

# A Look at Five Self-Identified Career Paths Among Neonatologists

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## BACKGROUND

- Careers in medicine have traditionally been dichotomized into academic or private practice venues, but over time, career identities have become more complex and embrace a tapestry of missions with different types of productivity.

## OBJECTIVE

- This study examined characteristics of 5 career paths by exploring the professional duties of those who identified with them.
- We hypothesized that these career types have distinct profiles of relative effort in the domains of clinical work, scholarly effort, administrative responsibilities, total time effort, and compensation.

## METHODS

- The AAP conducted a voluntary anonymous survey of all board-certified and eligible United States neonatologists from July to November 2021.
- 2113, or 30%, of surveyed individuals responded.
- The survey included questions about professional duties, social factors, and compensation.
- We offered respondents a choice to self-identify with 1 of 5 career paths:
  - Clinician** – neonatologist with primary/exclusive role as clinical caregiver;
  - Administrator/Leader** – hospital or practice leadership and/or major service role within institution/organization;
  - Clinician-Educator** – creator of new educational material or programs and/or local expert clinical teacher of trainees or colleagues;
  - Clinical Expert** – accomplished clinician who may develop protocols, publish book chapters, or disseminate expertise beyond the local area;
  - Physician-Scientist** – researcher in basic science, clinical trials, health outcomes, health services, or public health arenas
- We analyzed responses from the subset of 1205 neonatologists who self-identified with one of these career paths and used t-test of means and Wilcoxon test of medians, using JMP 16.1.0 by SAS (Cary, NC).

## Neonatologists can embrace several distinct career paths

### Compared to neonatologists who identified as Clinicians:

- Administrators/Leaders** had fewer clinical obligations, engaged in more research, held higher academic rank, had more administrative time, and received the highest compensation.
- Clinical Educators and Clinical Experts** participated in more research and medical education, held higher academic rank, and received lower compensation.
- Physician-Scientists** had the lowest clinical time commitment, expended the greatest effort in research, held higher academic rank, and received lower compensation.

Table 1: Respondent Characteristics Table 2: Professional Activity Across Career Types

Sample Size	1204	
<b>Clinician:</b>	711 (59%)	
Clinical caregiver	205 (17%)	
<b>Administrative/Leadership:</b>	89 (7%)	
Hospital or practice leadership and/or service on major institutional committees or professional organizations	135 (11%)	
<b>Clinical Educator:</b>	89 (7%)	
Creator of new educational materials and/or local teacher of trainees or colleagues	64 (5%)	
<b>Clinical Expert:</b>	64 (5%)	
Creator of new educational materials and/or local teacher of trainees or colleagues	135 (11%)	
<b>Physician Scientist:</b>	135 (11%)	
Clinical outcomes, public health, health care delivery, or basic science researcher	835 (69%)	
<b>On Academic Track (Yes)</b>	835 (69%)	
<b>Gender Identity</b>		
Male	486 (41%)	
Female	671 (57%)	
<b>Ethnic and Racial Identity</b>		
Hispanic/Latinx	92 (8%)	
Asian	193 (16%)	
Native Hawaiian/Pacific Islander	3 (0%)	
Black/African American	47 (4%)	
Middle Eastern/North African	23 (2%)	
American Indian/Alaska Native	3 (0%)	
White	838 (72%)	
Other	31 (3%)	
Declined to respond	61 (5%)	
<b>Sexual Identity</b>		
Lesbian or gay	31 (3%)	
Straight	1067 (91%)	
Bisexual	13 (1%)	
<b>Age</b>		
31-35	81 (7%)	
36-40	181 (16%)	
41-45	184 (16%)	
46-50	166 (14%)	
51-55	131 (11%)	
56-60	128 (11%)	
61-65	119 (10%)	
66-70	96 (8%)	
71 years or older	65 (6%)	
<b>Medical School</b>		
United States	920 (78%)	
Canada	8 (1%)	
Caribbean	34 (3%)	
Other	214 (18%)	
<b>AAP Membership</b>		
AAP only	106 (9%)	
Both AAP and SONPM	968 (81%)	
Neither the AAP nor SONPM	128 (11%)	
<b>AAP District Location</b>		
District I	79 (7%)	
District II	79 (7%)	
District III	122 (10%)	
District IV	118 (10%)	
District V	95 (8%)	
District VI	162 (14%)	
District VII	146 (13%)	
District VIII	130 (11%)	
District IX	116 (10%)	
District X	117 (10%)	

	Clinician n = 711	Administrative n = 205	p-value	Clinical Educator n = 89	p-value	Clinical Expert n = 64	p-value	Physician Scientist n = 135	p-value
<b>Clinical Work</b>									
Weekday	90 (50 - 120)	65 (40 - 95.75)	<0.001	80 (58.75 - 100)	NS	75 (52.5 - 100)	NS	50 (35 - 70)	<0.001
Weeknight	32.5 (19.5 - 52)	24 (10 - 33)	<0.001	25 (15 - 36)	NS	24 (19 - 37)	NS	20 (10.75 - 30)	<0.001
Weekend day	24 (15 - 34)	18 (12 - 26)	<0.001	21 (12 - 26)	NS	24 (13.75 - 30.5)	NS	16 (12 - 24)	<0.001
Weekend nights	12 (6 - 15)	12 (6 - 15)	<0.001	12 (8 - 15)	0.037	12 (8 - 16)	NS	12 (7 - 13)	<0.001
Clinical Hours	1728 (1072 - 2304)	1134 (653.5 - 1652)	<0.001	1298.5 (915 - 1874.75)	0.007	1394 (968 - 1772.5)	NS	1031.5 (602.5 - 1412)	<0.001
Home Call Coverage	60 (30 - 120)	45 (24 - 79)	0.001	45 (27.25 - 66)	NS	50 (28.5 - 63)	NS	30 (24 - 50)	<0.001
<b>Average Daily Census</b>									
Critical Care	5 (3 - 10)	10 (5 - 12)	<0.001	10 (5 - 15)	<0.001	10 (4.75 - 10)	NS	10 (6 - 14)	<0.001
Intensive Care	9 (5 - 12)	10 (5 - 12)	NS	10 (5 - 15)	NS	8 (5 - 10.25)	NS	10 (5 - 10.5)	NS
Non-Critical Care	0 (0 - 4)	0 (0 - 4)	NS	0 (0 - 5)	NS	0 (0 - 4)	NS	0 (0 - 4)	NS
Normal Newborn	0 (0 - 5)	0 (0 - 0)	<0.001	0 (0 - 0)	<0.001	0 (0 - 0)	0.009	0 (0 - 0)	<0.001
Total Rounding Census	20 (15 - 28)	20 (16 - 25)	NS	22 (17 - 30)	NS	20 (16 - 25)	NS	20 (18 - 25)	NS
<b>Level of Principal Nursery</b>									
Level 4	212 (30%)	116 (58%)	<0.001	62 (70%)	<0.001	43 (69%)	<0.001	101 (78%)	<0.001
Level 3	415 (59%)	73 (37%)	<0.001	23 (26%)	<0.001	13 (21%)	<0.001	27 (21%)	<0.001
Level 2	74 (10%)	10 (5%)	0.018	0 (0%)	<0.001	3 (5%)	NS	2 (2%)	<0.001
Level 1	7 (1%)	1 (1%)	NS	3 (3%)	NS	3 (5%)	0.04	0 (0%)	NS
Have Outpatient Duties (Yes)	117 (17%)	39 (19%)	NS	23 (26%)	NS	15 (24%)	NS	23 (18%)	NS
Outpatient Days	12 (6 - 27)	20 (10 - 40)	NS	30 (15 - 60)	0.012	30 (12 - 100)	0.01	16.5 (9.5 - 29.25)	NS
<b>Engage in Research (Yes)</b>	203 (29%)	121 (60%)	<0.001	59 (67%)	<0.001	48 (75%)	<0.001	131 (98%)	<0.001
Annual Funding	\$0	\$22,500	<0.001	\$11,500	<0.001	\$10,000	0.028	\$150,000	<0.001
Applied for Grants this past year (Yes)	(50 - \$10,000)	(50 - \$200,000)	<0.001	(50 - \$46,250)	0.012	(50 - \$75,000)	0.028	(550,000 - \$437,500)	<0.001
Number of Applications	28 (13%)	33 (17%)	0.022	16 (18%)	NS	19 (30%)	<0.001	93 (74%)	<0.001
On Academic Track (Yes)	2 (1 - 2)	2 (1 - 3.25)	NS	1 (1 - 4.5)	NS	2 (1 - 3)	NS	2 (2 - 4)	0.015
<b>Scholarly Productivity</b>									
Total Principal Authorship	2 (1 - 5)	8 (2 - 25)	<0.001	3 (2 - 10)	0.004	6 (2 - 15)	<0.001	13 (6 - 39)	<0.001
Presentations	3 (2 - 6)	5 (2 - 10)	0.002	6 (3 - 12)	<0.001	4 (2 - 10)	NS	5 (3 - 8.25)	<0.001
Active in Medical Education (Yes)	446 (63%)	164 (80%)	<0.001	83 (94%)	<0.001	52 (81%)	0.008	93 (69%)	NS
Fellowship Program Director (Yes)	20 (4%)	25 (15%)	<0.001	29 (35%)	<0.001	4 (8%)	NS	12 (13%)	NS
Education (weeks)	4 (1 - 12)	7.5 (2 - 15)	0.017	11 (4 - 20)	<0.001	8 (4 - 11)	NS	4 (2 - 12)	NS
<b>Academic Appointment</b>									
No	295 (41%)	28 (14%)	<0.001	6 (7%)	<0.001	6 (9%)	<0.001	2 (1%)	<0.001
Yes (not tenure)	367 (52%)	123 (60%)	0.039	68 (76%)	<0.001	54 (84%)	<0.001	71 (53%)	NS
Yes (tenure track)	28 (4%)	50 (24%)	<0.001	12 (13%)	<0.001	4 (6%)	NS	58 (43%)	<0.001
<b>Academic Rank</b>									
Instructor	36 (9%)	5 (3%)	0.008	2 (3%)	0.044	1 (2%)	NS	10 (8%)	NS
Assistant professor	196 (50%)	32 (19%)	<0.001	37 (46%)	NS	20 (34%)	0.035	39 (30%)	<0.001
Associate professor	91 (23%)	44 (25%)	NS	23 (29%)	NS	20 (34%)	NS	36 (28%)	NS
Full professor	34 (9%)	83 (48%)	<0.001	17 (21%)	0.002	15 (26%)	<0.001	41 (32%)	<0.001
Adjunct	24 (6%)	5 (3%)	NS	0 (0%)	0.021	2 (3%)	NS	1 (1%)	0.015
<b>Administrative Time (Weeks)</b>	6 (2 - 12)	24 (10 - 40)	<0.001	8 (3.5 - 15.5)	NS	10 (4 - 20)	NS	5 (3 - 17.5)	NS
<b>Internal Leadership Roles</b>									
Chair, Institutional Committee	40 (6%)	34 (17%)	<0.001	4 (5%)	NS	1 (2%)	NS	7 (6%)	NS
Medical/Program Director	234 (34%)	101 (50%)	<0.001	35 (41%)	NS	26 (43%)	NS	17 (13%)	<0.001
Division Chief	36 (5%)	48 (24%)	<0.001	3 (3%)	NS	7 (11%)	NS	16 (13%)	<0.001
Department Chair	25 (4%)	15 (7%)	NS	1 (1%)	NS	0 (0%)	NS	2 (2%)	NS
None	301 (43%)	9 (4%)	<0.001	21 (24%)	NS	20 (33%)	0.001	49 (39%)	NS
<b>External Leadership Roles</b>									
State Committee Chair	10 (1%)	9 (5%)	NS	1 (1%)	NS	5 (8%)	0.009	4 (3%)	NS
National Committee Chair	10 (1%)	18 (9%)	<0.001	6 (7%)	NS	5 (8%)	NS	17 (13%)	<0.001
Inter-Institutional Collab Director	5 (3%)	2 (1%)	NS	1 (1%)	NS	3 (5%)	NS	3 (2%)	NS
International Collab Chair	0 (0%)	4 (2%)	0.005	0 (0%)	NS	1 (2%)	NS	2 (2%)	NS
None	502 (74%)	67 (34%)	<0.001	40 (48%)	<0.001	32 (51%)	<0.001	56 (43%)	<0.001

Table 3: Professional Time and Compensation Across Career Types

	Clinician n = 711	Administrative n = 205	p-value	Clinical Educator n = 89	p-value	Clinical Expert n = 64	p-value	Physician Scientist n = 135	p-value
<b>Time</b>									
Reported Percent Time									
% Clinical	74%	43%	<0.001	55%	<0.001	51%	<0.001	31%	<0.001
% Admin	10%	33%	<0.001	13%	NS	14%	NS	9%	NS
% Teaching	6%	8%	NS	17%	<0.001	11%	0.001	7%	NS
% Research	3%	8%	<0.001	9%	<0.001	15%	<0.001	48%	<0.001
% Clinical	3%	6%	0.007	8%	<0.001	12%	<0.001	23%	<0.001
% Bench	0%	1%	NS	0%	NS	0%	NS	19%	<0.001
% Health Service	0%	1%	NS	1%	NS	3%	0.004	6%	<0.001
% Other Med Activities	3%	5%	0.013	4%	NS	7%	0.001	3%	NS
% Other Activities	1%	2%	NS	1%	NS	2%	NS	0%	NS
<b>Estimated Professional Hours</b>									
Clinical Time	1728 (1072 - 2304)	1134 (654 - 1652)	<0.001	1299 (915 - 1875)	0.007	1394 (968 - 1773)	NS	1032 (603 - 1412)	<0.001
Research Time	0 (0 - 70)	105 (0 - 303)	<0.001	89 (0 - 276)	<0.001	174 (0 - 326)	<0.001	1492 (771 - 2447)	<0.001
Administrative Time	320 (140 - 800)	1200 (600 - 2080)	<0.001	410 (190 - 850)	NS	540 (245 - 1200)	NS	301 (125 - 800)	NS
Teaching Time	240 (60 - 600)	386 (120 - 934)	<0.001	600 (340 - 1080)	<0.001	450 (180 - 710)	NS	230 (110 - 780)	NS
Total Professional Time	2112 (1287 - 2990)	2780 (1878 - 3820)	<0.001	2382 (1600 - 3467)	NS	2455 (1674 - 3756)	NS	3031 (2109 - 4251)	<0.001
<b>Employment Status</b>									
Employee	583 (82%)	184 (90%)	0.012	84 (94%)	0.006	61 (95%)	0.013	131 (98%)	<0.001
Full/Part owner	51 (7%)	9 (4%)	NS	2 (2%)	NS	2 (3%)	NS	1 (1%)	0.013
Contractor	78 (11%)	12 (6%)	NS	2 (2%)	0.017	1 (2%)	0.032	0 (0%)	<0.001
Other Employment Type	17 (2%)	2 (1%)	NS	1 (1%)	NS	1 (2%)	NS	2 (1%)	NS
Work Part-Time (Yes)	87 (12%)	24 (12%)	NS	9 (10%)	NS	6 (9%)	NS	11 (8%)	NS
<b>Cash Compensation</b>									
Base Compensation	\$250,000 (\$215,000 - \$310,000)	\$270,000 (\$220,000 - \$326,250)	NS	\$217,000 (\$180,000 - \$258,750)	<0.001	\$235,000 (\$214,500 - \$275,000)	NS	\$230,000 (\$188,171 - \$277,500)	<0.001
Administrative stipend	\$15,000 (\$5,000 - \$30,000)	\$30,000 (\$14,700 - \$55,000)	<0.001	\$5,					