How do we Define a Neonatologist Full-time Equivalent (FTE)?

Steve Olsen, MD
Neonatology Division Director
Swatek Family Endowed Chair in Neonatology
Children's Mercy Hospital Kansas City
Professor of Pediatrics
University of Missouri-Kansas City School of Medicine

Disclosure

- I have nothing to disclose
- Unfortunately, I don’t have all the answers

Objectives

- Understand challenges in defining an FTE and expected workload for a neonatologist
- Discuss models for providing equitable, flexible scheduling for neonatologists in complex academic practices
- Describe how uniform metrics for measuring clinical and non-clinical work productivity are important when determining staffing needs

Metrics Used to Allocate Inpatient Staffing

- Problematic; no Universal agreed-upon method
- Ambulatory metrics do not translate
- Work Relative Value Units (wRVUs)
- Value Measurements (safety metrics, patient outcomes, satisfaction)
- Time-based work hours
- Budget-based (Number of Physicians based on income with possible profit sharing)

Trends in Physician Work Hours

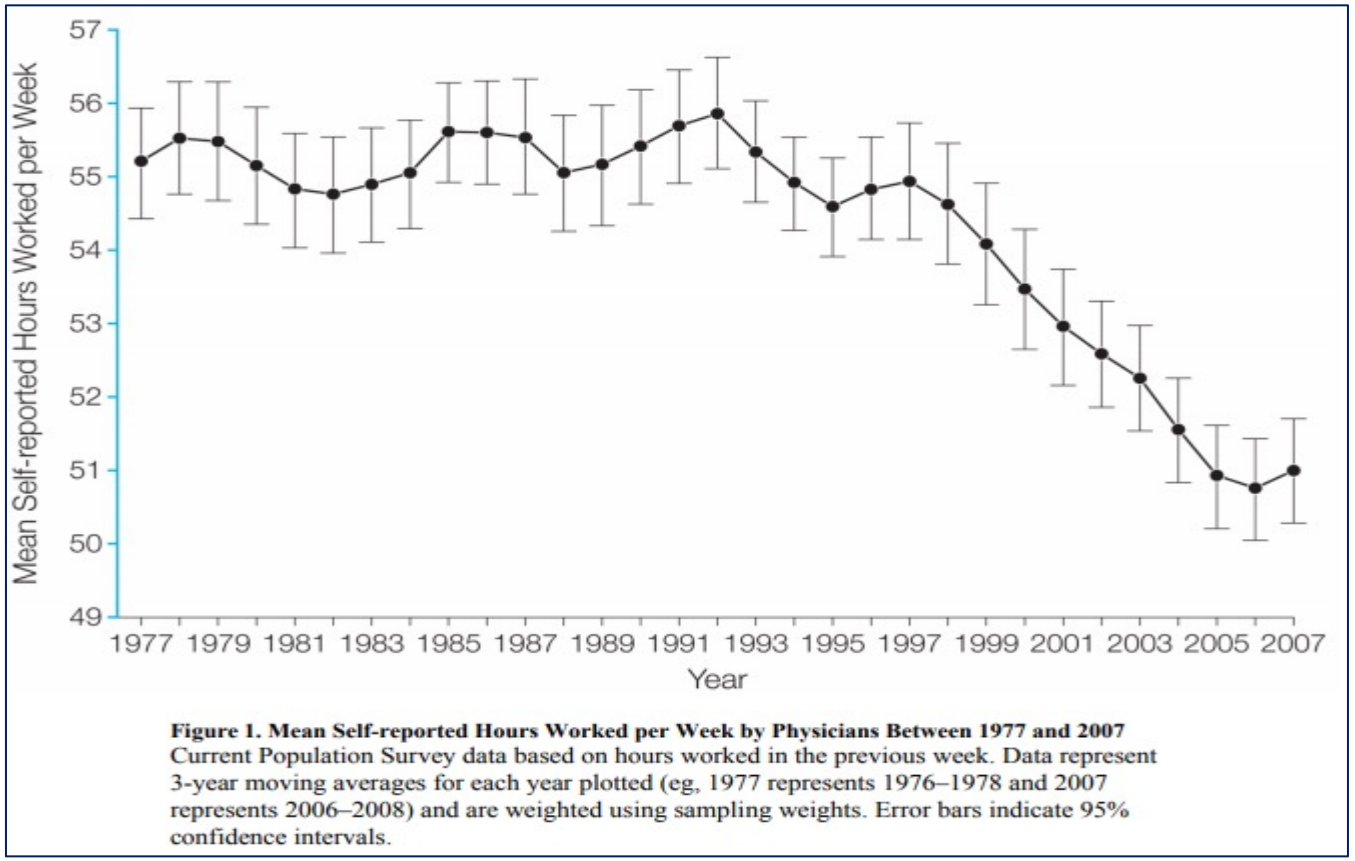


Figure 1. Mean Self-reported Hours Worked per Week by Physicians Between 1977 and 2007
Current Population Survey data based on hours worked in the previous week. Data represent 3-year moving averages for each year plotted (eg, 1977 represents 1976–1978 and 2007 represents 2006–2008) and are weighted using sampling weights. Error bars indicate 95% confidence intervals.

How many hours should a physician work clinically?

What has contributed to the decline in physician hours?

- Changes in residency hours-altered work expectations
- Work/life balance issues
- “Burn out” concern
- Schedule flexibility and protected time are high priority

Ref: West C et al, Lancet 2016

How Times Have Changed in Neonatology

THEN:

- Pediatric trainees (residents): available in house 24/7 for "hands-on" care, extensive experience with procedures, completed all documentation
- Neonatology attendings: daily rounds-teaching, advising, supervising
- Available nights and weekends by phone at home
- Time during clinical service for academic/administrative pursuits

NOW:

- Residents: limited rotations in NICU; work hour restrictions; little or no night call
- Neonatology attendings: direct "hands-on" care, 24/7 in-house availability in critical care units
- Completion of daily notes in EHR
- 24 hour billing codes, RVUs = productivity
- Little or no time on clinical service for other pursuits
- "Team sport" – work collaboratively with NNPs, PAs – roles vary
- High risk patient population: extreme preterms; complex fetal differences
- Focus on clinical excellence, quality and safety, AND economics-must be done efficiently

How does one have time to be an educator or address other career goals in academics?

Expectations for Clinical Service in Neonatology

- NICUs are unique clinical settings: acute critical care but also subacute and chronic care
- Continuity of care important – but how can this be provided?
- 24/7 attending physician coverage: in-house attending presence in most acute settings
- Shift work: increased communication concerns, ? Safety, Professional dissatisfaction

How best to characterize clinical neonatology workload?

Attending weeks of service

- Does this include night coverage? (certainly not entirely if “in-house” call)
- What about weekends and holidays
- What about other clinical responsibilities?

Actual clinical work hours

- Includes all clinical activity – daily attending, weekend rounds, night call, transport, consults, delivery attendance, follow-up clinic, physician call-backs, etc.
- Time not all billable but important for clinical outcomes

Metrics in Detail - wRVUs

- Readily accepted by Benchmarking agencies
- Translates well in the Ambulatory setting
- Neonatology has bundled 24-hour billing codes
  - Typical credit goes to daytime physician who rounds and documents

Table I. wRVUs generated by an in-house neonatologist during night shift vs day shift both with 3 admissions and 2 delivery room resuscitations (but the day shift gets credit for the 17 inpatients, which generally is not available for night shift physician)

Code	Description	wRVU per unit	Day shift	Total wRVU	Night shift	Total wRVU
99465	Delivery room resuscitation	2.93	2	5.86	2	5.86
99468	Initial critical care	18.46	1	18.46	1	18.46
99469	Subsequent critical care	7.99	9	71.91	0	0
99477	Initial intensive care	7	2	14	2	14
99479	Subsequent intensive care	2.5	8	20	0	0
99239	Discharge	1.9	3	5.7	0	0
	Total			135.93		38.32

Olsen, et al, J Pediatrics 2021
https://doi.org/10.1016/j.jpeds.2021.11.063

Metrics in Detail - wRVUs

- Hours spent by a Neonatologist in daytime management represent a minority of the clinical hours caring for a patient
- Neonatologist does not control admission patterns, influence the NICU census or patient acuity
- Not surprisingly, lack of correlation between wRVUs and clinical FTEs for Neonatologists

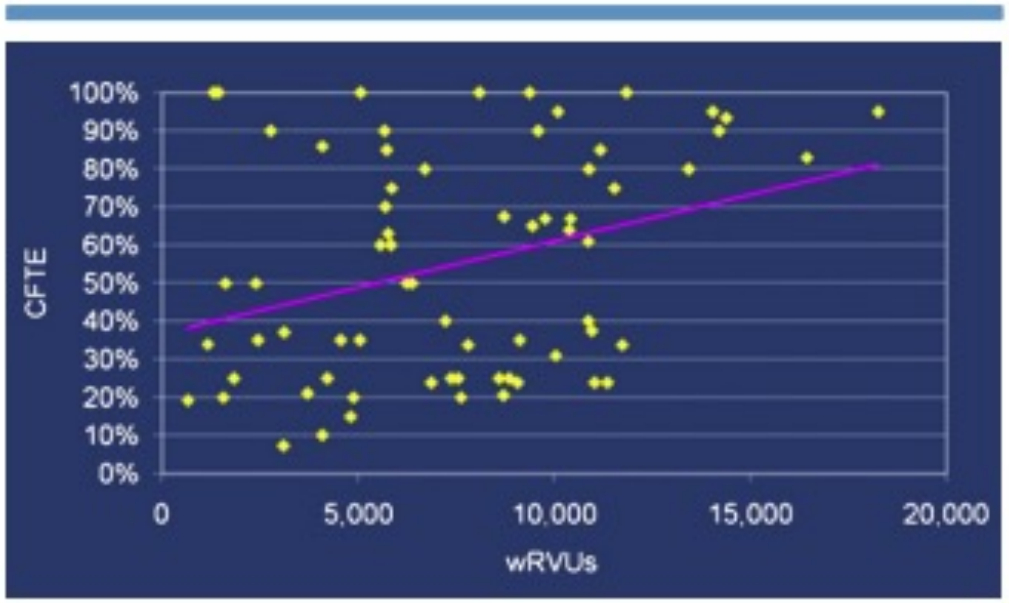


Figure. Clinical productivity—neonatologists.

Gallagher E, J Pediatr 2010;157:697-8.e2

Metrics in Detail – Time-based Work Hours

- Simplistic, but Problematic
- Many Neonatologists work more than 40 hours/week
- Time commitment and intensity of work in a Level 4 NICU may differ greatly from a Level 3 or Level 2 NICU

Table II. Available hours per clinical FTE

Categories	Hours
Total hours per year (40 hours/week × 52 weeks/year)	2080
Vacation time (22 working days × 8 hours/day)	176
Holidays (11 days/year)	88
Academic, research, teaching, administrative, continuing medical education (45 days)	360
Clinical hours available per year	1456

Olsen, et al, J Pediatrics 2021
https://doi.org/10.1016/j.jpeds.2021.11.063

Metrics in Detail – Value Measurements

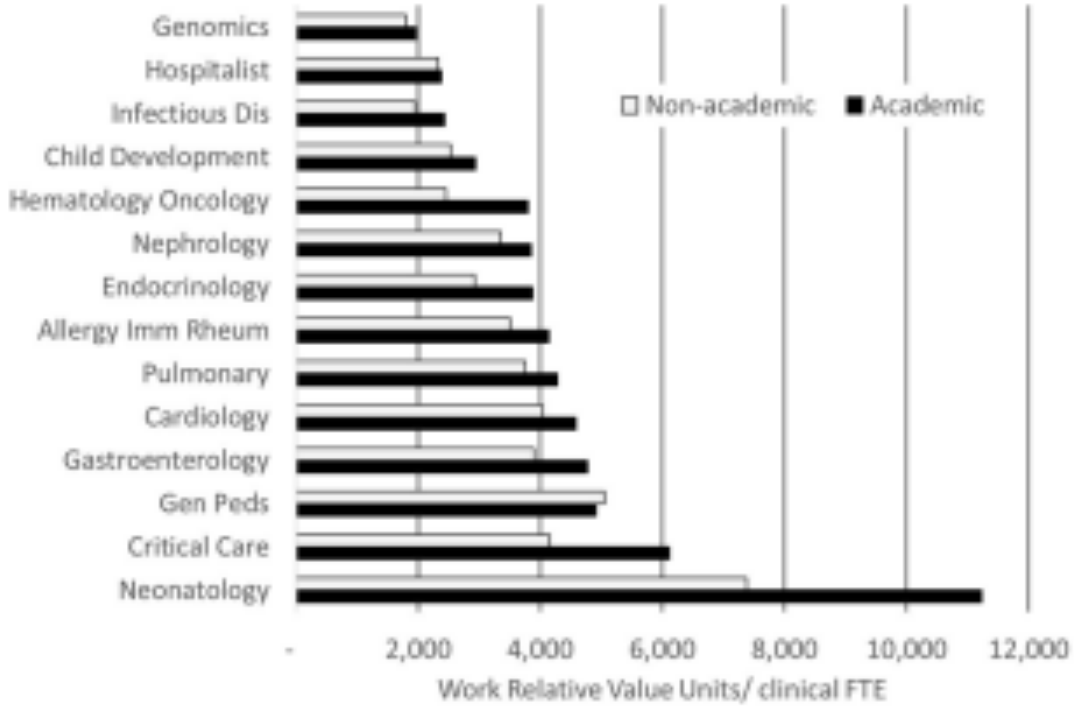
- Aligns payments with defined, transparent professional expectations that are of value to the Department/Organization
  - Clinical care/Outcomes, Quality/Safety, Outreach, Teaching, Research
- How does an individual Neonatologist receive FTE credit in a team sport?

Metrics in Detail – Budget Based

- Private-practice model
  - Easier to base workforce on dividing income to cover salaries, plus bonus incentives if additional is generated

Further in the Weeds with wRVUs

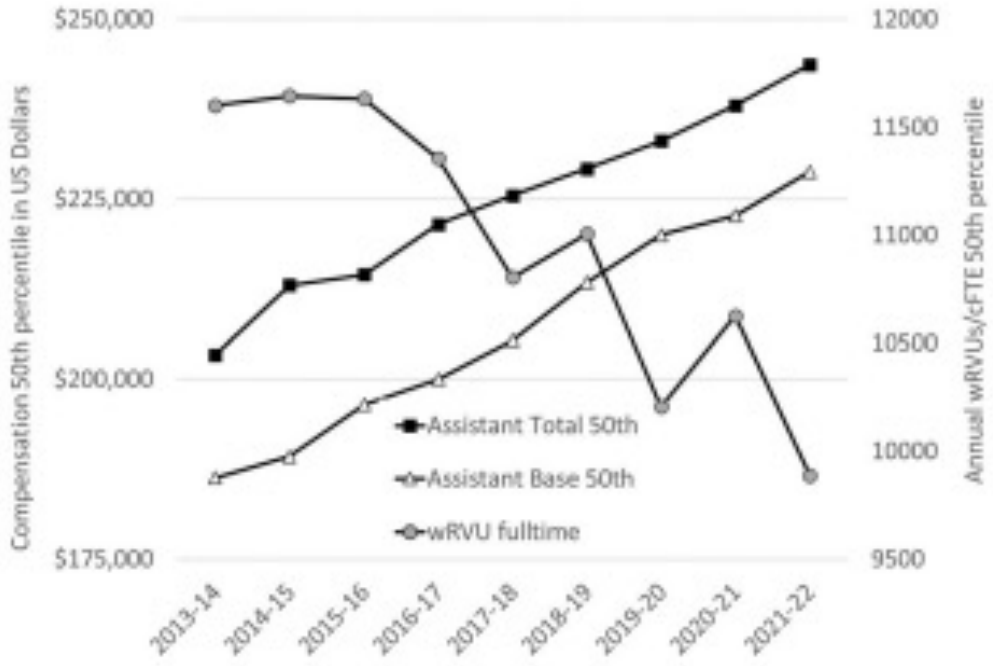
- Historically, Neonatologists covered large NICUs, high ADC resulting in high wRVU generation benchmarks
- Compensation benchmarks for academic neonatologists, pediatric cardiologists and intensivists are similar, but productivity benchmarks are not
- High wRVU productivity and cash collections from Neonatology are vital for Department financial stability; subsidize other sub-specialists (ID, genetics) that are needed for a NICU to function



Lakshminrusimha, et al, J Perinatology (2022) 42:683–688; https://doi.org/10.1038/s41372-022-01370-0

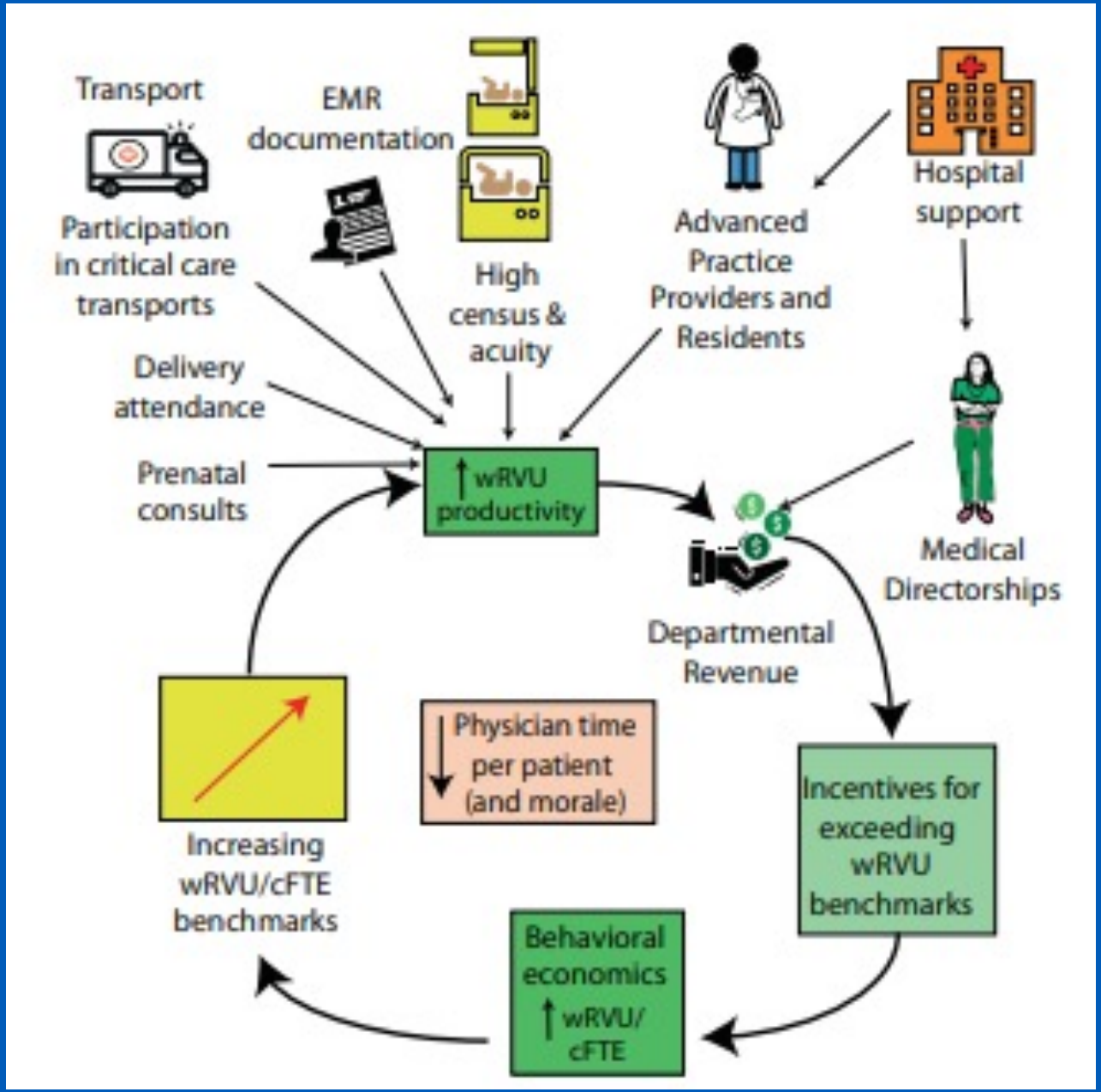
Further in the Weeds with wRVUs

- More Neonatologists are staying in-house 24/7
- Speculate that daily global codes, shift to in-house coverage (limited ability at night to generate RVUs) has resulted in a decreasing trend in wRVU benchmarks
- Is this good?



Lakshminrusimha, et al, J Perinatology (2022) 42:683–688; https://doi.org/10.1038/s41372-022-01370-0

Perils of Utilizing wRVUs to Incentivize



Lakshminrusimha, et al, J Perinatology (2022) 42:683–688; https://doi.org/10.1038/s41372-022-01370-0

Examples of Calculating FTEs

- Baylor College of Medicine (disclaimer, may have changed)
- Credit to Dr. Kanekal Suresh Gautham
- Demand-capacity matching model based on hours
- Fixed maximum number of patients/attending (acuity based, mid-level based)
- One hour of clinical work in a low-acuity setting is given equal weight as one hour in high acuity setting

Calculating Demand - Example

NICU A	No. of Attendings	Shift Length	Shifts per year	Total Hours
Mon-Fri Daytime (8 AM - 5 PM)	15	9	250	33750
Mon-Fri Night-time (5 PM - 8 AM)	2	15	250	7500
Sat Daytime Rounds (8 AM - 3 PM)	6	7	50	2100
Sun Daytime Rounds (8 AM - 3 PM)	6	7	50	2100
Sat Call (8 AM - 8 AM)	2	24	50	2400
Sun Call (8 AM - 8 AM)	2	24	50	2400
Holiday daytime (8 AM - 5 PM)	4	9	12	432
Holiday night call (5 PM - 8 AM)	2	15	12	360
NICU B				
Mon-Fri Daytime (8 AM - 5 PM)	1	9	50	450
Mon-Fri Night-time (5 PM - 8 AM)	1	15	50	750
Sat Daytime Rounds & Call (8 AM - 8 AM)	1	24	50	1200
Sun Daytime Rounds & Call (8 AM - 8 AM)	1	24	50	1200
Holiday daytime (8 AM - 5 PM)	1	9	12	108
Holiday night call (5 PM - 8 AM)	1	15	12	180
TOTAL HOURS REQUIRED PER YEAR				54930

Calculating Adequacy of Clinical FTEs

Required coverage per year (hours)	54,930
No. of hours per clinical FTE	1456
Currently available clinical FTEs	34.5
Available hours of clinical coverage	50,232
Gap in clinical hours	4698
Gap in clinical FTEs	3.2

Example of Calculating FTEs

- Children's Mercy Kansas City
- A baseline point was created for a service block and shift based on hours needed, complexity and acuity of work
  - All other shifts were adjusted according to baseline
- Hypothetical work schedule was created
  - Included Level IV and Level III NICU work, night call, weekend rounds, weekend and holiday calls
  - Standard schedule was determined to be 46 points for daytime service and 80 points for night/weekend calls
    - Approx. 20 weeks on service, 40 night calls, 25 weekend day rounds, small number of system back up

Calculating Demand - Example

Service Type	Attendings per Day	Service Blocks/Year	Total Service Blocks	Points	Workload Points
Level IV	4	25	100	6	600
Level III teaching NICU	3	25	75	5	375
Level III community NICU	1	25	25	5	125
Level II community NICUs	1	25	25	5	125
Fetal Health Center	1	25	25	4	100
Home Ventilator	1	25	25	5	125
				Total	1,425

Calculating Demand - Example

Assignment	Point Value	Days/Year	Workload Points
Level IV, in house, weekday night	1.4	200	280
Level IV, in house, weekend night	1.7	158	269
Level III teaching, in house weekday night	1.2	200	240
Level III teaching, in house, weekend night	1.4	158	221
Level II and III community NICU, weekday night	1.0	200	200
Level II and III community NICU, weekend night	1.2	158	190
Home ventilator, weekday (24 hours)	0.2	200	40
Home ventilator, weekend (24 hours)	0.4	158	63
System back-up night	0.1	365	37
Level IV, Level III teaching, Level III, Level II community NICUs weekend rounds	1.3	100	130

Calculating Adequacy of Clinical FTEs

- Total Workload Points for Attending Service (Day)
  - 1,425 Points
- How many clinical FTEs do we need?
  - 1,425 points ÷ 46 points/clinical FTE = 31 clinical FTEs

Example of Calculating FTEs

- UC Davis California
- Equity is maintained in all divisions in the department
- NICU or PICU
  - 12-hour dayshift = 0.04 FTE credit/week (25 weeks dayshift service = 1 FTE)
  - 12-hour nightshift = 0.045 FTE credit/week (~22 weeks nightshift service = 1 FTE)
- Outpatient clinics receive 0.0025 FTE/4-hour clinic (409 clinics/year = 1 FTE)
- Clinical assignments are determined by other Admin, Research, Teaching and Service Responsibilities (1-CARTS)
- Allows comparisons between different divisions and maintains transparency

Discussion Summary

- Work of a Neonatologist is similar, regardless of location
- Difference lies in how work effort is calculated
- Division Director is often caught in the middle, between Neonatologist and Department Chair

Lingering Questions

- How many hours should a faculty member work?
  - Many support ~2100 hours annually
  - Range from 1920 hrs (46 wks x 40 hrs/wk) to 2300 hrs (46 wks x 50 hrs/wk)
- What percentage of the total hours should be clinical for an academic neonatologist?
  - Balance between needs of division, non-clinical productivity, extramural funding
  - Non-academic settings, one would expect clinical hours to be >90% of total

Lingering Questions

- What metrics can be used to incentivize both clinical and academic productivity?
  - wRVUs may be useful to assess overall productivity at a division level, but individual contributors are under-recognized if this is only measurement
  - Hours might be more accurate
  - Divisional bonuses may represent the group effort
- How can clinical work be made equitable for all faculty when they have different work assignments in a complex, heterogeneous clinical service?
  - Attention paid to metrics for each service (hours needed, intensity, etc)

Proposed Steps Forward

Level of intervention	Intervention
Neonatology Division	· Clear definition of clinical FTE including standard administration/scholarly activity/teaching time given to all academic faculty · Recruitment of adequate faculty to provide support to clinical and non-clinical missions of the division · Accurate reporting of wRVUs excluding "moonlighting" within the division
Department of Pediatrics	· Value vs. productivity-based incentives · Budgets for inpatient divisions based on a staffing model (shift or time-based) vs. productivity ($ collections or wRVUs) · Focus on provider wellness and job satisfaction to minimize burnout
Academic health center	· Institution of an aligned strategic funds flow system that values the quadripartite mission of clinical, research, teaching, service addressing social determinants of health and promoting diversity, equity and inclusion
National organizations	· Organize workshops and discussion sessions on appropriate definitions of clinical FTE that can be adopted by all academic Pediatric departments · Efforts to improve financial literacy among providers · Provide guidelines for reporting accurate benchmarks for productivity and compensation that take into account the academic mission of Pediatric departments

Lakshminrusimha, et al, J Perinatology (2022) 42:683–688; https://doi.org/10.1038/s41372-022-01370-0

Steve Olsen, MD
slolsen@cmh.edu
913-568-1132


Children's Mercy
KANSAS CITY