

**Validity Test 1b: Examination of Credentials for Identified Specialists with <70% Specialty-related Visits**

To further assess the validity of the measure in identifying specialists, an examination of public information sources was performed to document the specialty-focused training and board certification history for the subset of identified providers with <70% of outpatient Medicaid visits categorized as specialty-related. Results are presented, by specialty area.

**Cardiology**

Individual physician (cardiology)	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
1	1	0%	2	50%	Pediatric cardiology	
2	3	0%	1	100%	Pediatric cardiology	
3	1	0%	5	100%	Pediatric cardiology	
4	1	0%			Pediatric cardiology	
5	1	0%			Pediatric cardiology	State=internal medicine
6	5	0%			Internal medicine, interventional cardiology, cardiovascular disease	
7	4	0%			Internal medicine, cardiovascular disease	
8	16	13%			Pediatric cardiology	State=internal medicine
9	618	29%			Cardiology	
10	454	40%	306	48%	Internal medicine, cardiovascular disease	State=internal medicine
11	126	40%	79	61%	Pediatric cardiology	
12	2	50%	4	0%	Pediatric cardiology	
13	2	50%			Pediatric cardiology, neonatal-perinatal medicine	
14	2	50%			Pediatric cardiology	
15	1,268	54%	2708	59%	Internal medicine, cardiology, cardiovascular disease	
16	177	55%	1085	61%	Internal medicine, cardiovascular disease	
17	2,507	57%	2722	51%	Internal medicine, cardiovascular disease	
18	132	58%	103	61%	Pediatric cardiology	
19	13	62%	85	93%	Pediatric cardiology	
20	235	62%	266	67%	Pediatric cardiology	
21	20	65%	486	50%	Internal medicine, cardiovascular disease	
22	432	65%	472	67%	Internal medicine, cardiovascular disease	
23	27	67%	77	74%	Pediatric cardiology	
24	3	67%	6	100%	Pediatric cardiology	
25	3	67%			Pediatric cardiology	

Individual physician (cardiology)	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
26	87	68%			Pediatric cardiology	
27	850	68%	874	65%	Internal medicine, cardiovascular disease	
28	16	69%			Internal medicine, cardiovascular disease	
29	125	69%	256	73%	Pediatric cardiology	
30	13	69%			Pediatric cardiology	
31	286	73%	429	66%	Pediatric cardiology	
32			1	0%	Pediatric cardiology	
33			1	0%	Pediatric cardiology	
34			1	0%	Pediatric cardiology	
35			1	0%	Pediatric cardiology	
36			1	0%	Pediatric cardiology	
37			1	0%	Internal medicine, cardiovascular disease	
38			1	0%	Pediatric cardiology	
39			1	0%	Internal medicine, cardiovascular disease	
40			3	33%	Internal medicine, cardiovascular disease	
41			25	68%	Pediatric cardiology	
42			2	50%	Pediatric cardiology	
43			2	50%	Pediatric cardiology	
44			55	67%	Pediatric cardiology	
45			38	29%	General surgery, thoracic cardiovascular surgery	NPPES=cardiothoracic vascular surgery
46	40	3%	5	0%	Pediatrics	
47	539	38%	540	29%	Family medicine	NPPES=general practice
48			9	44%	Pediatric critical care medicine	
49	57	2%	64	2%	Internal medicine, pediatrics	
50	10	0%	9	11%	Endocrinology, diabetes and metabolism	State=endocrinology, diabetes and metabolism

### Dermatology

Individual physician	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
1	2	50%			Dermatology	
2	3	100%	5	60%	Dermatology	
3	218	39%	242	48%	Dermatopathology, anatomic pathology	
4	1	0%			Dermatopathology, anatomic pathology	State=anatomic pathology
5	3	67%			Dermatopathology, dermatology	
6	61	69%	139	89%	Dermatology, dermatological immunology	
7	60	80%	166	69%	Dermatopathology, anatomic pathology	
8	8	25%	105	7%	Family practice, venous and lymphatic medicine	State=family medicine

### Endocrinology

Individual physician (endocrinology)	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
1	127	0%			Internal medicine, endocrinology, diabetes and metabolism	
2	1	0%			Pediatric endocrinology	
3	65	8%	112	14%	Internal medicine, nuclear medicine (endocrinology and metabolism fellowship)	
4	387	64%	371	52%	Internal medicine, endocrinology and metabolism	
5	718	54%	618	61%	Internal medicine, endocrinology and metabolism	
6	121	58%	156	63%	Internal medicine, endocrinology and metabolism	
7	668	56%	679	55%	Internal medicine, endocrinology and metabolism	
8	175	56%	180	56%	Internal medicine, endocrinology and metabolism	
9	84	55%	167	63%	Nuclear medicine,	

Individual physician (endocrinology)	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
					endocrinology and metabolism	
10	222	30%	217	33%	Pediatric endocrinology, clinical genetics	NPPES=medical genetics-clinical genetics
11			530	28%	Internal medicine	State=internal medicine
12			184	67%	Internal Medicine	NPPES=internal medicine

### Gastroenterology

Individual physician (gastroenterology)	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
1	2	0%	2	0%	Pediatric gastroenterology	
2	2	0%	5	20%	Pediatric gastroenterology	
3	1	0%	2	50%	Pediatric gastroenterology	NPPES=specialist
4	3	33%	214	89%	Pediatric gastroenterology	
5	4	0%	74	93%	Pediatric gastroenterology	
6	2	0%			Internal medicine, gastroenterology	State=internal medicine
7	1,150	19%			Internal medicine, gastroenterology	
8	1,165	18%	531	23%	Internal medicine, gastroenterology	
9	5,038	19%	5724	16%	Internal medicine, gastroenterology	
10	4,128	22%	592	68%	Internal medicine, gastroenterology	
11	3	67%	1	100%	Pediatric gastroenterology	
12	110	44%	153	47%	Internal medicine, gastroenterology	
13	81	49%	79	38%	Internal medicine, gastroenterology	
14	9	44%	5	100%	Pediatric gastroenterology	
15	2	50%	2	100%	Pediatric gastroenterology	

Individual physician (gastroenterology)	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
16	2	50%			Pediatric gastroenterology	
17	37	62%	82	82%	Internal medicine, gastroenterology	
18	267	67%			Internal medicine, gastroenterology	
19	3	67%	11	55%	Pediatric gastroenterology	
20	2	100%	2	50%	Pediatric gastroenterology	
21			783	61%	Internal medicine, gastroenterology	
22			3	0%	Internal medicine, gastroenterology	
23			2	0%	Pediatric gastroenterology	State=internal medicine
24			1	0%	Pediatric gastroenterology, nutrition support	
25			1	0%	Pediatric gastroenterology, pediatric transplant hepatology	
26	254	20%	268	24%	Internal medicine	
27	1,050	2%	1067	3%	Pediatric endocrinology;	NPPES=pediatric endocrinology
28	99	4%	78	3%	Pediatrics	State=pediatrics
29	42	62%			Pulmonary disease, critical care medicine	State=internal medicine

#### Hematology/Oncology

Individual physician (hematology/oncology)	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
1	1	0%			Internal medicine, hematology/oncology	
2	238	0%	140	0%	Internal medicine, hematology/oncology	
3	11	9%			Pediatric hematology/oncology	
4	30	17%	76	64%	Pediatric hematology/oncology	
5	5	20%	8	0%	Pediatric hematology/oncology	
6	174	29%			Pediatric	State = pediatrics

Individual physician (hematology/oncology)	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
					hematology/oncology	
7	1,368	42%			Internal medicine, hematology/oncology	
8	29	48%	31	100%	Pediatric hematology/oncology	
9	719	54%	497	59%	Pediatric hematology/oncology	
10	132	54%	151	72%	Internal medicine, hematology/oncology	
11	517	58%	198	86%	Internal medicine, hematology/oncology	
12	46	65%	68	68%	Pediatric hematology/oncology	
13	207	67%			Internal medicine, hematology/oncology	
14			1	0%	Internal medicine, hematology/oncology	
15			1	0%	Pediatric hematology/oncology	
16			1	0%	Pediatric hematology/oncology	NPPES=pediatrics
17			562	40%	Internal medicine, hematology/oncology	
18			60	67%	Internal medicine, hematology/oncology	
19			8	0%	Geriatric medicine	NPPES=internal med

### Nephrology

Individual physician	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
1	4,272	3%	5,058	3%	Pediatric nephrology	
2	1,105	3%	931	4%	Pediatric nephrology	
3	840	12%	1,543	11%	Pediatric nephrology	
4	564	17%	418	29%	Pediatric nephrology	
5	2	50%			Pediatric nephrology	
6	545	54%			Internal medicine, nephrology	
7	263	54%	143	99%	Internal medicine, nephrology	
8	847	56%	1,331	66%	Internal medicine, nephrology	
9	3	67%	2	100%	Pediatric nephrology	
10			1	0%	Internal medicine, nephrology	State=internal medicine
11			81	6%	Pediatric nephrology	

## Neurology

Individual physician (neurology)	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
1	1	0%			Neurology	
2	1	0%			Pediatric neurology	NPPES=pediatrics
3	128	6%	156	7%	Neurology, nuclear medicine	
4	340	11%	100	9%	Neurology, nuclear medicine	
5	207	14%	184	13%	Neurology, vascular neurology, brain injury medicine	
6	715	71%	485	61%	Child neurology, sleep medicine, pediatric critical care medicine	
7	94	23%	104	20%	Neurology, nuclear medicine	
8	3	33%	1	100%	Child neurology, undersea and hyperbaric medicine	
9	504	59%	269	64%	Child neurology, developmental and behavioral pediatrics	State=multispecialty
10	5	60%			Neurology	
11	205	64%	422	81%	Child neurology	
12	1,307	66%	906	64%	Child neurology	
13	685	67%	708	65%	Child neurology	
14	406	67%	486	69%	Child neurology, sleep medicine	
15	666	69%	557	68%	Child neurology	
16	87	77%	108	65%	Neurology, neurological surgery	
17	1,357	71%	1,451	64%	Child neurology	
18	145	73%	121	55%	Neurology	
19	5	80%	3	67%	Child neurology	
20	305	82%	244	69%	Neurology	
21			34	56%	Neurology	
22			55	62%	Neurology	
23			3	67%	Child neurology	
24			24	0%	Neurology, forensic psychiatry	
25			2,819	8%	Psychiatry	
26	33	0%	105	0%	Child and adolescent psychiatry	NPPES=psychiatry and neurology - psychiatry
27	210	0%	569	0%	Child and adolescent psychiatry	state=psychiatry and neurology – child and adolescent psychiatry
28	204	4%			Child and adolescent psychiatry	state=psychiatry and neurology – child and adolescent psychiatry
s29	169	1%			Psychiatry	NPPES=psychiatry and neurology - psychiatry

Individual physician (neurology)	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
30	9	0%			Psychiatry	NPPES=psychiatry and neurology - psychiatry
31	1,290	2%	2,193	1%	Psychiatry	NPPES=psychiatry and neurology - psychiatry
32	459	0%			Psychiatry	NPPES-neurology; state=general practice
33	340	24%			General Surgery, Vascular Surgery	NPPES=vascular and interventional radiology
34	10	60%	26	92%	Audiology	NPPES=audiologist

### Otolaryngology

Individual physician	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
1	1	100%	1	0%	Otolaryngology	
2	121	69%	99	78%	Otolaryngology	NPPES=specialist
3	1	0%	5	100%	Otolaryngology	
4	12	25%			Otolaryngology	
5	40	18%	64	30%	Otolaryngology, plastic surgery	State=surgery of the hand
6	58	57%	94	62%	Otolaryngology, facial plastic and reconstructive surgery	
7	26	85%	34	62%	Otolaryngology, head and neck surgical oncology	
8	71	54%	103	62%	Otolaryngology, facial plastic and reconstructive surgery	
9	41	76%	35	66%	Otolaryngology, facial plastic and reconstructive surgery	
10	3	67%	3	67%	Otolaryngology	
11	13	46%	1	100%	Otolaryngology, facial plastic and reconstructive surgery	
12			28	68%	Otolaryngology, facial plastic and reconstructive surgery	
13	53	57%	48	77%	Otolaryngology, facial plastic and reconstructive surgery	
14	368	6%	359	8%	Plastic surgery	NPPES=plastic surgery
15	16	63%			General dentistry and prosthodontics	State=dentist/prosthodontics
16			3	67%	Allergy and immunology	NPPES=pediatric allergy/immunology
17	655	11%	800	13%	Diagnostic radiology (Otolaryngology residency)	State=diagnostic radiology
18	16	19%	59	12%	Family medicine	NPPES=family medicine



**Pulmonology**

Individual physician	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
1	2	50%	3	100%	Pediatric pulmonology	
2	1	0%			Pediatric pulmonology	
3	1,516	27%	1,569	20%	Pediatric pulmonology	
4	25	60%	132	75%	Pediatric pulmonology	
5	2	100%	18	56%	Pediatric pulmonology	
6	2	100%	3	67%	Pediatric pulmonology	
7	226	69%	203	78%	Pediatric pulmonology	
8			1	0%	Pediatric pulmonology	
9	126	67%	144	71%	Internal medicine, pulmonary disease	
10	547	47%	626	37%	Pulmonary disease, critical care medicine	
11	4	25%			Internal medicine, pulmonary disease	
12			254	54%	Internal medicine, pulmonary disease, sleep medicine	
13			11	0%	Internal medicine, pulmonary disease, critical care medicine	
14	19	58%	22	68%	Internal medicine, pulmonary disease, critical care medicine	NPPES=internal medicine
15	195	50%			Internal medicine, pulmonary disease, critical care medicine	
16	161	53%			Internal medicine, pulmonary disease	
17	458	65%	543	91%	Allergy and immunology, pediatric pulmonology	
18	901	21%	2,298	8%	Internal medicine, pulmonary disease, critical care medicine	
19	3,277	8%	3,407	10%	Internal medicine, pulmonary disease, infectious disease	State=infectious disease
20	53	53%			Internal medicine, pulmonary disease, critical care medicine, cardiovascular disease	
21			205	64%	Internal medicine, pulmonary disease, critical care medicine	
22	480	3%	490	1%	Anatomic and clinical pathology	
23	133	5%	154	2%	Anatomic and clinical pathology, cytopathology	
24	155	4%	211	4%	Anatomic and clinical pathology	
25	168	23%	171	25%	Internal medicine	
26	1,695	39%	2,080	34%	Internal medicine	NPPES=internal medicine

## Rheumatology

Individual physician	2012 No. visits	% Specialty-related	2013 No. visits	% Specialty-related	Specialty credentials	Other taxonomy classification
1	1,129	54%	1,264	52%	Internal medicine rheumatology	
2	2	0%	1	100%	Pediatric rheumatology	
3	3	67%	1	100%	Pediatric rheumatology	
4	804	69%			Internal medicine rheumatology	
5			1	0%	Internal medicine rheumatology	
6	1	0%	4	50%	Pediatric rheumatology	
7	982	29%	929	42%	Pediatric rheumatology	
8	2	0%	1	0%	Allergy/Immunology	State= allergy/immunology
9			51	4%	Critical care medicine, pulmonary disease	NPPES= pulmonary disease
10	37	8%	110	2%	Pediatrics	NPPES=pediatrics