

Dysphagia: A Retrospective Payer Database Analysis to Understand Patient Characteristics and Comorbid Profiles

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Introduction:

- Dysphagia prevalence rates range from 22.6% in the primary care population, to 33% in the elderly population^{1,2} and can impact medication adherence.
- The purpose of this study was to describe the patient demographics and concomitant conditions for patients with dysphagia using real world evidence from a large payer database.

Methods:

- This retrospective descriptive study used MarketScan[®] Commercial Claims and Medicare Supplemental databases from July 2010-June 2015.
- Eligible patients had both an ICD-9 code indicating diagnosis (Dx) of dysphagia and a CPT code indicating a swallowing function exam. (Figure 1)
- The dysphagia patient population was described by: age cohort, demographic characteristics, and the distribution of major diseases using the Elixhauser Comorbidity Index³ in addition to other conditions of interest.

Results:

- The overall dysphagia cohort had a mean age of 60 (sd 26.73) and even gender distribution (48% male, 51% female, 1% unknown). (Table 1)
- The higher representation in the Southern and North Central regions could be due to the data source and not the patient population.
- The high percentage of Medicare Supplemental Insurance was a function of the cohort age distribution.
- The overall cohort was divided into age cohorts with the following distribution: 0-16 at 12%, 17-40 at 7%, 41-64 at 31% and 65+ at 50%.
- There was a higher percentage of males than females with dysphagia in the 0-16 age cohort however, the percentage of females generally increases with age. (Figure 2)

References:

- 1) Wilkins T, et al. *J Am Board Fam Med*. 2007;20(2):144-150.
- 2) Roy N, et al. *Ann Otol Rhinol Laryngol*. 2007;116(11):858-865.
- 3) Elixhauser A, et al. *Med Care* 1998;36:8-27.
- 4) Gross RD et al. *Am J Respir Crit Care Med* 2009;179 (7):559-565

Figure 1. Attrition Diagram

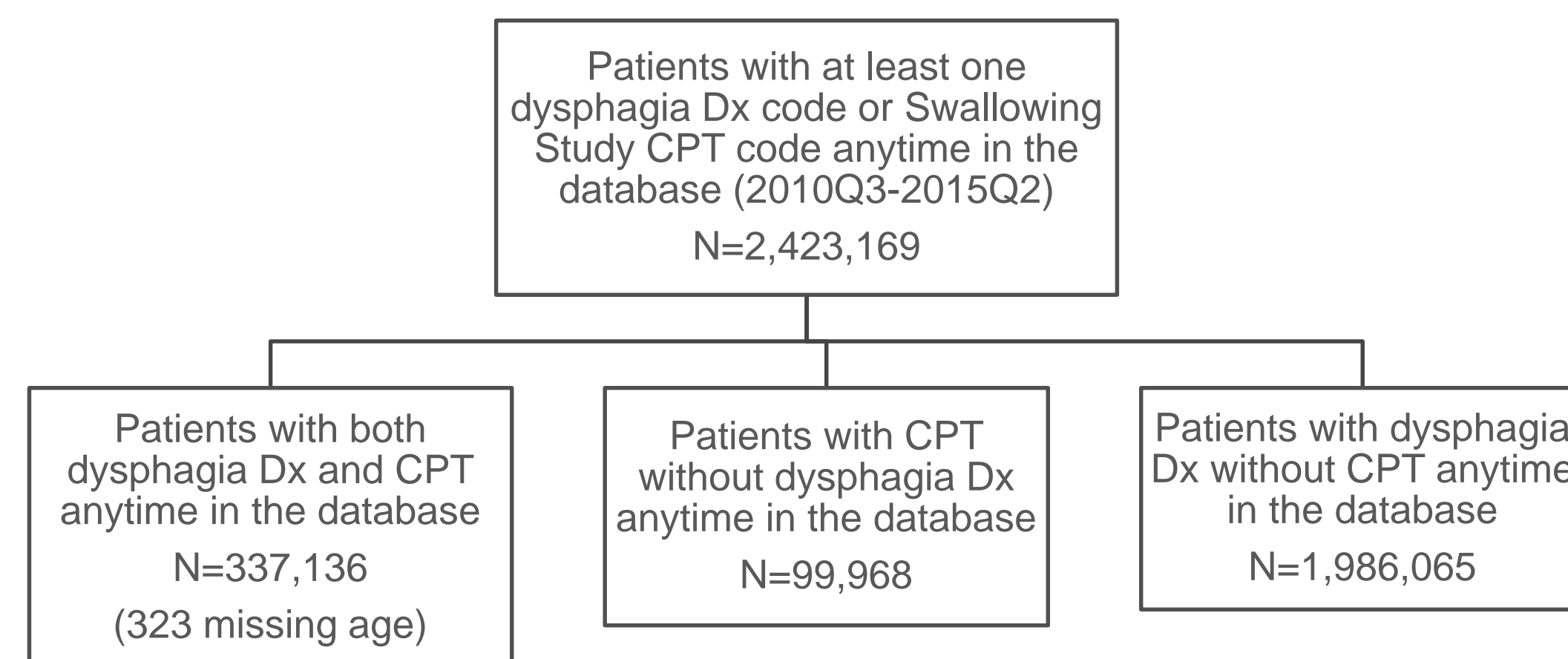


Table 1. Patient Demographics

	N	%
Total Patients	337,136	100%
Age, mean (standard deviation)	60.3 (26.73)	
	N	%
Gender, Male	161,734	48.0
US Region		
Northeast	72,260	21.4
North Central	98,027	29.1
South	111,267	33.0
West	46,452	13.8
Missing/Unknown	9,130	2.7
Insurance Coverage		
Commercial	163,023	48.4
Medicare Supplemental	170,986	50.7
Missing/Unknown	3,127	0.9

Figure 2. Age Cohorts by Gender

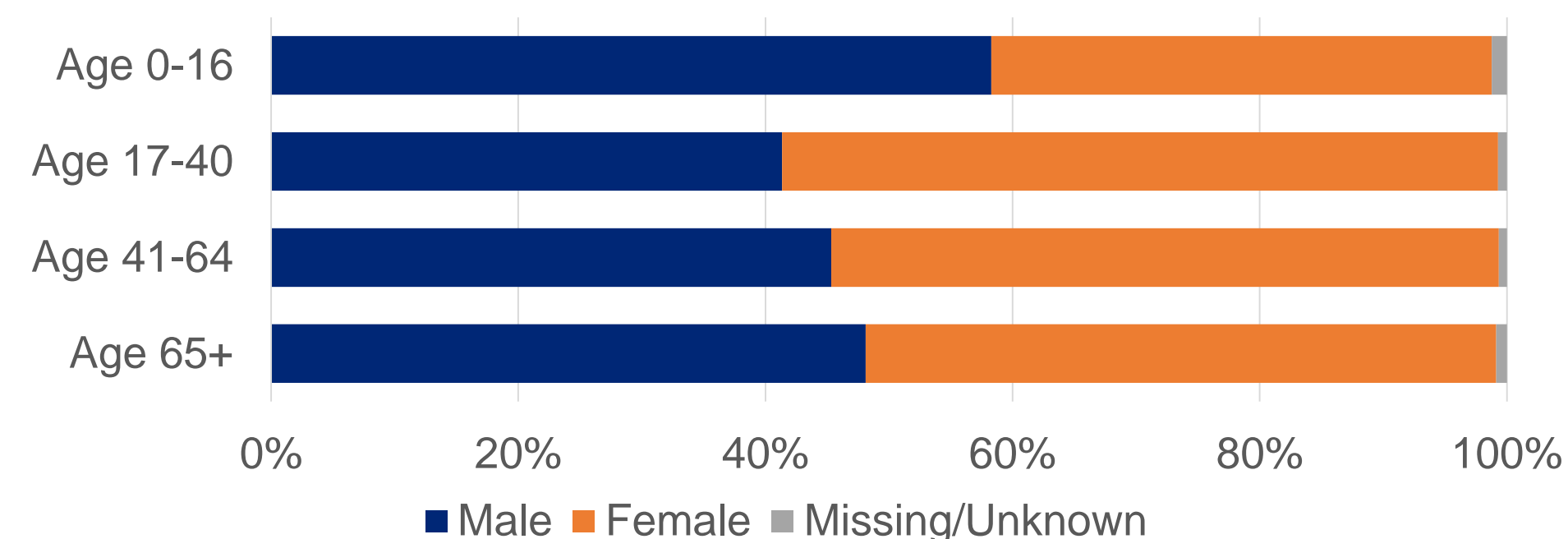


Table 2. Concomitant Conditions by Age Cohort

	Total*	Age 0-16	Age 17-40	Age 41-64	Age 65+
Total Patients	337,136	40,440	22,402	105,024	168,947
Elixhauser Comorbidities	%	%	%	%	%
AIDS/HIV	0.2	0.0	0.4	0.4	0.1
Alcohol Abuse	2.3	0.9	4.0	3.8	1.6
Blood Loss Anemia	11.9	2.5	7.8	11.5	14.9
Cardiac Arrhythmia	37.1	10.5	17.6	27.1	52.3
Chronic Pulmonary Disease	38.5	29.9	22.6	33.6	45.7
Coagulopathy	8.3	2.5	4.8	8.0	10.4
Congestive Heart Failure	25.0	3.2	4.0	13.3	40.2
Deficiency Anemia	2.5	0.1	2.5	4.6	1.7
Depression	32.3	14.0	16.1	27.0	42.2
Diabetes (Complicated)	11.2	0.2	2.2	10.3	15.5
Diabetes (Uncomplicated)	25.1	0.7	8.2	26.1	32.5
Drug Abuse	10.1	0.6	4.5	6.9	15.2
Fluid and Electrolyte Disorders	2.8	0.2	1.4	2.3	3.9
Hypertension (Complicated)	12.6	0.7	2.1	9.0	19.1
Hypertension (Uncomplicated)	45.7	2.5	19.9	48.9	57.5
Hypothyroidism	21.7	3.6	16.1	25.2	24.6
Liver Disease	7.9	1.6	6.6	12.3	6.8
Lymphoma	2.0	0.2	1.1	2.3	2.5
Metastatic Cancer	6.3	0.4	2.6	9.9	5.9
Obesity	9.1	1.8	14.4	15.7	6.0
Other Neurological Disorders †	28.9	19.9	18.9	23.4	35.7
Paralysis	10.1	11.6	11.4	9.9	9.6
Peptic Ulcer Disease (excluding bleeding)	2.9	0.3	2.0	3.3	3.4
Peripheral Vascular Disorders	22.1	1.0	3.9	13.5	34.9
Psychoses ‡	27.8	5.5	27.8	32.1	30.5
Pulmonary Circulation Disorders	8.3	3.4	3.1	6.9	11.0
Renal Failure	16.4	1.2	3.2	10.1	25.6
Rheumatoid Arthritis Collagen	10.1	2.4	7.9	11.7	11.3
Solid Tumor without Metastasis	17.2	1.7	7.0	21.3	19.8
Valvular Disease	18.1	5.3	6.4	14.0	25.3
Weight Loss	21.0	11.9	12.6	18.1	26.0
Additional Comorbidities					
GERD	43.6	44.5	49.3	51.7	37.6
Head or Neck Cancer	5.0	0.2	2.4	9.7	3.6
Parkinson's Disease	5.7	0.0	0.2	2.5	9.8
Psychiatric Disorders	32.1	5.8	29.2	34.3	37.5

*Includes patients with missing age (N=323)

† Other Neurological Disorders category includes, but is not limited to, Parkinson's disease, Huntington's chorea, Multiple sclerosis, Epilepsy and recurrent seizures, Anoxic brain damage, Encephalopathy, not elsewhere classified, Convulsions, and Aphasia

‡ Psychoses category includes, but is not limited to, Schizophrenic disorders, Bipolar I disorder, and Delusional disorders

Results Continued:

- In the overall cohort with dysphagia, there was a high rate of chronic pulmonary disease, cardiac arrhythmia, congestive heart failure, diabetes and neurological disorders as well as depression and psychoses. (Table 2)
- Hypertension combined (complicated 19% or uncomplicated 57%), heart disease (CHF 40%, cardiac arrhythmia 52%, peripheral vascular disorders 34.9%, valvular disease 25%) and chronic pulmonary diseases (45.7% including COPD) are present in high percentages, some exceeding 50% of elderly subjects with dysphagia. Neurological disorders (including epilepsy) and various chronic diseases like diabetes, GERD, hypothyroidism, renal failure and psychological disorders also occurred frequently.
- For the youngest patients, chronic pulmonary disease was the most frequent comorbid condition (29.9%), with neurological disorders, paralysis, cardiac arrhythmias, depression and weight loss all with frequencies of greater than 10%.

Discussion and Conclusions:

- Across all age groups with dysphagia, there was a high rate of chronic pulmonary disease. The highest rate was in the patients 65+. There is a clinical link between COPD and swallowing.⁴
- The process of swallowing requires precise coordination with the respiratory system in order to protect the airway from aspiration. The issue of coordination is particularly important to patients with COPD, as they have a limited ventilatory capacity and need to breathe more often.
- This observational study of a large, payer database found that 50% of patients with dysphagia are 65 years of age or older. Many of these patients suffer from chronic comorbid conditions that require daily medication. Awareness of dysphagia in the Medicare population is an important healthcare issue as dysphagia can lead to medication non-adherence and negatively impact clinical outcomes.

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