Clinical Communications

Percutaneous and intradermal allergy skin test utilization in the United States 2012 Medicare population

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Clinical Implication

- This article presents a novel analysis of the recently released 2012 Medicare data set, which looks at which provider types are using allergy skin testing and the extent of utilization. Providers can compare their practices with these previously unknown national norms.

TO THE EDITOR:

In April 2014, as part of efforts to make the health care system more transparent, affordable, and accountable, the Center for Medicare and Medicaid Services released individual physician reimbursement data for 2012.[1,2] The Provider Utilization and Payment Data Physician and Other Supplier Public Use File (Physician and Other Supplier PUF) includes reimbursement data on 6000 different types of procedures and services paid to more than 880,000 health care providers. This data set includes statistics on Common Procedural Terminology Codes (CPT) (American Medical Association, Chicago, Ill) for percutaneous skin testing (CPT 95004) and intradermal skin testing (CPT 95024). We analyzed these data with the hopes of better understanding the landscape of allergy care in the United States, as well as to allow practicing allergists to compare their allergen testing practices with national and regional norms.

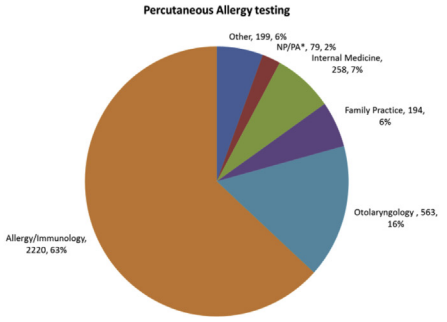
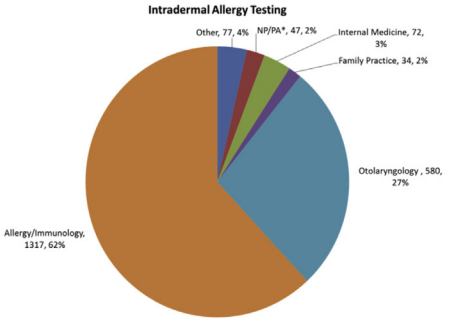
The methodology and sources for the Physician and Other Supplier PUF data are published fully by the Center for Medicare and Medicaid Services.[3] All providers with a valid National Provider Number who submitted claims for a service and/or procedure reimbursed 11 or more times to Medicare Part B during 2012 were included in the reports, which list provider specialty type, the number of procedures reimbursed, total number of Medicare beneficiaries per service per day, and average amount paid by Medicare per procedure for each provider. We used Microsoft Excel 2010 Version 10.2 (Microsoft Corp, Redmond, Wash) and JMP Version 10.0 (SAS Institute Inc, Cary, NC) for analysis. The average number of procedures per patient per visit was calculated by dividing the total number for reimbursements ("line_srvc_cnt") by the total number of Medicare beneficiaries per day of service ("bene_day_srvc_cnt") for that procedure. Cost information was calculated by multiplying each provider's average amount paid by Medicare per procedure by the number of procedures reimbursed. Regional variation of allergy/immunology providers was investigated by categorizing providers into 5 different regions by using the regions set forth by the National Allergy Bureau (American Academy of Allergy, Asthma & Immunology).[4] Hawaii, Puerto Rico, and Alaska were excluded due to the limited number of providers.

In 2012, 7,072,942 percutaneous skin tests were reimbursed by Medicare at an average of $5.00 per test to 3513 unique providers, which cost Medicare a projected $35,591,070. Thirty-four different provider types were reimbursed, with allergy/immunology providers accounting for 63.2% (n = 2220). Otolaryngologists represented 16.0% (n = 563); internal medicine, 7.3% (n = 258); and family practice, 5.5% (n = 194). Providers identified as nurse practitioners/physician assistants accounted for 2.2% (n = 79). The remaining 5.7% (n = 199) was ordered by a variety of other provider types. A total of 2127 providers, which represent 21 different provider types, were reimbursed an average of $5.98 for 1,688,105 intradermal tests with allergen extracts (CPT Code 95024) to give a projected cost of $10,664,532. Allergy/immunology providers accounted for 61.9% (n = 1317), whereas otolaryngologists accounted for 27.2% (n = 580), internal medicine for 3.4% (n = 72), family practice for 1.6% (n = 34), and nurse practitioners/physician assistants for 2.2% (n = 47). A variety of other provider types account for the remaining 3.6% (n = 77) (Figure 1).

Overall, the average ± SD number of percutaneous skin tests per patient per service day performed was 46.6 ± 16.7, and average ± SD intradermal skin tests per patient per service day was 18.1 ± 10.8. Utilization of percutaneous and intradermal skin tests shows variation among provider types. For percutaneous skin testing, the average ± SD number of percutaneous skin tests reimbursed per patient per day of service by provider type is as follows: allergy/immunology 46.3 ±16.3, otolaryngology 39.6 ±15.4, internal medicine 54.1 ± 16.0, family practice 54.5 ± 12.9, nurse practitioners/physician assistant 50.9 ± 19.8, and all others provider types 50.2 ± 18.9. Intradermal testing utilization (average ± SD) by provider types reveals the following: allergy/immunology 16.7 ± 8.5, otolaryngology 20.0 ± 13.6, internal medicine 20.8 ± 13.9, family practice 22.7 ± 13.3, nurse practitioners/physician assistant 19.4 ± 13.7, and all others provider types 19.5 ± 10.9. With the focus solely on allergy/immunology providers, the regional variation of number of providers, averages, and percentiles of percutaneous and intradermal skin test utilization are given in Table I.

Based on the information in the Physician and Other Supplier PUF, it appears that allergy/immunology providers administered the majority of percutaneous and intradermal skin testing reimbursed by Medicare in 2012. Otolaryngologists represent the second largest speciality that uses allergen skin testing. Generalists (internal medicine and family practice) were reimbursed for a small minority of allergen skin tests in 2012. Minor variation in utilization exists between provider types as well as regionally among allergists.

The Physician and Other Supplier PUF provides novel insights into utilization of allergy skin testing in the Medicare population. A previous attempt to study skin test utilization among allergists by means of a survey-based study was limited by a low response rate (18%).[5] The Physician and Other Supplier PUF represents a national cross-sectional view of health care utilization that is being actively analyzed by patient advocacy groups, insurance companies, and physician organizations.[6,7]

	Percutaneous Tesitng (CPT® 95004)	Intradermal Testing (CPT® 95024)
Total Number Reimbursed	7,072,942	1,688,105
Average amount reimbursed	$5.00	$5.98
Projected Cost to Medicare	$35,591,070	$10,664,532
Utilization By Provider Type (specialty, number of providers, %)		

Region	Number of providers	Average number of skin tests per patient (SD)	Percentile		
			25th	50th	75th
National	3513	46.6 (±16.7)	34	46	58
Allergy	2220	46.3 (± 16.3)	34	46	58
Otolarygology	563	39.6 (±15.4)	30	38	48
Family Practice	194	54.5 (± 12.9)	50	50	64
Internal Medicine	258	54.1 (±16.0)	44	52.5	68
PA/NP*	79	50.9 (± 19.8)	35	52	64
Other Providers	199	50.2 (± 18.9)	37	50	68

Number of providers	Average per patient per day of service (SD)	Percentile		
		25th	50th	75th
2127	18.1 (± 10.8)	10	16	24
1317	16.7 (± 8.5)	10	15	21
580	20.0 (± 13.6)	7	20	31
34	22.74 (± 13.3)	13	21.5	31.5
72	20.8 (± 13.9)	12	16.5	36.8
47	19.4 (± 13.7)	11	17	26
77	19.5 (± 10.9)	11	18	27

* Nurse Practitioner/Physician Assistant

FIGURE 1. Percutaneous and intradermal skin testing of the 2012 Medicare population. Extent of utilization, reimbursement data (average cost and projected total cost to Medicare), and utilization by provider type.

TABLE I. National and regional allergy skin testing utilization by allergists in the 2012 Medicare population*

	Percutaneous testing (CPT 95004)					Intradermal testing (CPT 95024)				
		No. per patient per service day (average ± SD)	Percentile				No. per patient per service day (average ± SD)	Percentile		
Region	No. providers		25th	50th	75th	No. providers		25th	50th	75th
National	2200	50.1 ± 20.1	37	49	62	1317	16.7 ± 8.5	10	15	21
Midwest†	481	47.3 ± 16.7	35	45	59	252	17.8 ± 9.3	11	16	22
Northeast‡	553	42.2 ± 22.4	29	39	51	309	16.8 ± 8.7	10	15	21
South Central§	335	59.2 ± 16.1	48	60	70	240	16.9 ± 8.2	11	15	22
Southeast‖	420	53.4 ±15.5	43	53	63	335	16.0 ± 8.3	10	14	20
Western¶	419	53.6 ± 22.7	37	51	65	179	16.3 ± 7.8	10	15	21

*Hawaii, Alaska, Puerto Rico are excluded due to the limited number of providers.
†Iowa, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, North Dakota, Nebraska, Ohio, South Dakota, Wisconsin, West Virginia.
‡Connecticut, Washington DC, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.
§Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, Texas.
‖Alabama, Florida, Georgia, North Carolina, South Carolina.
¶Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, Wyoming.

Although nationally representative, there are several limitations of the Physician and Other Supplier PUF, including only reporting on the Medicare population (older than 65 years or younger than 65 years with disabilities), which left practice patterns in other populations to remain unknown. This data set only reports procedures for providers who were reimbursed for 11 or more procedures, thus underrepresenting the total number of ordering providers and testing performed. Testing indication is not included in the Physician and Other Supplier PUF, which limits this new information to generalizations of the overall practice pattern and is not specific to a particular allergic disease. Perhaps the most important limitation to this type of analysis is that the knowledge of the average number of skin tests used per visit is 1 variable in the equation of quality and cost-effectiveness.

Studies are needed to validate clinical meaningful outcomes and determine what level of testing is optimal to provide improved patient outcomes.

The release of the Physician and Other Supplier PUF highlights the ongoing movement of increased transparency in all aspects of the health care system. Searchable Web sites have been designed to aid the providers and patients to evaluate this public information on practice patterns.[8,9] The practicing allergist can use this report, these Web sites, and his or her practice records to compare his or her practice patterns with national and regional norms. The allergist should to be aware of these new resources and continue to strive toward continuing practice improvement to ensure efficient, evidence-based care.

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