US Rheumatologist Supply and Demand : 2005-2006 Workforce Study

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Abstract

Purpose: A decline in US rheumatologists is anticipated when retirement rates will exceed completed fellowships. Demand for rheumatology services is increasing due to an expanding and aging US population, new technologies and treatments.
A workforce (WF) study by the Lewin Group in 2005-06 investigated this supply and demand interface, the ACR Subcommittee on Workforce (Committee on Training and Workforce) served an advisory role.

Methods: The WF study included a literature review, analyses of national databases, and a survey sent to a random sample of 4946 adult rheumatologists (n=1683) and all 218 pediatric rheumatologists. Survey components included work efforts, productivity, measures of excess demand, retirement plans, sources of income, job satisfaction, and conditions treated. Pediatric, age <40, academic, and rural rheumatologists were oversampled. Results were used to develop a computer model of supply and demand (S/D) that provides sensitivity analyses of key components including number of fellows trained, retirement rates, physician assistant/nurse practitioners (NP/PA's), hours worked, gender/age effects, lifestyle changes and changes in GDP. A logistical regression identifying statistical differences between the groups was set at the 95% confidence level.

Results: 1,683 rheumatologists were surveyed, 627 responded (return = 37%). 70% were male (median age 53), median age of adult and pediatric physicians was 51 and 47. Overall there are 17.7 and 0.7 adult and pediatric rheumatologists per million people. There were 179 first-year fellowships offered in 2005, with an occupancy rate of 91% and 95% completion rate. At least 35% were filled by international medical graduates of whom 80% remain in the US. The number of annual visits averaged 2,800 for female and 3,748 for male rheumatologists. The model predicts a shortfall of supply to demand (assuming S=D in 2005) of 8, 21, 27, and 56% in 2010, 2015, 2020, and 2025.

Conclusions: At the time of this survey in 2005, the majority of rheumatologists were in their most productive years. As a younger, increasingly female cohort follows, we predict a decline in annual visit productivity based on the model and a shortfall of 2,576 rheumatologists by the year 2025. Solutions could include:1) increasing fellowship positions, 2) increasing NP/PA's, 3) improving practice efficiency. The incremental addition of 188 first year fellow positions (n=367 total first year positions) by 2025 would be required to equalize supply and demand. The committee recommends that the ACR develop strategies that address the predicted imbalance and use the computer model in evaluating the impact of proposed solutions.

Adult Rheumatology Fellowship Positions

Academic Year	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
ACGME Accredited Programs	114	107	106	105	107	108	106	105	107	108
Total Positions Available	329	357	351	358	368	380	370	369	378	395
Total Positions Filled	266	250	247	284	276	288	307	336	333	366
1st year Positions Available	154	167	158	161	163	182	178	179	177	184
1st year Positions Filled	120	117	123	141	122	121	130	165	149	168
Number Completing Program	116	113	120	105	122	137	156	146	161	149
Percent of IMGs	52%	58%	63%	59%	45%	36%	36%	35%	33%	34%

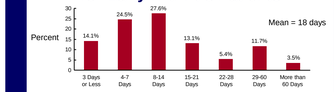
Pediatric Rheumatology Fellowship Positions

Academic Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
ACGME Accredited Programs	16	18	20	20	21	21	23	25	26
Total Positions Available	25	38	39	44	53	55	52	56	76
Total Positions Filled	15	24	20	21	27	28	26	30	39
1st year Positions Available	12	11	22	25	25	25	25	23	30
1st year Positions Filled	3	4	10	7	9	8	8	12	16
Number Completing Program	0	4	5	4	7	6	12	9	9
Percent of IMGs	33%	55%	50%	57%	44%	36%	31%	20%	21%

Distribution of Office Visits, 1998-2003 by Diagnosis and Physician Specialty

	Rheumatologist	Primary Care Physician	Other
Rheumatoid Arthritis	52.0%	30.9%	17.0%
Osteoarthritis	7.0%	52.7%	40.3%
Spondylarthropathies	77.3%	14.8%	7.9%
Polymyalgia Rheumatica	48.3%	43.4%	8.3%
Lupus	29.9%	35.0%	35.1%
Low Back Pain	2.9%	74.6%	22.5%
Gout	11.7%	79.9%	8.4%
Osteoporosis	5.1%	79.2%	15.7%

Wait Time to First Appointment for Early Arthritis Patients



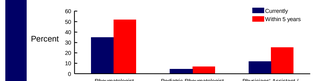
Wait Time to First Appointment for Non-Urgent Patients

Mean Wait Times for New Patients

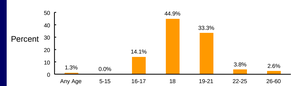
Specialty	1999	2001
Overall Internal Medicine	12.0	18.0
General Internal Medicine	12.4	18.3
Cardiovascular Disease	11.8	17.2
Gastroenterology	12.1	18.3
Other	9.1	16.0

Percent of Rheumatologists in a Practice With a Nurse Practitioner or Physician's Assistant

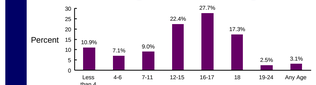
Percentage of Rheumatologists Whose Practice Plans to Hire



Oldest Age of Patient Pediatric Rheumatologist are Willing to Treat



Youngest Age of Patient Adult Rheumatologists are Willing to Treat



Reimbursement for Medicare Part B Services 1998-2003 Comparison

	Medicare Part B Reimbursement	Rheumatology Reimbursement	As Share of Part B Total
1998	$44,367,066,279	$208,598,534	0.5%
2003	$61,028,989,141	$610,115,629	1.0%
Change	37.6%	192.5%	112.6%

Median Compensation of Private Practice Physicians by Physician Specialty MGMA Estimates*

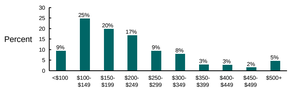
	Rheumatologists	Internal Medicine	Endocrinologists	Allergy Immunology	Geriatrics	Occupational Medicine
1998	$151,017	$140,951	$153,821	$205,000	$140,385	$145,588
2002	$193,410	$154,756	$170,000	$235,316	$146,016	$164,783
% Increase	28.1%	9.8%	10.5%	14.8%	4.0%	13.2%

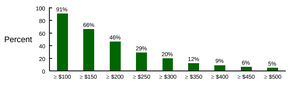
*Insufficient sample size in MGMA survey for pediatric rheumatology

Median Total Compensation for Academic Faculty MGMA Estimates

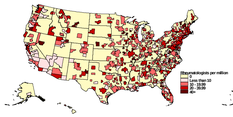
	Rheumatologists	Pediatric Rheumatologists	Internal Medicine	Endocrinologists	Allergy/ Immunology	Geriatrics
1998	$124,425	$106,844	$118,275	$125,661	$114,645	$124,298
2002	$138,529	$116,723	$132,327	$134,708	$146,288	$134,538
% Increase	11.3%	9.2%	11.9%	7.2%	27.6%	8.2%

Income Distribution For Full-Time Workers



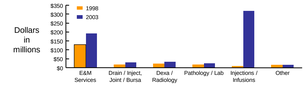


Concentration of Adult Rheumatologists Across the U.S.

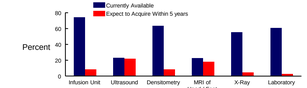


Concentration of Pediatric Rheumatologists Across the U.S.

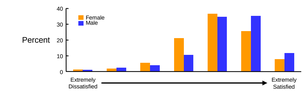
Medicare Spending on Rheumatologist Services by Type of Service



Percent of Rheumatologists Whose Practices Have the Listed Technology



Satisfaction with Your Current Practice of Rheumatology By Sex



MSAs with more than 700,000 people and No Pediatric Rheumatologists (2005)

Metropolitan Area	Population
Phoenix-Mesa-Scottsdale, AZ	3,593,408
San Antonio, TX	1,820,719
Las Vegas-Paradise, NV	1,576,541
Charlotte-Gastonia-Concord, NC-SC	1,437,427
Austin-Round Rock, TX	1,377,633
Birmingham-Hoover, AL	1,072,646
Tucson, AZ	892,798
Raleigh-Cary, NC	884,489
Fresno, CA	850,325
Dayton, OH	846,091
Oxnard-Thousand Oaks-Ventura, CA	791,130
Worcester, MA	776,610
Allentown-Bethlehem-Easton, PA-NJ	768,036
Grand Rapids-Wyoming, MI	762,035
Baton Rouge, LA	722,646
Bakersfield, CA	713,087
El Paso, TX	705,436
Akron, OH	701,643

MSA=Metropolitan Statistical Area

15 MSAs with the Highest Concentrations of Adult Rheumatologists

Metropolitan Area	Population	Count	Per Million Population
Rochester, MN	172,459	21	121.8
Wisconsin Rapids-Marshfield, WI	75,402	9	119.4
Iowa City, IA	136,862	14	102.3
Bloomsburg-Berwick, PA	82,688	8	96.7
Ann Arbor, MI	338,562	29	85.7
Kirksville, MO	28,999	2	69.0
Oneonta, NY	62,196	4	64.3
Durham, NC	447,066	27	60.4
Columbia, MO	151,129	9	59.6
Monroe, WI	34,280	2	58.3
Greenville, NC	158,680	9	56.7
North Platte, NE	36,054	2	55.5
Portales, NM	18,107	1	55.2
Charlottesville, VA	181,631	10	55.1
Los Alamos, NM	18,802	1	53.2

MSAs with the Lowest Concentrations of Adult Rheumatologists

Metropolitan Area	Population	Count	Per Million Population
Muskegon-Norton Shores, MI	173,090	1	5.8
Hickory-Lenoir-Morganton, NC	350,140	2	5.7
Fort Walton Beach-Crestview-Destin, FL	178,104	1	5.6
Baton Rouge, LA	722,646	4	5.5
Salem, OR	362,990	2	5.5
Elkhart-Goshen, IN	188,779	1	5.3
Visalia-Porterville, CA	390,791	2	5.1
Houma-Bayou Cane-Thibodaux, LA	197,388	1	5.1
Provo-Orem, UT	406,851	2	4.9
Salinas, CA	414,449	2	4.8
Waco, TX	219,807	1	4.5
Bakersfield, CA	713,087	3	4.2
Bremerton-Silverdale, WA	240,719	1	4.2
San Luis Obispo-Paso Robles, CA	253,118	1	4.0
Savannah, GA	304,325	1	3.3

MSAs with More than 150,000 people and No Adult Rheumatologists

Metropolitan Area	Population
Holland-Grand Haven, MI	249,391
Gulfport-Biloxi, MS	248,965
Clarksville, TN-KY	236,700
Merced, CA	231,574
Prescott, AZ	184,433
Anderson, SC	171,510
Abilene, TX	158,488
Hilo, HI	158,423
East Stroudsburg, PA	154,495
Ottawa-Streator, IL	153,377
Blacksburg-Christiansburg-Radford, VA	152,606
Thomasville-Lexington, NC	152,178
Monroe, MI	150,673

15 MSAs with the Highest Concentrations of Pediatric Rheumatologists

Metropolitan Area	Population	Pediatric Rheumatologists	Pediatric Rheumatologists
Rochester, MN	172,459	2	11.6
Missoula, MT	98,616	1	10.1
Durham, NC	447,066	4	8.9
Ann Arbor, MI	338,562	3	8.9
Gainesville, FL	239,211	2	8.4
Madera, CA	133,463	1	7.5
Dover, DE	134,390	1	7.4
Iowa City, IA	136,862	1	7.3
Columbia, MO	151,129	1	6.6
Lebanon, NH-VT	171,014	1	5.8
Charlottesville, VA	181,631	1	5.5
Augusta-Richmond County, GA-SC	511,487	2	3.9
Cincinnati-Middletown, OH-KY-IN	2,047,333	8	3.9
Harrisburg-Carlisle, PA	517,468	2	3.9
Norwich-New London, CT	263,989	1	3.8

Rheumatologists per Million Population 15 Largest MSAs

Metropolitan Area	Population	Number of Physicians		Physicians per 1 million population	
		Rheumatologists	Pediatric Rheumatologists	Rheumatologists	Pediatric Rheumatologists
New York-Northern New Jersey-Long Island, NY-NJ-PA	18,640,775	476	28	25.5	1.5
Los Angeles-Long Beach-Santa Ana, CA	12,829,272	231	10	18.0	0.8
Chicago-Naperville-Joliet, IL-IN-WI	9,333,511	159	11	17.0	1.2
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	5,772,947	161	9	27.9	1.6
Dallas-Fort Worth-Arlington, TX	5,589,670	67	6	12.0	1.1
Miami-Fort Lauderdale-Miami Beach, FL	5,288,796	101	2	19.1	0.4
Washington-Arlington-Alexandria, DC-VA-MD-WV	5,090,435	172	7	33.8	1.4
Houston-Baytown-Sugar Land, TX	5,075,733	61	5	12.0	1.0
Atlanta-Sandy Springs-Marietta, GA	4,610,032	58	3	12.6	0.7
Detroit-Warren-Livonia, MI	4,483,853	72	3	16.1	0.7
Boston-Cambridge-Quincy, MA-NH	4,439,971	177	12	39.9	2.7
San Francisco-Oakland-Fremont, CA	4,157,377	107	6	25.7	1.4
Riverside-San Bernardino-Ontario, CA	3,642,328	29	2	8.0	0.5
Phoenix-Mesa-Scottsdale, AZ	3,593,408	44	0	12.2	0.0
Seattle-Tacoma-Bellevue, WA	3,141,777	79	8	25.1	2.5

National average adult = 17.7 per 1 million population and pediatric 0.7 per 1 million population

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Methods: The WF study included a literature review, analyses of national databases, and a survey sent to a random sample of 4946 adult rheumatologists (n=1683) and all 218 pediatric rheumatologists. Survey components included work efforts, productivity, measures of excess demand, retirement plans, sources of income, job satisfaction, and conditions treated. Pediatric, age <40, academic, and rural rheumatologists were oversampled. Results were used to develop a computer model of supply and demand (S/D) that provides sensitivity analyses of key components including number of fellows trained, retirement rates, physician assistant/nurse practitioners (NP/PA's), hours worked, gender/age effects, lifestyle changes and changes in GDP. A logistical regression identifying statistical differences between the groups was set at the 95% confidence level.

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Conclusions: At the time of this survey in 2005, the majority of rheumatologists were in their most productive years. As a younger, increasingly female cohort follows, we predict a decline in annual visit productivity based on the model and a shortfall of 2,576 rheumatologists by the year 2025. Solutions could include:1) increasing fellowship positions, 2) increasing NP/PA's, 3) improving practice efficiency. The incremental addition of 188 first year fellow positions (n=367 total first year positions) by 2025 would be required to equalize supply and demand. The committee recommends that the ACR develop strategies that address the predicted imbalance and use the computer model in evaluating the impact of proposed solutions.

Workplan

1. Formation of an advisory panel
2. Analysis of public databases
3. Literature review
4. Survey instrument developed, sent to US rheumatologists*
5. Develop a computer based model of supply and demand for rheumatology services
6. Presentation to the ACR board

*N=1637 (adult, pediatric, academic, rural)

Assumptions

Supply-side

1. Number fellowship positions remain at 2004-05 levels
2. Fill rate 90%
3. IMG's 35% and 29% of adult and pediatric fellows, 80% will remain in US
4. Share of female fellows will be 49% and 69% of new adult and pediatric positions
5. Rheumatologists will continue to provide same number of visits (mean: Men= 3,758: Women = 2,800

Demand-side

1. US population will grow at rates projected by the US census bureau
2. Per capita personal real income will grow at rate 1% annually
3. Rate of uninsured will remain constant

Baseline Count of Practicing Rheumatologists, 2005 (AMA File Supplemented with ACR Membership List)

Training	Adult Rheumatology	Pediatric Rheumatology
Total	4,946	218

Response Rates by Sampling Strata

Strata	Sample Size	Number of Respondents	Response Rate
Pediatric	256	100	39.1%
Academic	233	92	39.5%
Rural	169	66	39.1%
Less than 40 Years of Age	184	53	28.8%
Other	893	316	35.4%

Workforce Study Advisory Group

Chad Deal, MD, Chair
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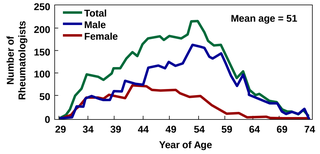
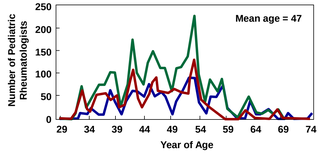
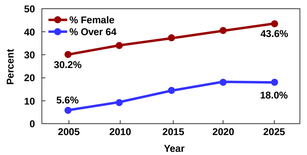
Age Distribution of Adult Rheumatologists, 2005



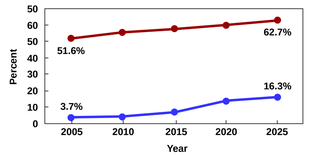
Age Distribution of Pediatric Rheumatologists, 2005



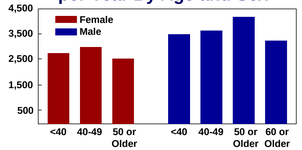
Share of Female Adult Rheumatologists in the Workforce 2005-2025



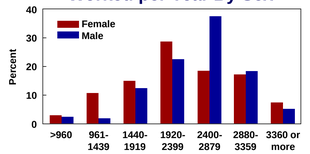
Share of Female Pediatric Rheumatologists in the Workforce 2005-2025



Mean Number of Patient Visits per Year By Age and Sex



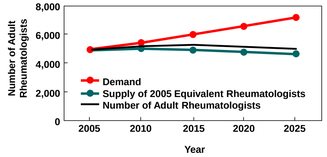
Mean Distribution of Hours Worked per Year By Sex



Mean Number of Visits Provided Annually by Rheumatologists in Clinical Practice by Age and Sex, 2005

Age/Sex Category	Mean Number of Visits Annually
Female	
<40	2,754
40-49	3,018
50 or Older	2,543
Male	
<40	3,515
40-49	3,661
50-59	4,166
60+	3,243

Base Case: Adult Rheumatologists, 2005-2025*

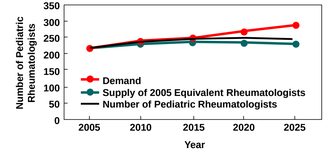


Excess Demand for Adult Rheumatologists, 2005-2025

	2005	2010	2015	2020	2025
Demand	4,946	5,422	5,968	6,584	7,219
Supply of 2005 Equiv. Rheum.*	4,946	5,019	4,940	4,806	4,643
Difference	0	403	1,029	1,778	2,576
Number of Rheum.	4,946	5,198	5,258	5,178	5,008

*Equivalent rheumatologists: the workforce will include an increasing percent of women who are predicted to see fewer patients than males - A 2025 rheumatologists will equal 0.927 of a 2005 rheumatologist.

Base Case: Pediatric Rheumatologists, 2005-2025*



*Assume supply = demand in 2005 and GDP Growth = 1% per year

Excess Demand for Pediatric Rheumatologists, 2005-20255

	2005	2010	2015	2020	2025
Demand	218	231	248	267	287
Supply of 2005 Equiv. Rheum.*	218	238	247	252	254
Difference	0	-7	1	15	33
Number of Rheum.	218	244	258	266	271

Reasons for excess demand:

1. Growth in the US population : 40%
2. Proportion of population > age 64 : 11%
3. Increase in participate income* : 49%

*model assumes 1% per yr GDP growth

Possible Responses to Predicted Shortage

1. Increase number of fellowship positions: 30% increase in 5-year increments to 365 first year positions, (current total 177 positions) will result in supply = demand in 2025
   Questions
   - Who would pay cost
   - Can we attract enough qualified residents
   - Ability of academic training programs to train more fellows
2. Expanding roles of NP's and PA's
   Questions
   - Can rheumatology attract and retain NP's and PA's in adequate numbers
   - Can we offer competitive salaries
   - Will rheumatologists incorporate NP's and PA's into their practice
3. Practice redesign
   Questions
   - Will rheumatologists and health care systems allow more effective and efficient practice process is to become standard
   - Who will take care of patients rheumatologists choose not to see