

## AGE AT INCIDENT - CLEANED ANALYSIS

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### Data Cleaning Applied

- Excluded placeholder dates (2000-01-01)
- Limited to ages 40-70 years
- Required age at diagnosis  $\leq$  current age
- Required minimum 20 valid diagnoses per condition

### Population at Risk Calculation

- Incidence rate = Diagnoses at age X / Population who reached age X
- This corrects for the fact that not everyone in the dataset has lived through all age bins yet

### Why $\log_{10}(\text{Incidence})$ ?

- Log transformation makes rates comparable across conditions
- Intuitive interpretation: Line goes UP = incidence goes UP

### How to Read the Plots

- X-axis: Age at diagnosis (40-70 years)
- Y-axis:  $\log_{10}(\text{incidence rate})$
- HIGH values (top of plot) = HIGH incidence (common at this age)
- LOW values (bottom of plot) = LOW incidence (rare at this age)
- FLAT LINE = Constant incidence across age
- INCREASING LINE = Incidence INCREASES with age (more diagnoses)
- DECREASING LINE = Incidence DECREASES with age (fewer diagnoses)

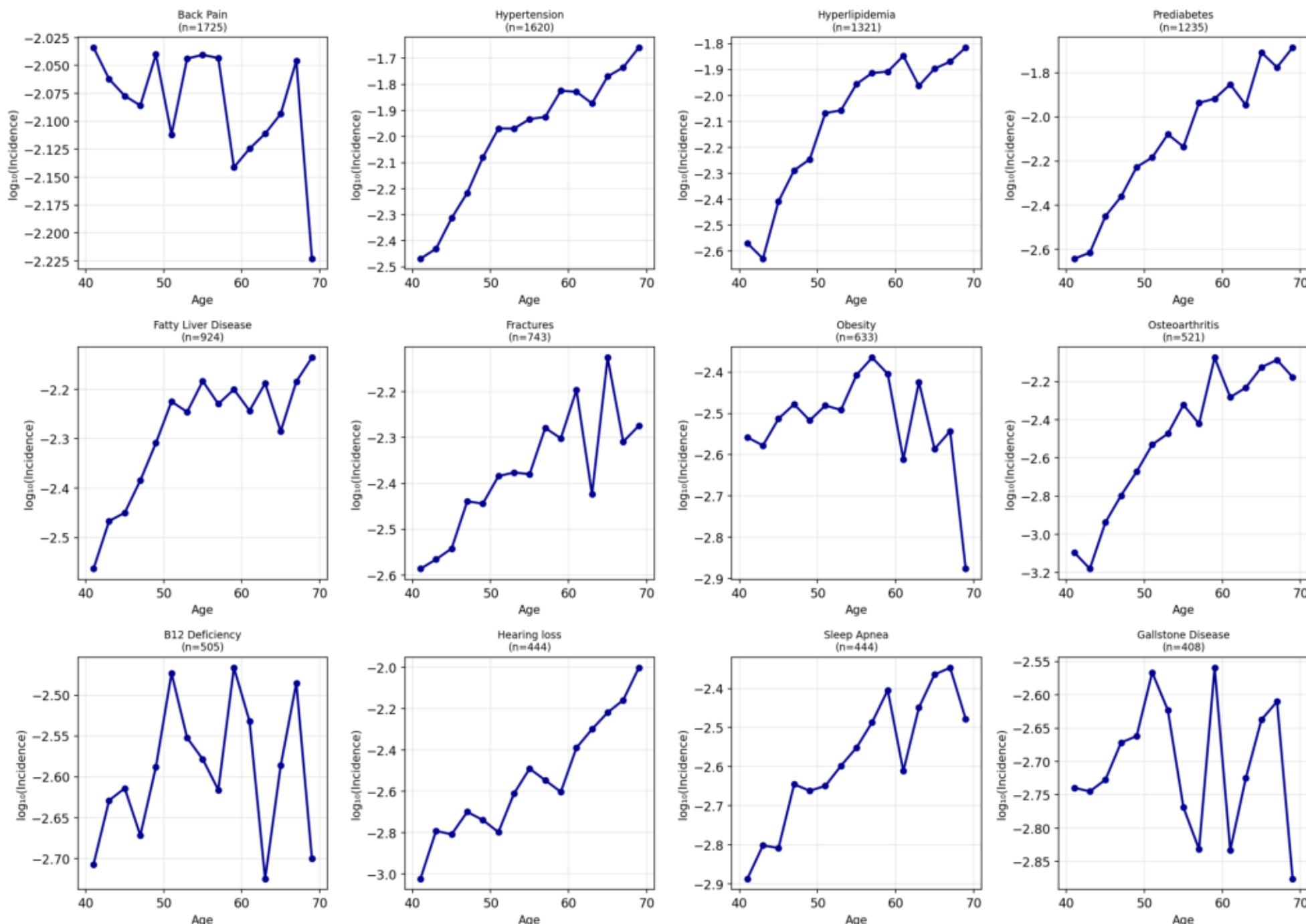
### Sample Sizes by Age Bin (Population at Risk)

- Age 40-42: 28,547 subjects
- Age 50-52: 16,950 subjects
- Age 60-62: 6,128 subjects
- Age 68-70: 1,504 subjects

Conditions Analyzed: 53 (with  $n \geq 20$  valid diagnoses in 40-70 range)

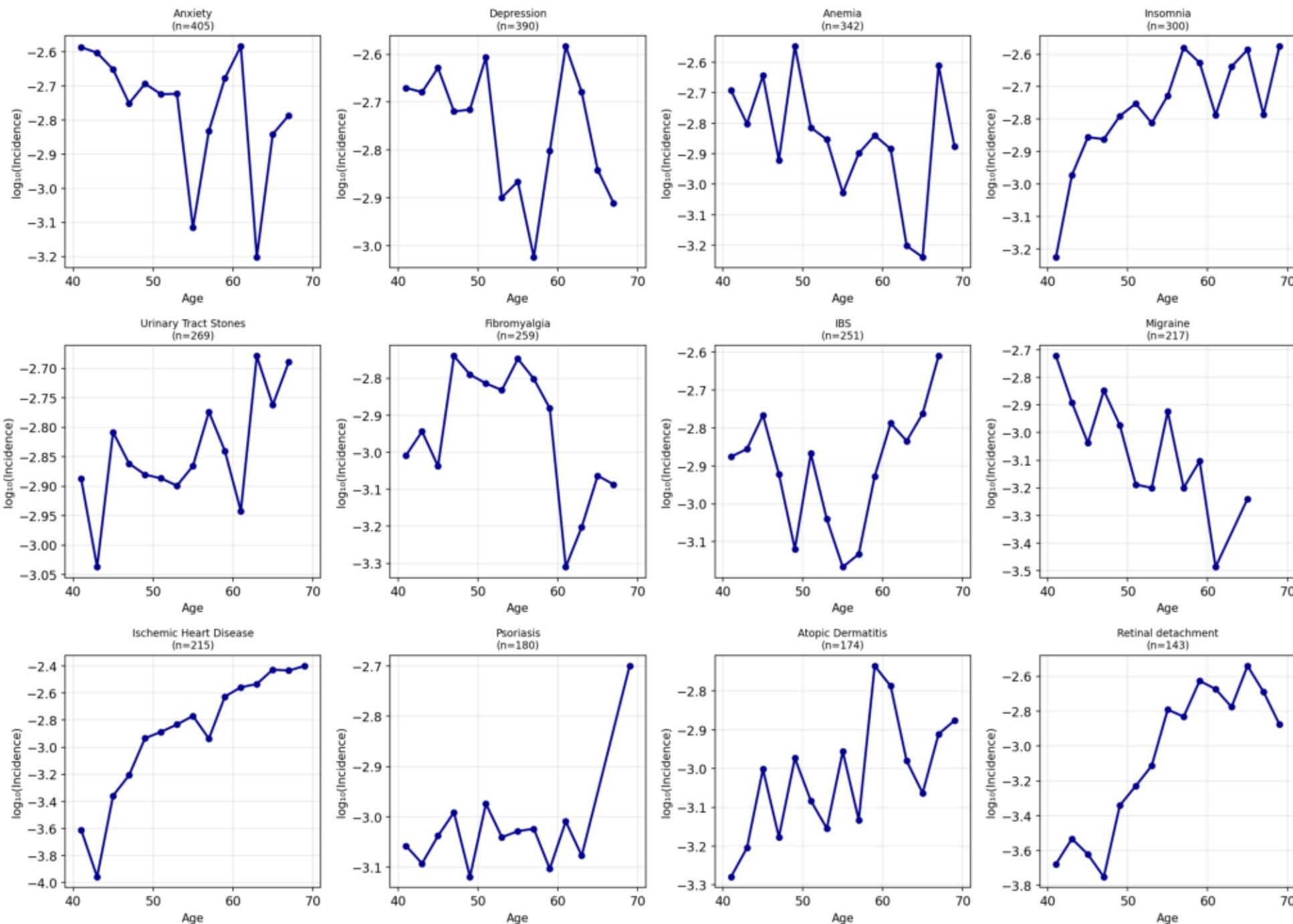
# $\log_{10}(\text{Incidence Rate})$ by Age (Page 1/5)

## $\log_{10}(\text{Incidence Rate})$ by Age at Diagnosis (Page 1/5) Ages 40-70 | Line UP = More incidence



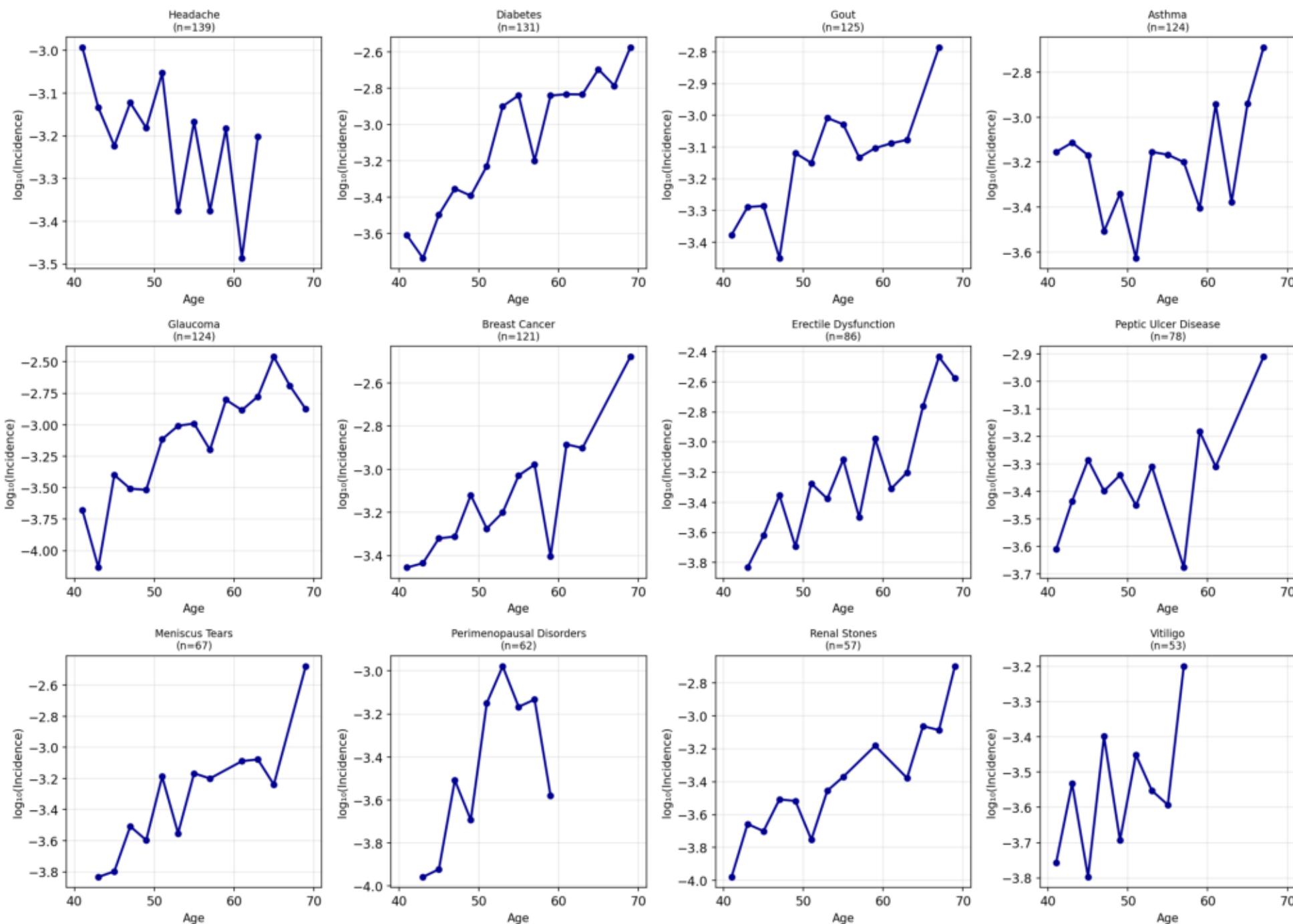
# $\log_{10}(\text{Incidence Rate})$ by Age (Page 2/5)

## $\log_{10}(\text{Incidence Rate})$ by Age at Diagnosis (Page 2/5) Ages 40-70 | Line UP = More incidence



# $\log_{10}(\text{Incidence Rate})$ by Age (Page 3/5)

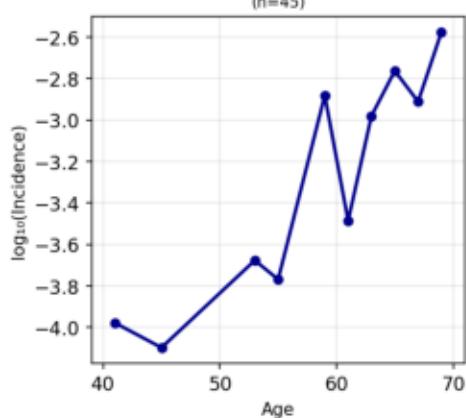
$\log_{10}(\text{Incidence Rate})$  by Age at Diagnosis (Page 3/5)  
Ages 40-70 | Line UP = More incidence



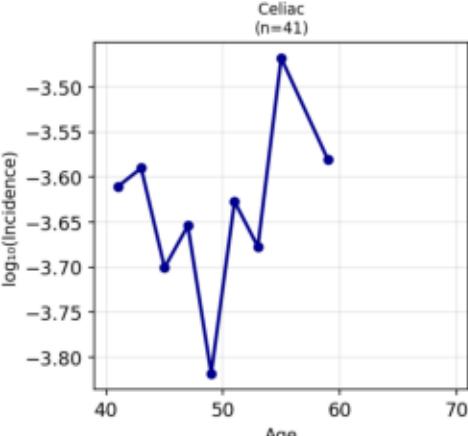
# $\log_{10}(\text{Incidence Rate})$ by Age (Page 4/5)

## $\log_{10}(\text{Incidence Rate})$ by Age at Diagnosis (Page 4/5) Ages 40-70 | Line UP = More incidence

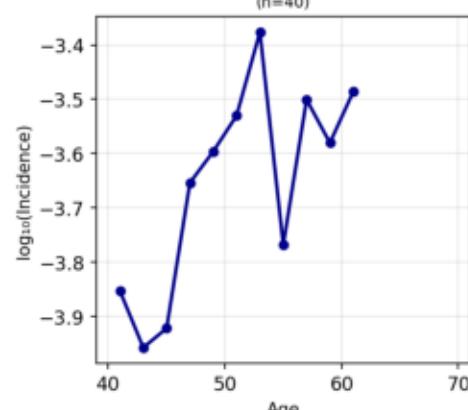
Atrial Fibrillation  
(n=45)



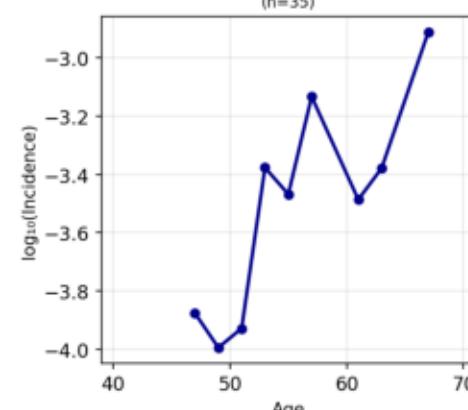
Celiac  
(n=41)



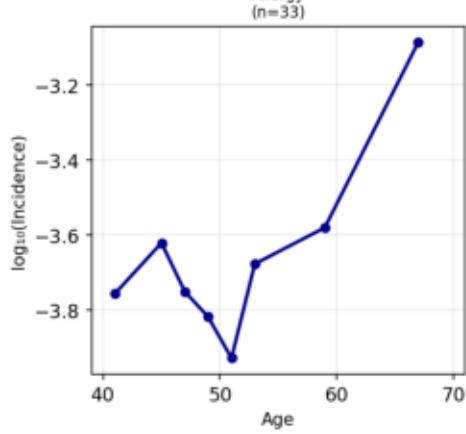
Hypercholesterolaemia  
(n=40)



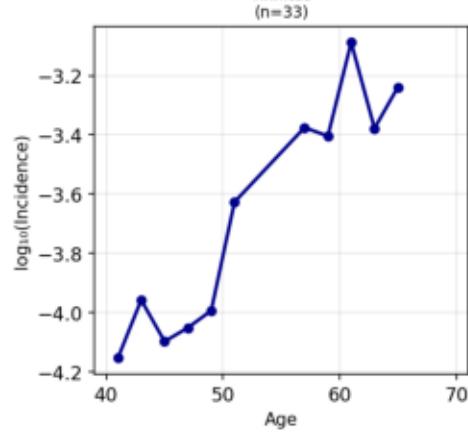
Hyperparathyroidism  
(n=35)



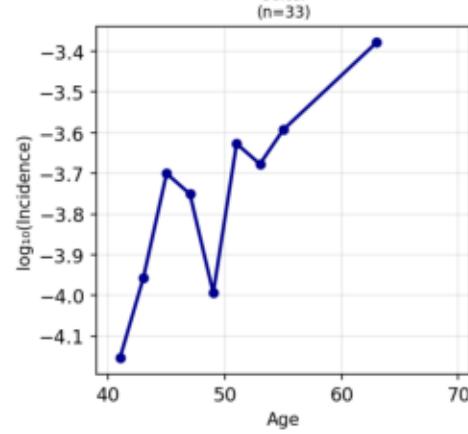
Allergy  
(n=33)



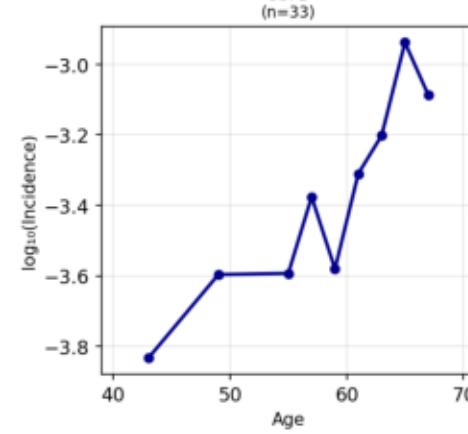
Tinnitus  
(n=33)



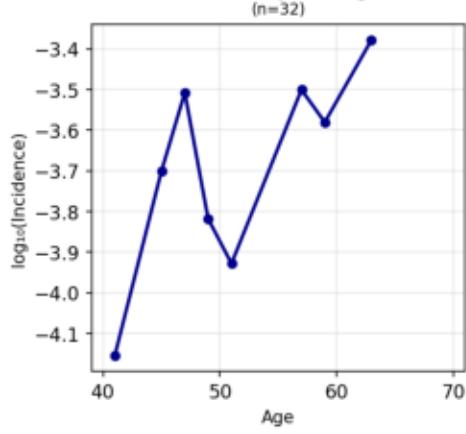
Goiter  
(n=33)



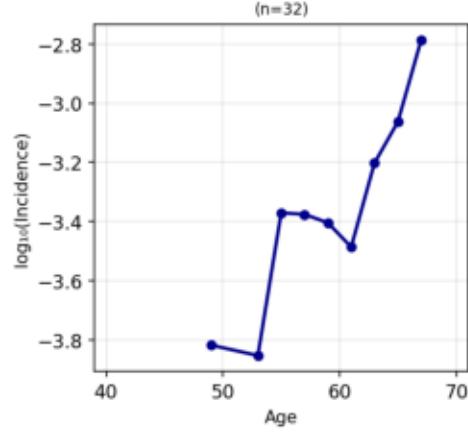
COPD  
(n=33)



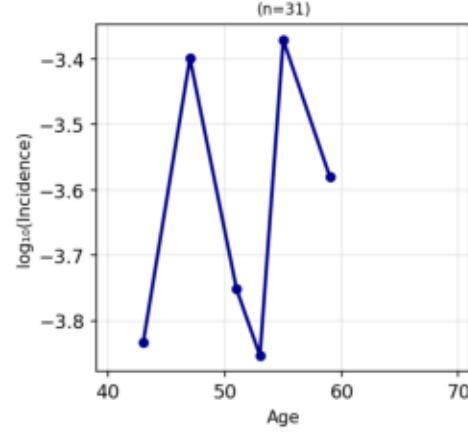
Breast fibrotic change  
(n=32)



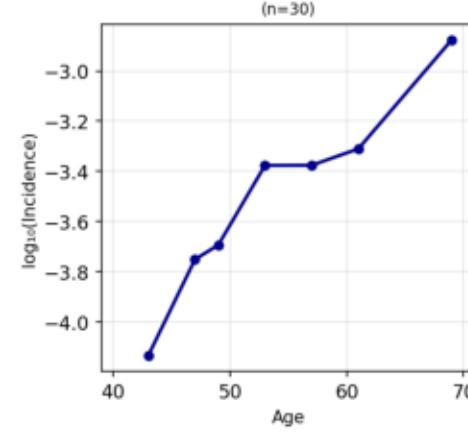
Atherosclerotic  
(n=32)



Uveitis  
(n=31)

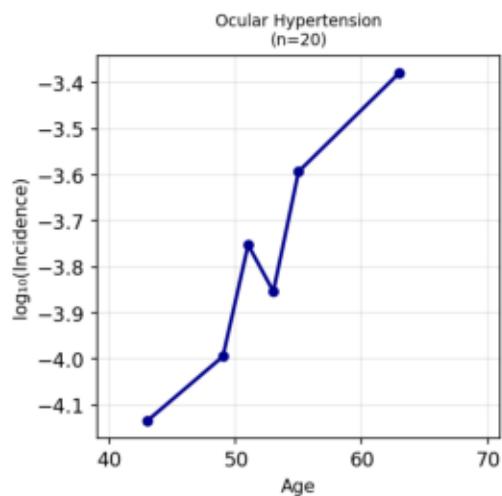
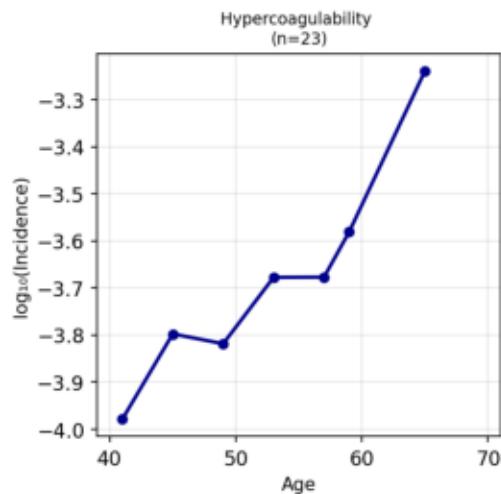
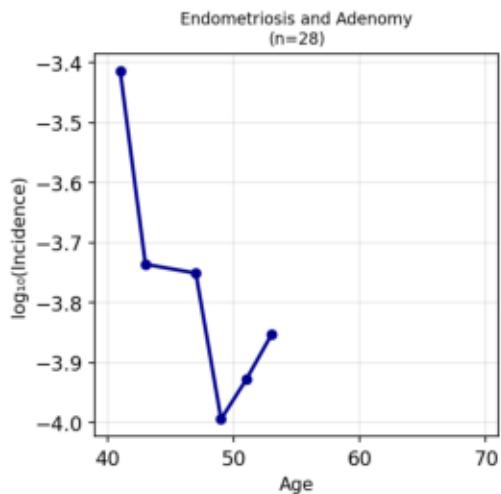
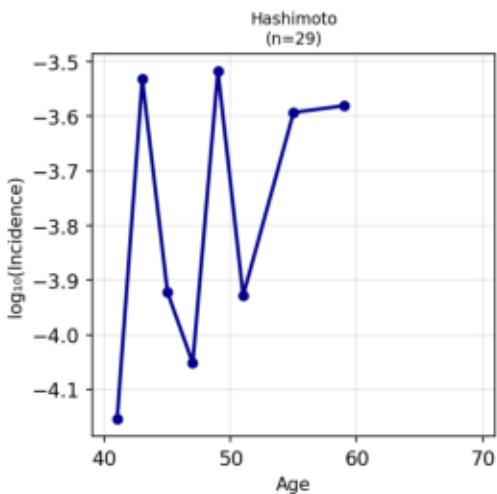


Melanoma  
(n=30)



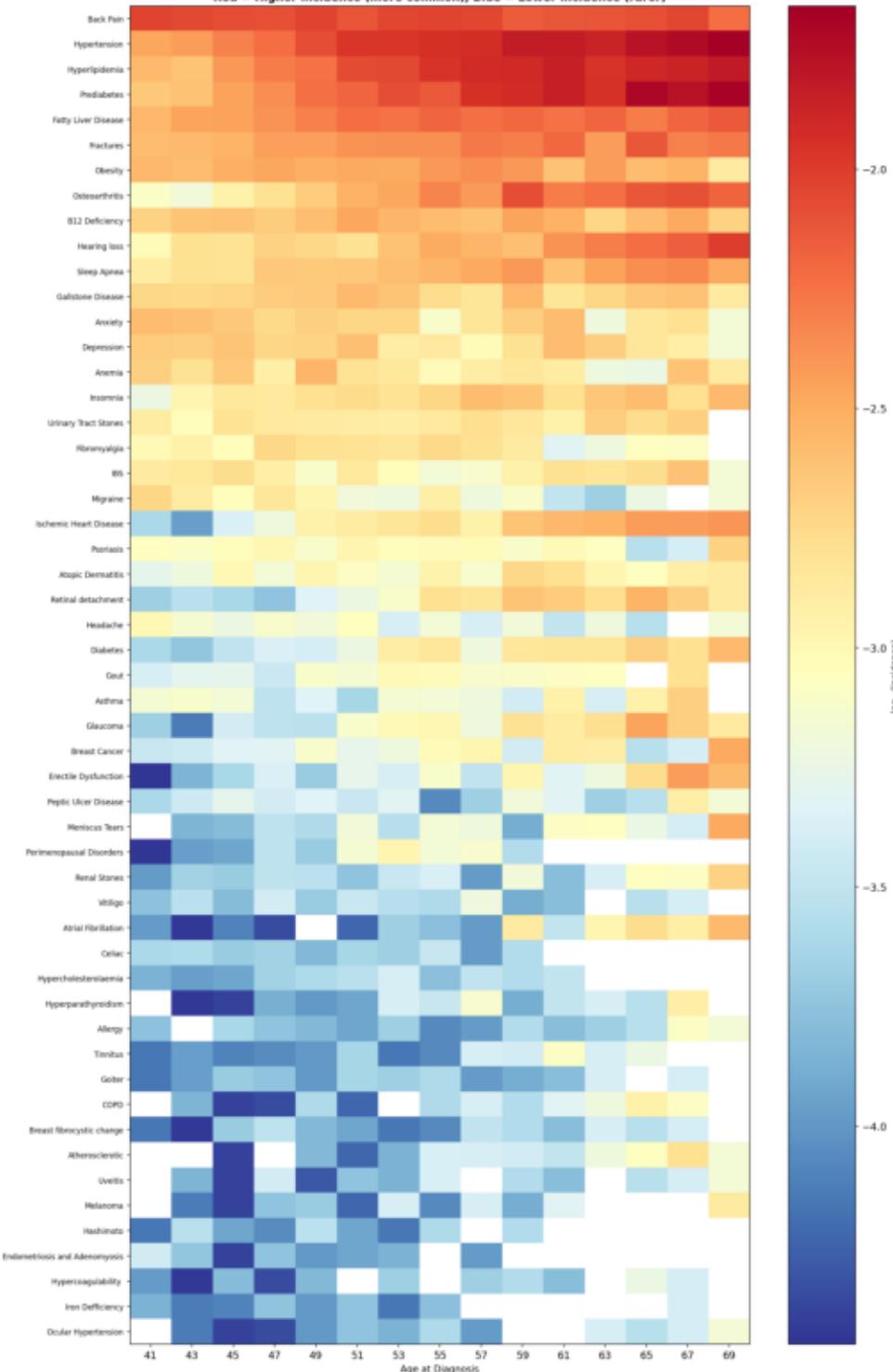
# $\log_{10}(\text{Incidence Rate})$ by Age (Page 5/5)

**$\log_{10}(\text{Incidence Rate})$  by Age at Diagnosis (Page 5/5)**  
**Ages 40-70 | Line UP = More incidence**



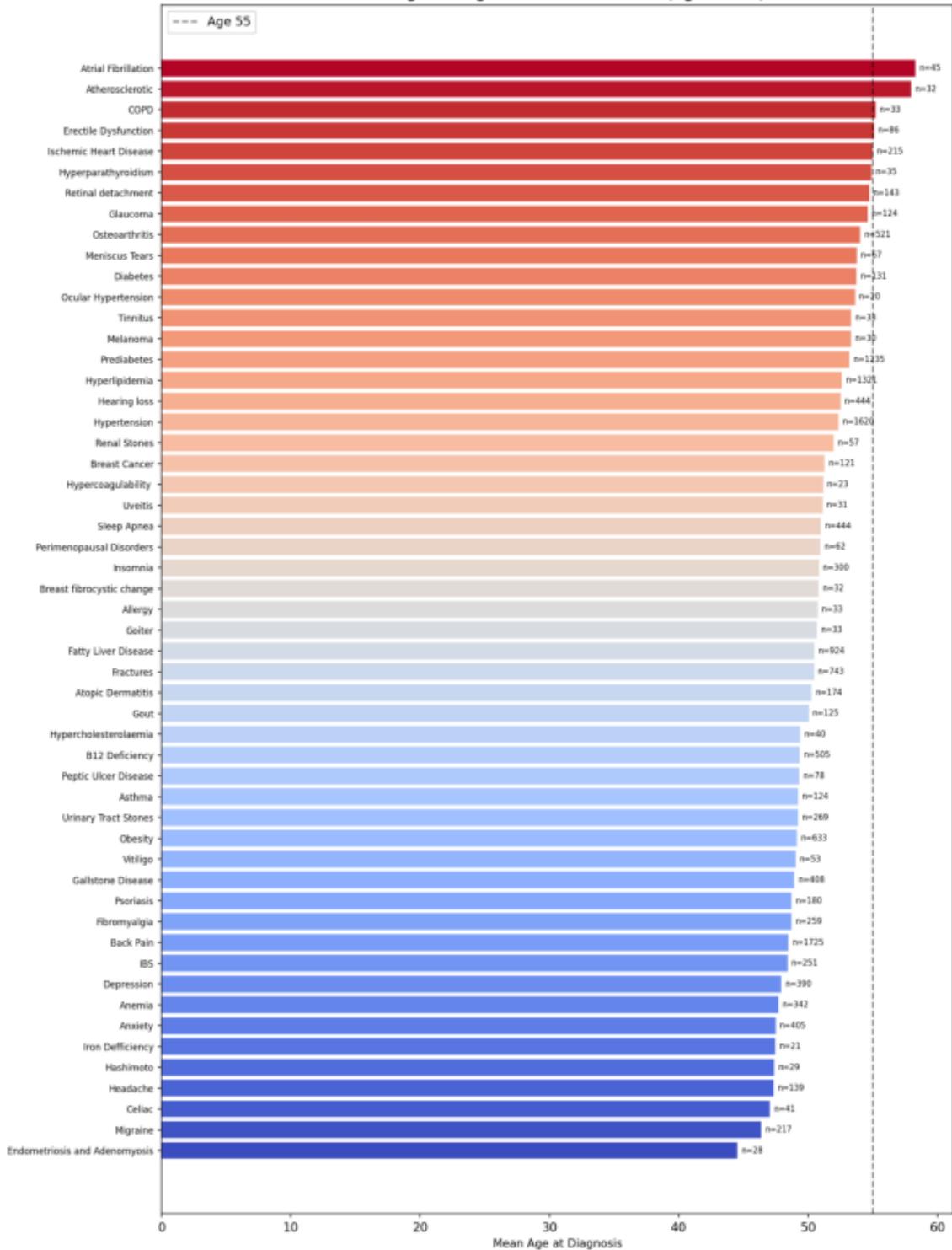
# All Conditions Heatmap

log<sub>10</sub>(Incidence Rate) Heatmap (Ages 40-70)  
Red = Higher incidence (more common), Blue = Lower incidence (rarer)



# Mean Age at Diagnosis Summary

Mean Age at Diagnosis for All Conditions (Ages 40-70)



## KEY FINDINGS: Age at Diagnosis (40-70 years)

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### CONDITIONS WITH EARLIEST ONSET (in 40-70 range)

These conditions are diagnosed earlier in life:

Endometriosis and Adenomyosis	Mean: 45 years	(n=28)
Migraine	Mean: 46 years	(n=217)
Celiac	Mean: 47 years	(n=41)
Headache	Mean: 47 years	(n=139)
Hashimoto	Mean: 47 years	(n=29)
Iron Deficiency	Mean: 47 years	(n=21)
Anxiety	Mean: 47 years	(n=405)
Anemia	Mean: 48 years	(n=342)
Depression	Mean: 48 years	(n=390)
IBS	Mean: 48 years	(n=251)

### CONDITIONS WITH LATEST ONSET (in 40-70 range)

These conditions are diagnosed later in life:

Atrial Fibrillation	Mean: 58 years	(n=45)
Atherosclerotic	Mean: 58 years	(n=32)
COPD	Mean: 55 years	(n=33)
Erectile Dysfunction	Mean: 55 years	(n=86)
Ischemic Heart Disease	Mean: 55 years	(n=215)
Hyperparathyroidism	Mean: 55 years	(n=35)
Retinal detachment	Mean: 55 years	(n=143)
Glucoma	Mean: 55 years	(n=124)
Osteoarthritis	Mean: 54 years	(n=521)
Meniscus Tears	Mean: 54 years	(n=67)

### INTERPRETATION NOTES

- Atrial Fibrillation: Strong late-onset (mean 58 years)
- Atherosclerotic disease: Strong late-onset (mean 58 years)
- Ischemic Heart Disease: Late-onset (mean 55 years)
- Endometriosis: Earliest in 40-70 range (diagnosed before 50)
- Migraine: Earlier onset (diagnosed in 40s)

### HOW TO READ THE LOG PLOTS:

- Line goes UP = More diagnoses at older ages
- Line goes DOWN = Fewer diagnoses at older ages
- Flat line = Constant risk across ages 40-70

## ALL CONDITIONS SUMMARY (Ages 40-70)

Condition	N	Mean	Median	Std
Back Pain	1725	48.5	47.0	6.8
Hypertension	1620	52.4	52.0	7.3
Hyperlipidemia	1321	52.6	52.0	7.1
Prediabetes	1235	53.2	53.0	7.5
Fatty Liver Disease	924	50.5	50.0	6.9
Fractures	743	50.5	49.0	7.2
Obesity	633	49.1	48.0	6.7
Osteoarthritis	521	54.0	54.0	7.2
B12 Deficiency	505	49.3	49.0	6.9
Hearing loss	444	52.5	52.0	8.2
Sleep Apnea	444	51.0	50.0	7.4
Gallstone Disease	408	48.9	48.0	6.7
Anxiety	405	47.5	46.0	6.5
Depression	390	47.9	47.0	6.5
Anemia	342	47.7	47.0	6.3
Insomnia	300	50.8	50.0	7.1
Urinary Tract Stones	269	49.2	48.0	7.0
Fibromyalgia	259	48.7	48.0	5.9
IBS	251	48.4	46.0	7.3
Migraine	217	46.4	45.0	5.8
Ischemic Heart Disease	215	55.0	54.0	7.6
Psoriasis	180	48.7	47.0	6.7
Atopic Dermatitis	174	50.3	49.0	7.2
Retinal detachment	143	54.7	55.0	7.1
Headache	139	47.4	47.0	6.3
Diabetes	131	53.8	53.0	7.3
Gout	125	50.0	50.0	6.8
Asthma	124	49.2	47.0	8.0
Glaucoma	124	54.6	54.0	7.5
Breast Cancer	121	51.3	50.0	7.4
Erectile Dysfunction	86	55.1	55.0	8.1
Peptic Ulcer Disease	78	49.3	47.5	7.3
Meniscus Tears	67	53.8	52.0	7.3
Perimenopausal Disorders	62	50.9	52.0	4.2
Renal Stones	57	52.0	50.0	8.3
Vitiligo	53	49.0	48.0	6.3
Atrial Fibrillation	45	58.3	59.0	8.2
Celiac	41	47.0	47.0	5.5
Hypercholesterolaemia	40	49.4	49.5	5.7
Hyperparathyroidism	35	54.9	55.0	6.1
Allergy	33	50.8	48.0	8.4
Tinnitus	33	53.3	54.0	7.6
Goiter	33	50.7	50.0	7.6
COPD	33	55.2	56.0	7.9
Breast fibrocystic change	32	50.8	48.0	7.5
Atherosclerotic	32	58.0	57.5	6.4
Uveitis	31	51.1	50.0	7.2
Melanoma	30	53.3	52.0	7.4
Hashimoto	29	47.4	47.0	5.2
Endometriosis and Adenomyosis	28	44.5	43.0	4.5
Hypercoagulability	23	51.2	49.0	8.3
Iron Deficiency	21	47.5	47.0	6.2
Ocular Hypertension	20	53.6	52.0	7.9