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Supplemental Table 1: Association of objective workload with workflow domains

Workflow	Workload (average patient census/fellow/week)				p-value
	0-10 (n= 30)	11-15 (n=117)	16-20 (n=223)	>20 (n=237)	
Pre-Rounds Style (How often do you only collect patient data without interviewing and examining patients before rounding with the attending?)					0.05
Never	6 (20.00)	37 (31.36)	47 (21.17)	40 (16.88)	
Rarely	8 (26.67)	35 (29.66)	61 (27.48)	49 (20.68)	
Sometimes	8 (26.67)	21 (17.80)	50 (22.52)	63 (26.58)	
Most of the time	3 (10.00)	12 (10.17)	37 (16.67)	47 (19.83)	
Always	5 (16.67)	13 (11.02)	27 (12.16)	38 (16.03)	
Hospital Arrival Time (What time do you arrive at the hospital for a day shift on your typical inpatient consult service?)					<0.001
Before 6:00 a.m.	3 (10.00)	6 (5.13)	23 (10.31)	43 (18.14)	
6:01 a.m.–6:30 a.m.	3 (10.00)	23 (19.66)	50 (22.42)	52 (21.94)	
6:31 a.m.–7:00 a.m.	9 (30.00)	24 (20.51)	61 (27.35)	69 (29.11)	
7:01 a.m.–7:30 a.m.	6 (20.00)	36 (30.77)	65 (29.15)	37 (15.61)	
After 7:30 a.m.	9 (30.00)	28 (23.93)	24 (10.76)	36 (15.19)	
Proportion of patients jointly examined with attending					0.17
None	4 (13.33)	1 (0.85)	12 (5.36)	14 (5.93)	
Less than half	9 (30.00)	22 (18.80)	54 (24.11)	52 (22.03)	
Approximately half	3 (10.00)	16 (13.68)	25 (11.16)	25 (10.59)	
More than half but not all	7 (23.33)	38 (32.48)	59 (26.34)	81 (34.32)	
All	7 (23.33)	40 (34.19)	74 (33.04)	64 (27.12)	
Time at completion of progress note					<0.001
Before 12:00 p.m.	3 (10.00)	11 (9.32)	14 (6.25)	16 (6.75)	
12:01 p.m.–5:00 p.m.	19 (63.33)	71 (60.17)	102 (45.54)	87 (36.71)	
5:01 p.m.–8:00 p.m.	6 (20.00)	35 (29.66)	102 (45.54)	120 (50.63)	

After 8:01 p.m.	1 (3.33)	1 (0.85)	6 (2.68)	14 (5.91)	
Technology Use					0.31
Yes	2 (6.67)	14 (11.86)	37 (16.52)	29 (12.24)	
No	28 (93.33)	104 (88.14)	187 (83.48)	208 (87.76)	
Clinical Responsibility (outpatient clinic/biopsy/dialysis catheters)					0.10
No	2 (6.67)	1 (0.85)	6 (2.68)	12 (5.06)	
Yes	28 (93.33)	117 (99.15)	218 (97.32)	225 (94.94)	

Supplemental Table 2. Effect of the size of the fellowship training program, patient census per fellow, and technology use on time at completion of progress notes: Results from the multinomial logistic regression model.

Odds Ratio Estimates				
Effect	Completion	OR	95% CI of OR	
Size of the fellowship training program	Before 12:00 p.m.	0.98	0.91	1.07
Size of the fellowship training program	After 8:01 p.m.	0.92	0.82	1.04
Size of the fellowship training program	5:01 p.m.–8:00 p.m.	0.99	0.95	1.03
Patient census per fellow	Before 12:00 p.m.	0.99	0.93	1.06
Patient census per fellow	After 8:01 p.m.	1.13	1.02	1.28
Patient census per fellow	5:01 PM–8:00 p.m.	1.09	1.05	1.14
Technology use (yes vs no)	Before 12:00 p.m.	2.20	0.64	7.53
Technology use (yes vs no)	After 8:01 p.m.	0.75	0.23	2.43
Technology use (yes vs no)	5:01 PM–8:00 p.m.	1.11	0.67	1.85

We adjusted for arrival time in the model. The reference level for completion time was 12 p.m.-5 p.m. We assigned the mid-value of the response item for the size of the fellowship training program and patient census per fellow and treated them as numerical values.

The results can be interpreted in terms of odds ratio. For example, an increase in patient census per fellow by one patient increased the odds of progress notes completion after 8:01 p.m. by a factor of 1.13 (CI: 1.02, 1.28), compared to the odds of completing progress notes between 12 p.m.-5 p.m., keeping the size of the fellowship training program, technology use and arrival time constant.

Supplemental Material: Fellows Survey

American Society of Nephrology In-Training Examination 2019 Fellow Questionnaire

The American Society of Nephrology (ASN) requests your input on how to improve future examinations, advance fellowship programs, and better understand your perspectives on current issues in nephrology training. Your responses to this brief voluntary questionnaire will help inform initiatives to support current and future nephrologists in training. Although your responses will be stored with your identification number and score, your answers will be kept confidential and your individual identity will not be used. Data will be analyzed in aggregate, and your program director will not have access to any of the information that is unique to your program.

In addition to ASN's internal use, some collective de-identified information from this survey may be analyzed and reported in aggregate in peer-reviewed abstracts or journals. Please select one of the following options.

- My responses MAY BE USED as part of collective information for research purposes.
- I prefer that my responses NOT BE USED as part of collective information for research purposes.

1. What is your current year of fellowship training?

a. 1st year
b. 2nd year
c. 3rd year
d. 4th year

2. How many fellows are currently enrolled in your training program?

a. 1–4 fellows
b. 5–8 fellows
c. 9–11 fellows
d. ≥12 fellows

3. How would you classify the medical school from which you graduated?

a. United States medical school—Allopathic (MD)
b. United States medical school—Osteopathic (DO)
c. Canadian medical school—Allopathic (MD)
d. Canadian medical school—Osteopathic (DO)
e. United States medical school—Off Shore
f. International medical school—Europe
g. International medical school—Middle East
h. International medical school—Asia
i. International medical school—Latin America

j. International medical school—Africa

4. Which of the following best describes you?

a. Male
b. Female
c. Transgender
d. Choose not to disclose

5. How would you rate the level of difficulty of today's examination?

a. Too easy
b. Too hard
c. Appropriate level of difficulty

6. How would you rate the appropriateness/relevance of the material covered in this examination in evaluating your knowledge?

a. Very relevant
b. Moderately relevant
c. Somewhat relevant
d. Not at all relevant

7. Please rate the degree to which each of the following topics was emphasized on today's examination. (1= The right amount of emphasis, 2= Too much emphasis, 3= Too little emphasis.)

a. General aspects of chronic kidney disease (includes chronic dialysis)
b. Glomerular/vascular disorders
c. Tubular/interstitial and cystic disorders
d. Acute renal failure/ICU nephrology
e. Kidney transplantation
f. Hypertension
g. Electrolyte physiology: sodium/water
h. Electrolyte physiology: acid-base/potassium
i. Mineral metabolism
j. Clinical pharmacology
k. Ethics
l. Other: please list: [free text box]

8. Did you attend ASN Kidney Week as a medical student and/or as an internal medicine resident?

a. Yes
b. No

9. What is your average patient census (per fellow) for a typical inpatient consult service during the week?

a. 0–4 patients
b. 5–10 patients
c. 11–15 patients
d. 16–20 patients
e. ≥21 patients

10. On average, what time do you arrive at the hospital for a day shift on your typical inpatient consult service?

a. Before 6:00 a.m.
b. 6:01 a.m.–6:30 a.m.
c. 6:31 a.m.–7:00 a.m.
d. 7:01 a.m.–7:30 a.m.
e. 7:31 a.m.–8:00 a.m.
f. After 8:01 a.m.

11. How often do you only collect patient data (vital signs, labs) without interviewing and examining patients before rounding with the attending?

a. Never
b. Rarely
c. Sometimes
d. Most of the time
e. Always

12. On an average weekday, how many *patients* on a typical consult service do you examine together with the attending at the bedside?

a. None
b. Less than half
c. Approximately half
d. More than half but not all
e. All

13. On average, what time do you finish all progress notes on a typical inpatient consult service?

a. Before 10:00 a.m.
b. 10:01 a.m.–12:00 p.m.
c. 12:01 p.m.–5:00 p.m.
d. 5:01 p.m.–8:00 p.m.
e. After 8:01 p.m.

14. Which do you consider to be the most valuable for building your clinical skills as a nephrologist?

a. Analyzing lab results
b. Formulating a differential diagnosis and management plan by writing consults and progress notes
c. Bedside discussion of differential diagnosis and management plans with the attending
d. Remote discussion of differential diagnosis and management plans with the attending (e.g., at a computer or in an office)

15. Which of the following technologies do you use during your rounds on the inpatient consult service? (CHECK ALL THAT APPLY)

a. Electronic tablets to view patient data
b. Mobile phone applications to view patient data
c. Mobile laptop computers to view and input data (e.g., notes and orders)
d. Voice-recognition software to dictate patient progress notes

16. Which of the following clinical responsibilities do you have while rounding on the inpatient consult service? (CHECK ALL THAT APPLY)

a. Outpatient clinic
b. Performance of kidney biopsy
c. Placement of dialysis catheters

17. Do you believe interviewing and examining patients on your own before rounds with the attending improves patient care?

a. Never
b. Rarely
c. Sometimes
d. Most of the time
e. Always

Supplemental Material: Program Director Survey

Characterizing Clinical Rounds in US Nephrology Training Programs
Please contribute your insights on clinical rounding by completing this brief questionnaire.

1. Do faculty have concurrent clinical or administrative responsibilities when rounding on the inpatient consult service?

- ☐ Yes
- ☐ No

2. It is acceptable for fellows to collect patient data <u>without</u> examining the patients before rounding with the attending.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

3. Do you expect your fellows to "pre-round" (that is, to come in early to prepare for rounds with the attending) on a typical day on the inpatient consult service?

- ☐ No
- ☐ Yes. But we only expect them to collect data, not to examine the patients.
- ☐ Yes. We expect them to both collect data and to examine the patients.

4. When do you typically finish co-signing all fellow progress notes during a day shift on the inpatient consult service?

- ☐ Before 11 a.m.
- ☐ 11 a.m.–12 p.m.
- ☐ 12 p.m.– 5 p.m.
- ☐ 5 p.m.–8 p.m.
- ☐ After 8 p.m.

5. Which technologies are used during rounds on a typical inpatient consult service? (Check All That Apply)

- ☐ Tablets to view patient data
- ☐ Mobile phones to view patient data
- ☐ Laptops to view and input data (e.g., notes, orders)
- ☐ Voice recognition software to dictate patient progress note

6. Rank the value of these activities for building fellows' clinical skills from MOST (1) to LEAST (4) valuable:

___ Analyzing lab results
___ Formulating a differential diagnosis and management plan by writing consults and progress notes
___ Bedside discussion of differential diagnosis and management plans with attending
___ Remote discussion of differential diagnosis and management plans with attending (e.g., in an office)

7. Rank the significance of these barriers to efficient clinical rounds from MOST (1) to LEAST (5) significant:

___ Electronic medical records
___ Trainee duty hours
___ Fellows unprepared for the clinical demands of nephrology fellowship
___ Competing clinical and administrative responsibilities for faculty
___ Competing clinical responsibilities for fellows (e.g., outpatient clinic or procedures)

8. Patient care is improved when fellows interview and examine patients before rounding with the attending.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

9. Fellows' clinical skills improve when they interview and examine patients before rounding with the attending.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

10. Patient care is improved when fellows and attendings interview and examine patients together.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

11. How efficient (that is, how organized, effective, and free from distraction) are your clinical rounds on the inpatient consult service?

- ☐ Not efficient
- ☐ Rarely efficient
- ☐ Somewhat efficient
- ☐ Efficient
- ☐ Very efficient

Please return this questionnaire to the Registration Desk.
Thank you for contributing your insights.