

Five Years of Experience with a World-Wide-Web-Based Job Directory for Neonatal-Perinatal Health Care

Raymond G. Duncan, MD, FAAP

Departments of Enterprise Information Services and Pediatrics
Cedars-Sinai Health System, Los Angeles, California

ABSTRACT

This poster describes the implementation and five-year utilization history for a free Web-based jobs directory used by health care professionals in neonatal-perinatal medicine.

The World-Wide-Web site "Neonatology on the Web" (NOTW) has been in continuous operation since Fall of 1995.^{1,2} NOTW is dedicated to the information needs of professionals in neonatal-perinatal medicine and is the most heavily used and widely cited web site for this subspecialty, with over 460,000 visitors so far. Although not designed for use by the lay public, it is also frequently accessed by parents seeking information about their sick infants and by students looking for career information.

Among other resources, NOTW offers a free positions offered/positions wanted directory for all types of caregivers in neonatal intensive care: neonatologists, fellows, nurse practitioners, occupational therapists, respiratory therapists, and so on. The directory is used by individuals, academic and private hospitals, teaching programs, recruitment firms, and others to locate candidates in an extremely competitive market.

In order to post a listing in the job directory, a user connects to NOTW with a standard web browser and fills out a posting request form. Pick-lists and mandatory fields are employed to make sure that a position posting is complete and reduce the amount of editing needed on the back end. The contents of the form are converted to a structured e-mail that is sent to both the user (as a confirmation of the posting) and to a reserved email address for the web site. The latter are imported into a database, from which web pages are generated programmatically. Database entries are archived after six months, or earlier if the requester notifies NOTW that the position has been filled.

The job directory is represented on the web site as a simple hierarchical tree of web pages. Indexes of positions by category, location, date, and contact name make it easy to find a job

posting with specific characteristics. A full-text search is also available. The user can then "drill down" to view the complete details of a position offered or wanted, including the contact's name, organization name, address, phone number, FAX number, email address, qualifications, position description, and so on.

Selected summary statistics for calendar years 1996 through 2000 are shown below. Detailed demographic and utilization statistics and trends will be provided at the poster session.

Total Job Postings by Type and Year

Year	Offered	Wanted
1996	130	83
1997	198	150
1998	390	183
1999	400	232
2000	435	252
Total	1553	900
% Total	63.3%	36.7%

Top 10 Job Posting Categories (of 61)

Positions Offered	%	Positions Wanted	%
Nurse Practitioner	37.5	Full-time Staff MD	41.2
Full-time Staff MD	37.0	Full-time Staff RN	16.1
Full-time Staff RN	4.2	Fellow	14.2
Fellow	3.9	Nurse Practitioner	7.9
Nurse Manager	3.5	Moonlighter MD	3.7
Clinical Nurse Spec.	3.2	Part-time Staff MD	2.6
Part-time Staff MD	2.3	Phys. Assistant	1.9
Moonlighter MD	1.6	Volunteer	1.8
Medical Director	1.1	Clinical Nurse Spec.	1.4
Phys. Assistant	0.8	Resp. Therapist	0.7

Top 5 Countries (of 84)

Positions Offered	%	Positions Wanted	%
USA	96.2	USA	68.9
Canada	1.5	India	6.1
Australia	0.5	Canada	2.9
India	0.2	UK	2.4
New Zealand	0.2	Australia	1.9

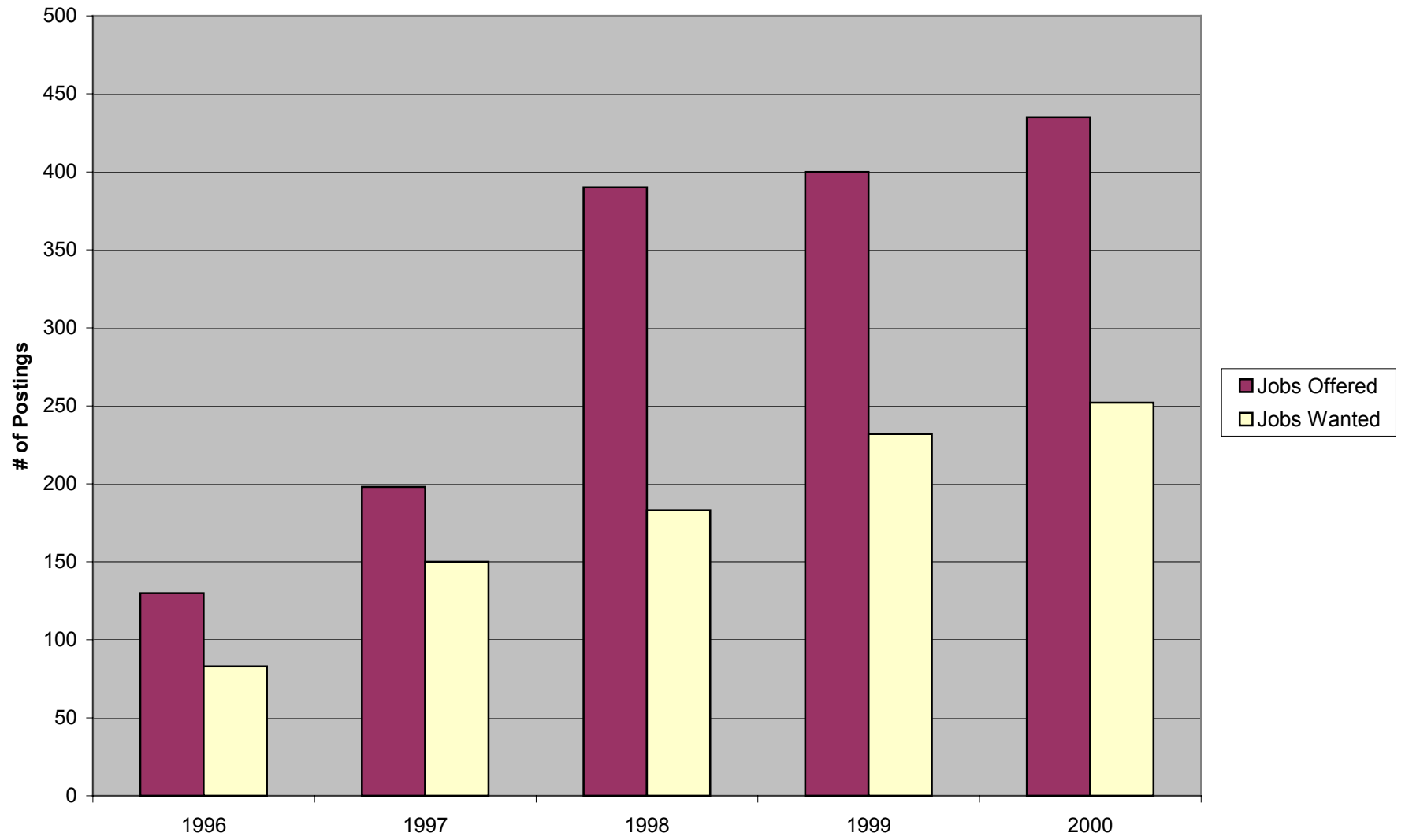
REFERENCES

1. <http://www.neonatology.org>
2. Duncan R: Clinical subspecialty resources on the World-Wide-Web. *Proceedings of the AMIA Fall, 1996*; 960.

Neonatology Job Directory Statistics 1996-2000

Year	Jobs Offered	Jobs Wanted
1996	130	83
1997	198	150
1998	390	183
1999	400	232
2000	435	252
Total	1553	900
% Total	63.3	36.7

Job Postings by Year

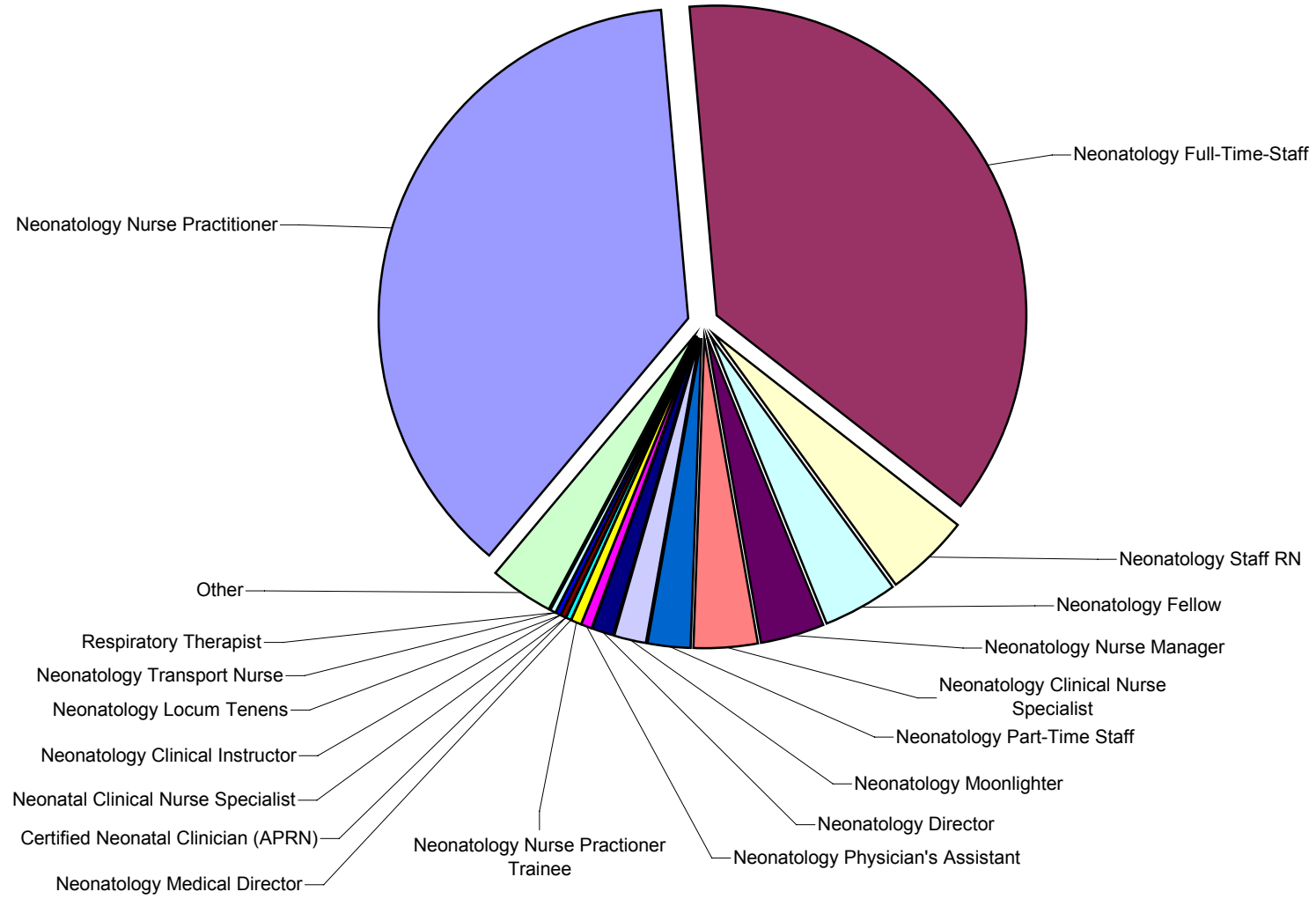


Positions by Type (Sorted by Frequency)

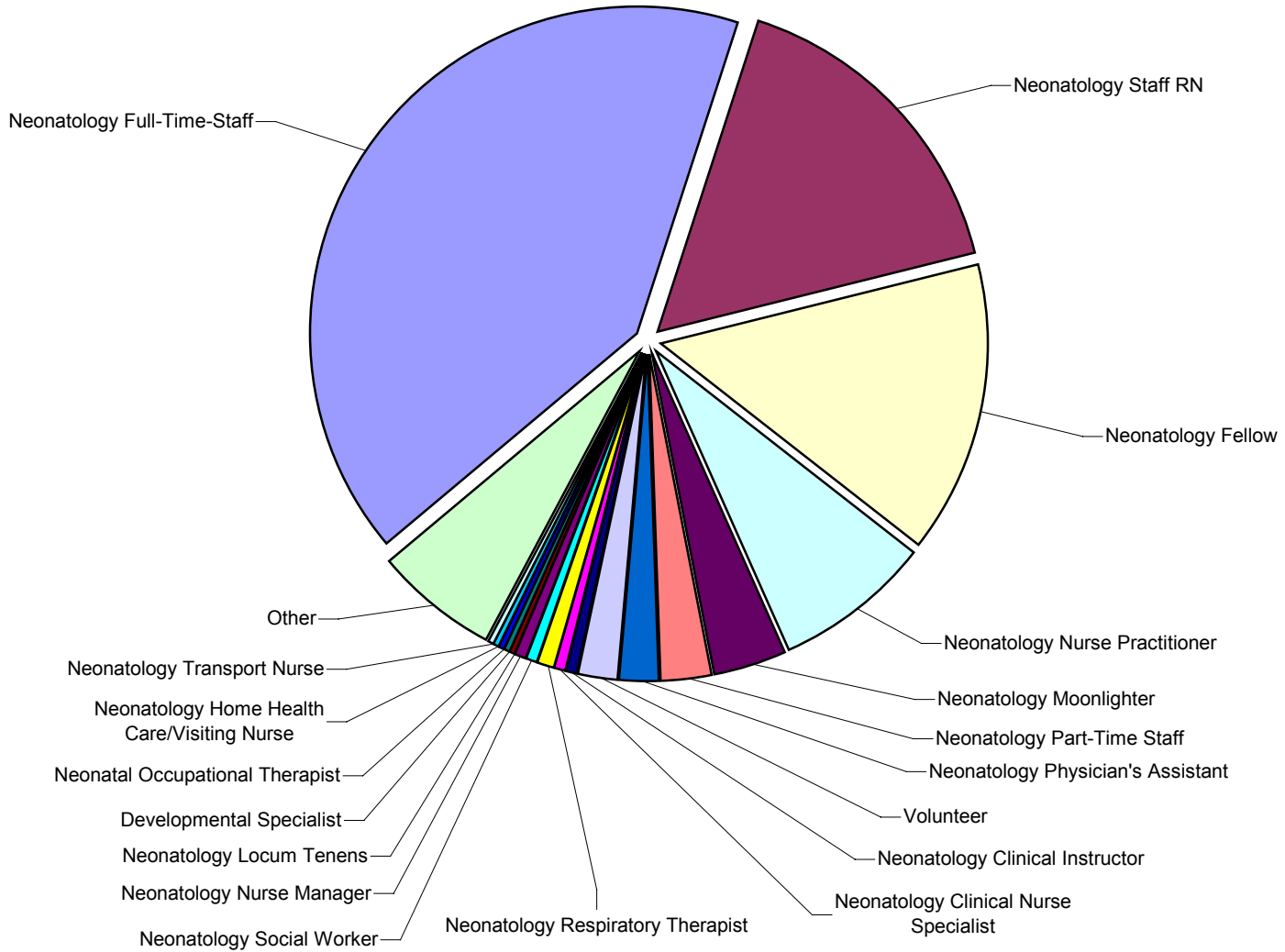
Position Offered Type	Count	Percent	Position Wanted Type	Count	Percent
Neonatology Nurse Practitioner	583	37.5	Neonatology Full-Time-Staff	371	41.2
Neonatology Full-Time-Staff	575	37.0	Neonatology Staff RN	145	16.1
Neonatology Staff RN	66	4.2	Neonatology Fellow	128	14.2
Neonatology Fellow	60	3.9	Neonatology Nurse Practitioner	71	7.9
Neonatology Nurse Manager	54	3.5	Other	40	4.4
Neonatology Clinical Nurse Specialist	50	3.2	Neonatology Moonlighter	33	3.7
Neonatology Part-Time Staff	35	2.3	Neonatology Part-Time Staff	23	2.6
Neonatology Moonlighter	25	1.6	Neonatology Physician's Assistant	17	1.9
Neonatology Director	17	1.1	Volunteer	16	1.8
Neonatology Physician's Assistant	12	0.8	Neonatology Clinical Instructor	6	0.7
Other	11	0.7	Neonatology Clinical Nurse Specialist	6	0.7
Neonatology Nurse Practioner Trainee	8	0.5	Neonatology Respiratory Therapist	6	0.7
Neonatology Medical Director	3	0.2	Neonatology Social Worker	6	0.7
Certified Neonatal Clinician (APRN)	2	0.1	Neonatology Nurse Manager	5	0.6
Neonatal Clinical Nurse Specialist	2	0.1	Neonatology Locum Tenens	3	0.3
Neonatology Clinical Instructor	2	0.1	Developmental Specialist	2	0.2
Neonatology Locum Tenens	2	0.1	Neonatal Occupational Therapist	2	0.2
Neonatology Transport Nurse	2	0.1	Neonatology home Health Care/Visiting Nurse	2	0.2
Respiratory Therapist	2	0.1	Neonatology Transport Nurse	2	0.2
Advanced Practice Nurse Specialist	1	0.1	Midwife	1	0.1
Assistant Manager, Neonatology Nurse Practitioner	1	0.1	Neonatal Dietician	1	0.1
Assistant Nurse Manager, Perinatal	1	0.1	Neonatal Nutrition	1	0.1
Clinical Education Coordinator	1	0.1	Neonatal Physical Therapist	1	0.1
Dietician	1	0.1	Neonatal Transport Nurse	1	0.1
Manager, Neonatal Intensive Care Unit	1	0.1	Neonatology Nurse Assistant	1	0.1
Manager, Neonatal Nurse Practitioner	1	0.1	Neonatology Nurse Practioner Trainee	1	0.1
Manager, Neonatal Nurse Practitioners	1	0.1	Neonatology Nurse Practitioner Trainee	1	0.1
Neonatal Case Manager	1	0.1	Neonatology Post-Doc	1	0.1
Neonatal Follow-Up Nurse	1	0.1	Occupational Therapist NICU	1	0.1
Neonatal Nutritionist	1	0.1	Pharmacy Intern	1	0.1
Neonatal Occupational Therapist	1	0.1	Physical Therapy	1	0.1

Neonatal Outreach Education Coordinator	1	0.1	Postdoctoral Basic Science Fellowship	1	0.1
Neonatology and Pediatrics	1	0.1	Research Assistant	1	0.1
Neonatology Assistant Nurse Manager	1	0.1	Respiratory Therapist	1	0.1
Neonatology Case Manager	1	0.1	Transcriptionist	1	0.1
Neonatology Clinical Director	1	0.1	Total	900	
Neonatology Clinical Nurse Specialist and NNP	1	0.1			
Neonatology Director and Chief of Division	1	0.1			
Neonatology Fellowship Trainee	1	0.1			
Neonatology Moonlighter MD	1	0.1			
Neonatology Nurse Practitioner Director	1	0.1			
Neonatology Nurse Practitioner Trainee	1	0.1			
Neonatology Research Associate	1	0.1			
Neonatology Respiratory Care Supervisor	1	0.1			
Neonatology Respiratory Therapist Supervisor	1	0.1			
Neonatology RN Supervisor	1	0.1			
NICU Clinical Supervisor	1	0.1			
NNP Locum Tenens	1	0.1			
NNP Manager	1	0.1			
Nurse Manager, Labor and Del.	1	0.1			
Nursing Director, Pediatrics	1	0.1			
Occupational Therapist	1	0.1			
Other - Nursing Staff	1	0.1			
Patient Advocate	1	0.1			
Pediatric Occupational Therapist	1	0.1			
Pediatric/Neonatology Full Time Staff	1	0.1			
Pediatrician with NICU Skills	1	0.1			
Perinatal Services Nurse Manager	1	0.1			
Program Coordinator	1	0.1			
Senior Program Therapist	1	0.1			
Ultrasound Instructor	1	0.1			

Positions Offered by Type



Positions Wanted by Type



Positions by State (Sorted by State)

Positions Offered		Positions Wanted	
State	Total	State	Total
AE	1	AE	1
AK	4	AK	2
AL	8	AL	6
AZ	22	AR	1
CA	196	AZ	2
CO	35	BC	2
CT	35	CA	52
DC	10	CO	5
DE	6	CT	8
FL	94	FL	30
GA	44	GA	13
HI	6	HI	3
IA	11	IA	4
IL	59	IL	29
IN	18	IN	10
KS	33	KS	4
KY	32	KY	21
LA	31	LA	8
MA	14	MA	14
MD	39	MD	12
ME	11	ME	1
MI	24	MI	17
MN	17	MN	5
MO	25	MO	9
MS	8	MS	6
MT	8	MT	1
NC	58	NC	14
ND	6	NE	1
NE	3	NH	4
NH	14	NJ	47

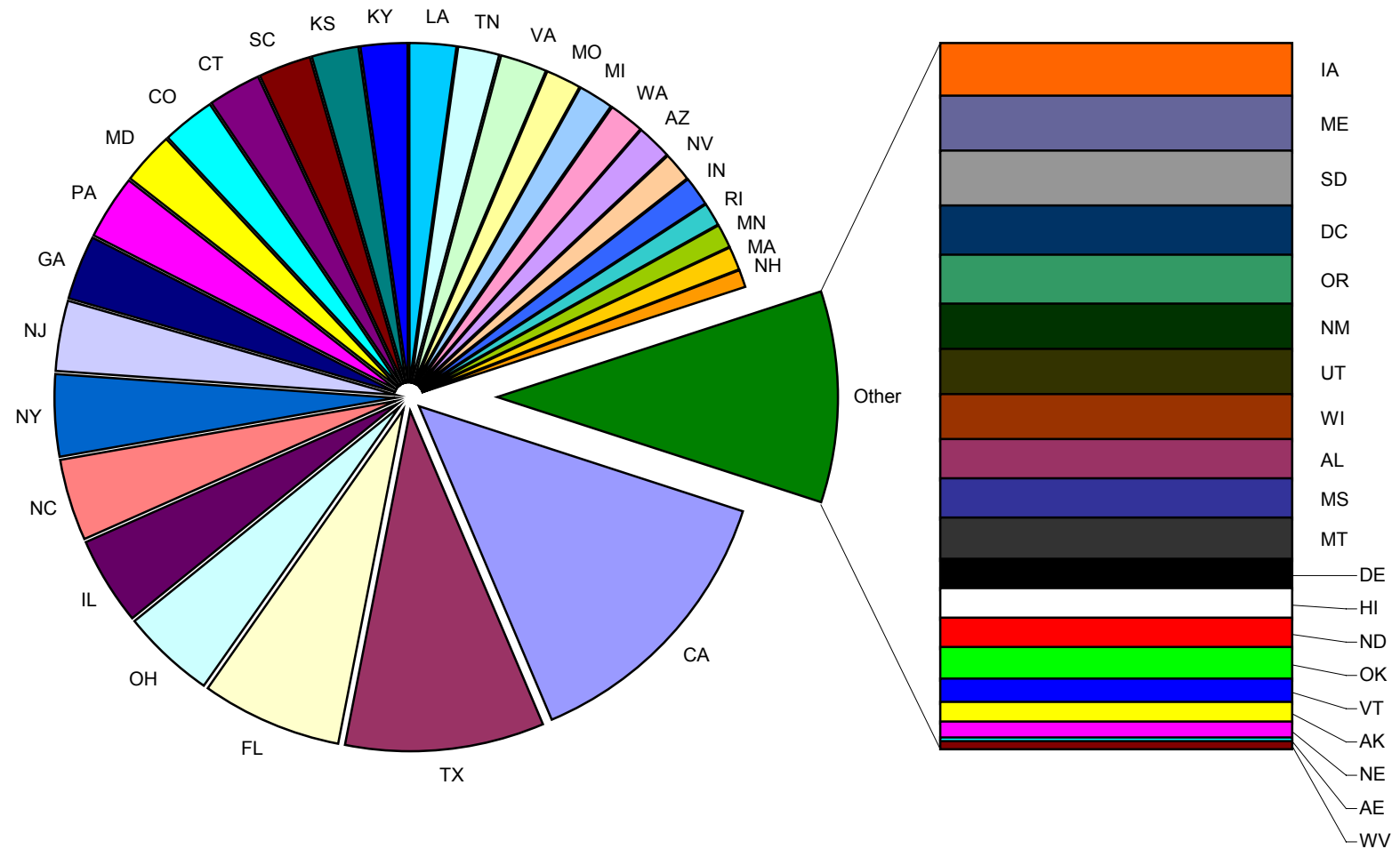
NJ	47	NM	3
NM	9	NS	1
NV	22	NY	94
NY	54	OH	26
OH	64	OK	3
OK	6	PA	27
OR	10	RI	2
PA	44	SC	12
RI	18	SD	3
SC	35	TN	12
SD	11	TX	65
TN	30	UT	3
TX	136	VA	19
UT	9	WA	2
VA	30	WI	2
VT	5	WV	4
WA	23	Total	610
WI	9		
WV	1		
Total	1435		

Positions by State (Sorted by Frequency)

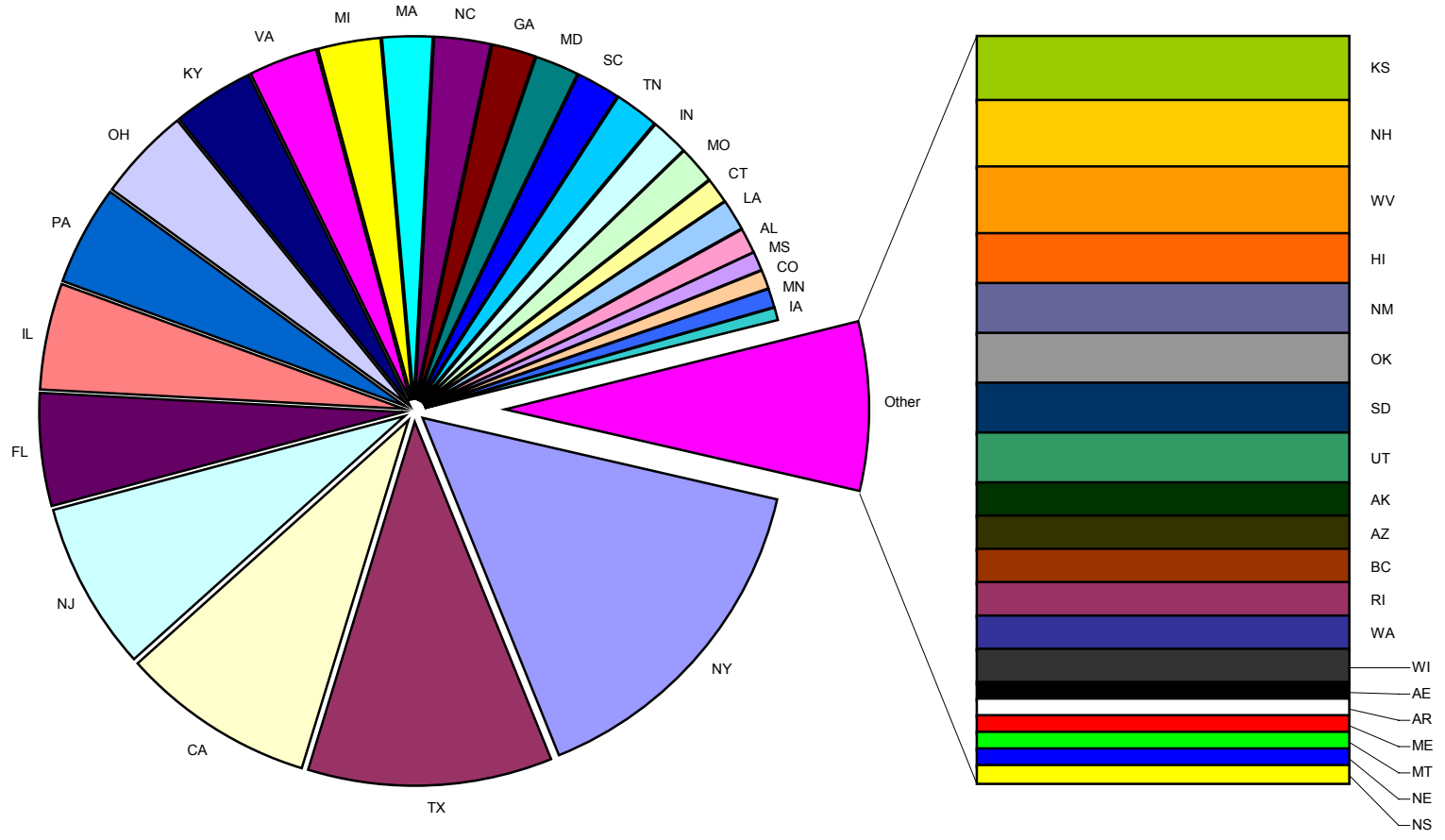
Positions Offered		Positions Wanted	
State	Total	State	Total
CA	196	NY	94
TX	136	TX	65
FL	94	CA	52
OH	64	NJ	47
IL	59	FL	30
NC	58	IL	29
NY	54	PA	27
NJ	47	OH	26
GA	44	KY	21
PA	44	VA	19
MD	39	MI	17
CO	35	MA	14
CT	35	NC	14
SC	35	GA	13
KS	33	MD	12
KY	32	SC	12
LA	31	TN	12
TN	30	IN	10
VA	30	MO	9
MO	25	CT	8
MI	24	LA	8
WA	23	AL	6
AZ	22	MS	6
NV	22	CO	5
IN	18	MN	5
RI	18	IA	4
MN	17	KS	4
MA	14	NH	4
NH	14	WV	4
IA	11	HI	3

ME	11	NM	3
SD	11	OK	3
DC	10	SD	3
OR	10	UT	3
NM	9	AK	2
UT	9	AZ	2
WI	9	BC	2
AL	8	RI	2
MS	8	WA	2
MT	8	WI	2
DE	6	AE	1
HI	6	AR	1
ND	6	ME	1
OK	6	MT	1
VT	5	NE	1
AK	4	NS	1
NE	3	Total	610
AE	1		
WV	1		
Total	1435		

Positions Offered by State



Positions Wanted by State



Positions by Country (Sorted by Frequency)

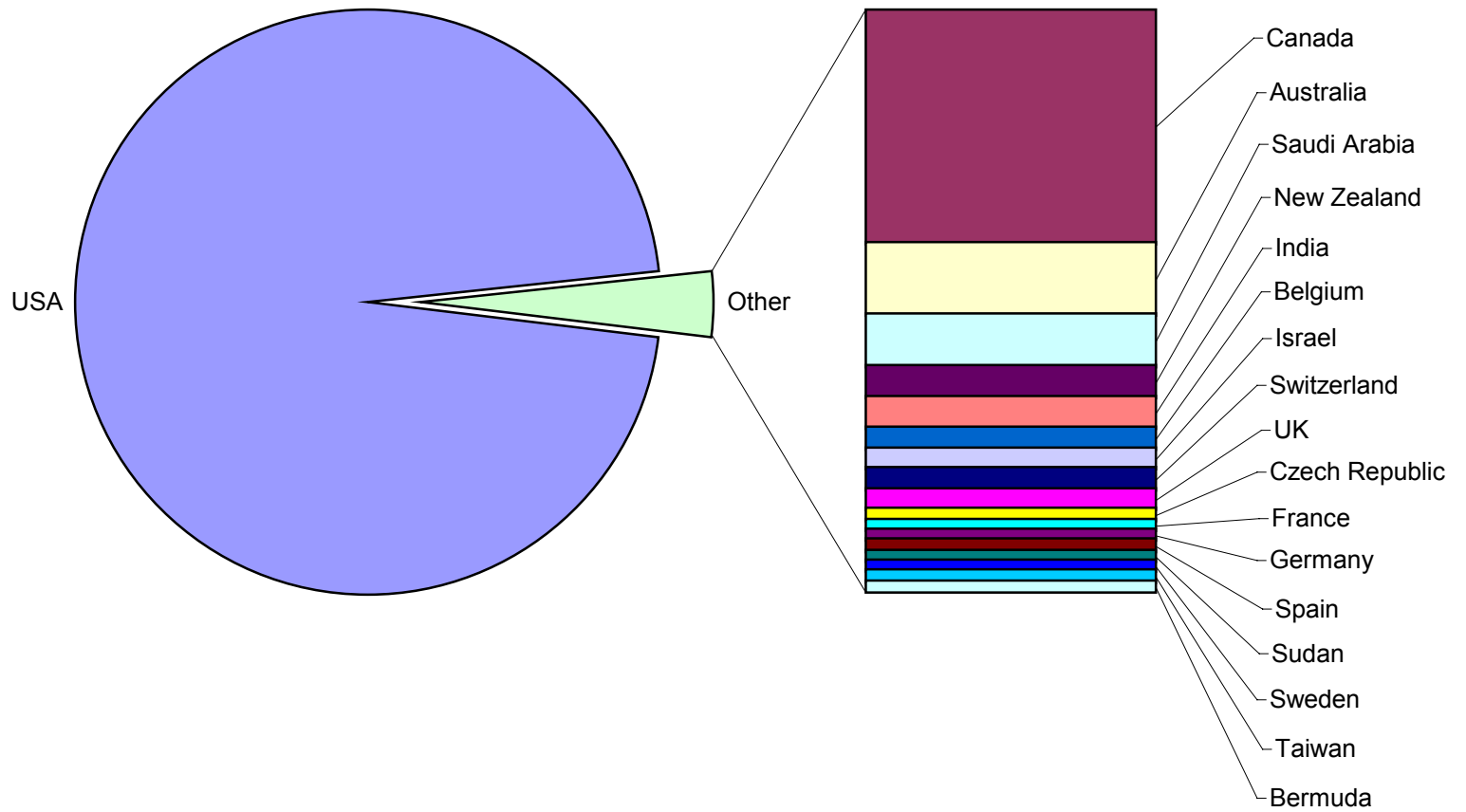
Position Offered	Country	Count	Percent
USA		1494	96.2
Canada		23	1.5
Australia		7	0.5
India		3	0.2
New Zealand		3	0.2
Saudi Arabia		3	0.2
Belgium		2	0.1
Israel		2	0.1
Kingdom of Saudi Arabia		2	0.1
Switzerland		2	0.1
US		2	0.1
Bermuda		1	0.1
Czech Republic		1	0.1
France		1	0.1
Germany		1	0.1
M5G 1X8		1	0.1
Spain		1	0.1
Sudan		1	0.1
Sweden		1	0.1
Taiwan		1	0.1
UK		1	0.1
Total		1553	

Position Wanted	Country	Count	Percent
USA		620	68.9
India		55	6.1
Canada		26	2.9
UK		22	2.4
Australia		17	1.9
Mexico		12	1.3
Saudi Arabia		7	0.8
Bulgaria		6	0.7
Egypt		5	0.6
Italy		5	0.6
Kuwait		5	0.6
Brazil		4	0.4
Germany		4	0.4
Ireland		4	0.4
Pakistan		4	0.4
Phillipines		4	0.4
Poland		4	0.4
United Arab Emirates		4	0.4
Argentina		3	0.3
China		3	0.3
Ecuador		3	0.3
Latvia		3	0.3
Oman		3	0.3
Phillipines		3	0.3
Singapore		3	0.3
Sweden		3	0.3
Switzerland		3	0.3
Turkey		3	0.3
Venezuela		3	0.3
Yugoslavia		3	0.3
Bangladesh		2	0.2

Belgium	2	0.2
France	2	0.2
Iran	2	0.2
New Zealand	2	0.2
People's Republic of China	2	0.2
Peru	2	0.2
Sultanate of Oman	2	0.2
Taiwan	2	0.2
Albania	1	0.1
Armenia	1	0.1
Belie	1	0.1
Brasil	1	0.1
Cameroon	1	0.1
Chile	1	0.1
Colombia	1	0.1
Czech Republic	1	0.1
Denmark	1	0.1
England	1	0.1
Estonia	1	0.1
Greece	1	0.1
Indonesia	1	0.1
Israel	1	0.1
Jamaica	1	0.1
Japan	1	0.1
Korea	1	0.1
KSA	1	0.1
Malaysia	1	0.1
Netherlands	1	0.1
Palestine	1	0.1
Portugal	1	0.1
Puerto Rico	1	0.1
Qatar	1	0.1
Republic of Armenia	1	0.1
Republic of Ireland	1	0.1

Romania	1	0.1
Scotland	1	0.1
Scotland, UK	1	0.1
Serbia	1	0.1
South Africa	1	0.1
Spain	1	0.1
Sri Lanka	1	0.1
State of Qatar	1	0.1
Thailand	1	0.1
U.A.E.	1	0.1
UAE	1	0.1
Western Australia	1	0.1
Total	900	

Positions Offered by Country



Positions Wanted by Country

