,1.66)	0.68 (0.37,1.24)
Hispanic	1.12 (0.67,1.87)	1.27 (0.87,1.85)	0.86 (0.61,1.21)
Unknown/missing	1.15 (0.85,1.55)	0.94 (0.75,1.17)	0.73 (0.56,0.95)
White (reference)			
Region of United States			
Midwest	1.01 (0.7,1.44)	1.19 (0.91,1.54)	0.80 (0.54,1.18)
Northeast	1.00 (0.67,1.48)	1.10 (0.83,1.46)	0.65 (0.42,1.00)
South	1.30 (0.91,1.84)	1.12 (0.86,1.45)	0.97 (0.67,1.41)
West (reference)			
House hold income			
$40K-$49K	0.87 (0.51,1.47)	1.05 (0.72,1.52)	0.99 (0.59,1.69)

$50K-$59K	1.65 (0.88,3.06)	1.23 (0.78,1.92)	0.87 (0.45,1.68)
$60K-$74K	0.95 (0.54,1.67)	1.18 (0.79,1.75)	0.67 (0.37,1.23)
<$40K	1.07 (0.66,1.71)	1.42 (1.01,1.99)	1.13 (0.70,1.81)
Unknown/missing	0.81 (0.52,1.25)	0.96 (0.7,1.31)	0.73 (0.47,1.14)
$75K-$99K (reference)			
Elixhauser Comorbidity Index			
Comorbidity index 0-4	0.26 (0.17,0.39)	0.55 (0.42,0.72)	0.43 (0.29,0.63)
Comorbidity index 5-9	0.47 (0.32,0.68)	0.69 (0.54,0.88)	0.72 (0.52,0.99)
Comorbidity index 10 or more (reference)			
Heart Failure Measures	**Proportion on beta blocker**	**Proportion on ACEi/ARB**	
Effect	AOR (95%CI)	AOR (95%CI)	
IDD type			
Cerebral palsy	0.51 (0.25,1.03)	0.66 (0.37,1.17)	
Down syndrome	0.34 (0.14,0.82)	0.33 (0.16,0.66)	
Other	0.94 (0.48,1.82)	0.85 (0.49,1.46)	
Pervasive developmental disorders -autism spectrum disorder (reference)			
Age	1.03 (1.01,1.04)	1.02 (1.01,1.03)	
Sex			
Female	0.46 (0.31,0.68)	0.9 (0.68,1.21)	
Male (reference)			
Race			
Asian	0.82 (0.12,5.7)	3.82 (0.94,15.49)	
Black	1.29 (0.69,2.42)	1.93 (1.19,3.13)	
Hispanic	1.42 (0.68,2.99)	0.99 (0.53,1.82)	
Unknown/missing	0.91 (0.56,1.48)	0.90 (0.62,1.28)	
White (reference)			
Region of the United States			
Midwest	1.01 (0.56,1.84)	1.18 (0.76,1.84)	
Northeast	0.92 (0.5,1.71)	1.03 (0.65,1.62)	
South	1.12 (0.62,2.02)	0.97 (0.63,1.49)	
West (reference)			
Household Income			
$40K-$49K	0.97 (0.41,2.33)	1.82 (0.96,3.47)	
$50K-$59K	0.85 (0.32,2.25)	0.58 (0.27,1.23)	
$60K-$74K	0.68 (0.27,1.69)	1.49 (0.75,2.94)	
<$40K	1.37 (0.64,2.92)	1.9 (1.07,3.4)	
Unknown/missing	0.73 (0.37,1.43)	1.2 (0.71,2.04)	

$75K-$99K			
Elixhauser comorbidity index			
Comorbidity index 0 - 4	0.53 (0.29,0.97)	0.53 (0.33,0.86)	
Comorbidity index 5 - 9	0.70 (0.45,1.08)	0.58 (0.42,0.80)	
Comorbidity index 10 or more (reference)			