Using Electronic Health Records as an Educational Tool

Mohammed Samee, MD, RN, FACP

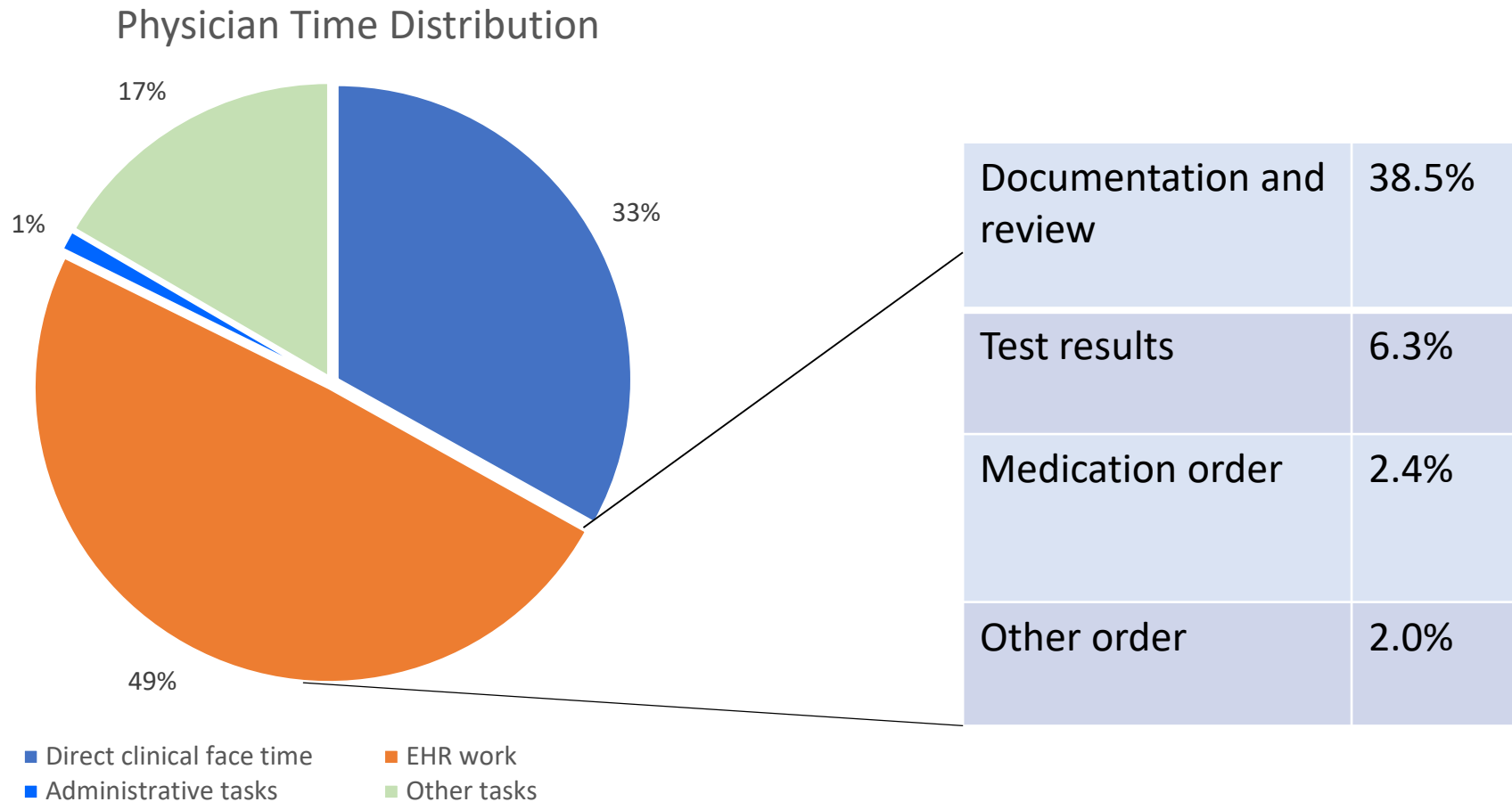Chris Nemets MSN, RN, CNML

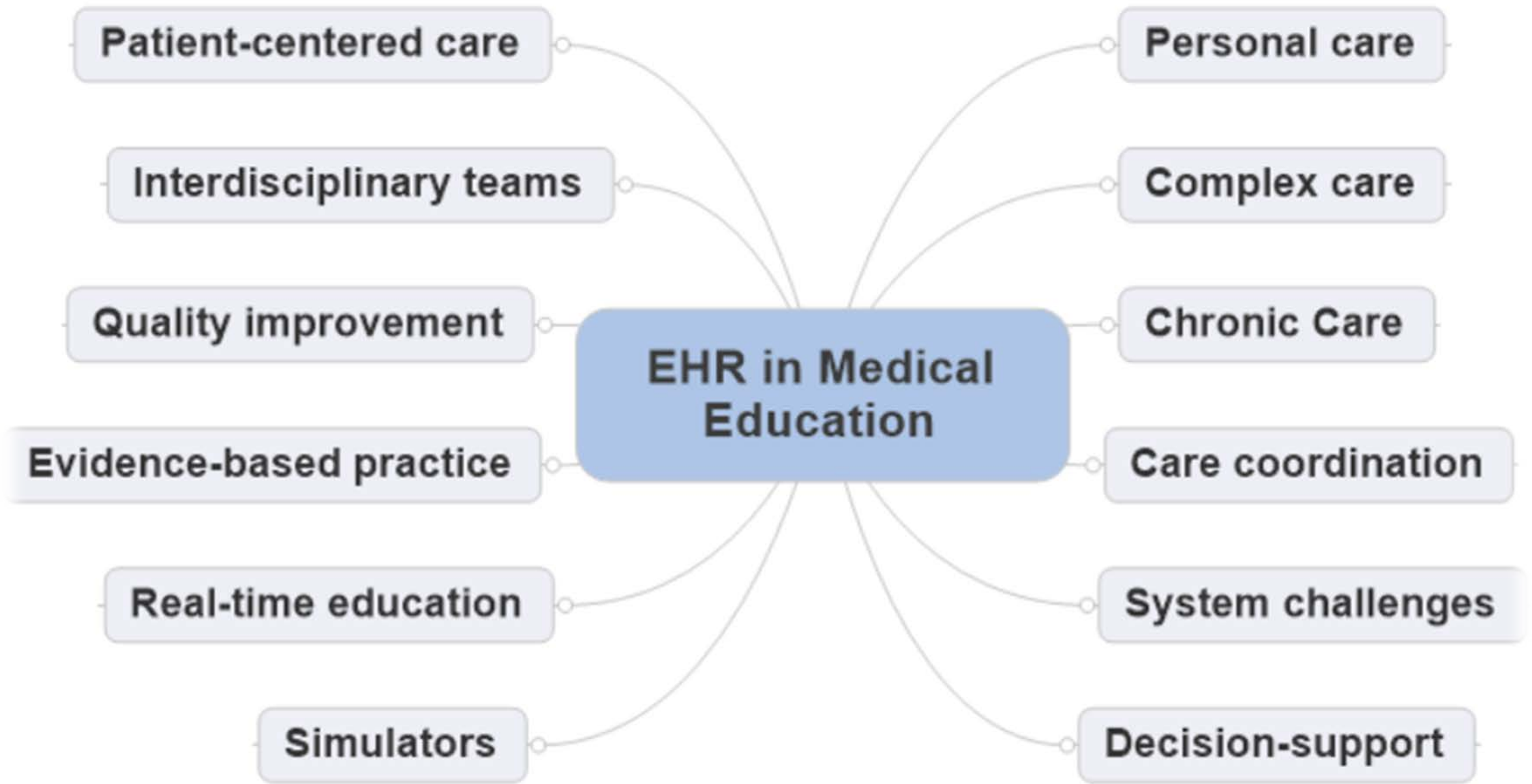Jacob Habboush, MD

Disclosures

- The presenters have no conflicts of interest to report:
  - Mohammed Samee
  - Chris Nemets
  - Jacob Habboush

Outline

- Introduction & Motivation
- Available Systems
- ACGME Core Competencies & Milestones
- Metrics Tools
- Outcomes

Physicians spend 49% of their working hours in the EHR

Physician Time Distribution

17%

1%

33%

49%

Documentation and review	38.5%
Test results	6.3%
Medication order	2.4%
Other order	2.0%

■ Direct clinical face time   ■ EHR work
■ Administrative tasks   ■ Other tasks

Alliance of Independent Academic Medical Centers

Advocate Health Care
Tomorrow starts today.

Sparrow

OrangePark
MEDICAL CENTER

What Should We Do With EHRs in Medical Education

- Integrate EHR use as early as practicable into training

- Require demonstration of EHR competencies

- Integrate curriculum, knowledge resources into EHR

- Promote advanced clinical processes

- Measure outcomes that matter

- Automate assessment for competencies EHR

- Creating dashboards and scorecards for…

    Patient centered care, Effectiveness, Safety, Timeliness, Efficiency, Equitability

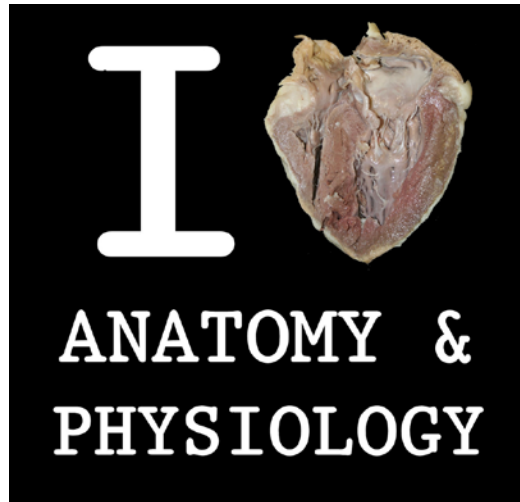- Provider Efficiency Profiles in EHRs (PEPs)

Intern Morning Report

- patient-based conference
- intensive learner & teacher interaction
- facilitates learner development
- facilitates professional identity.

DAILY
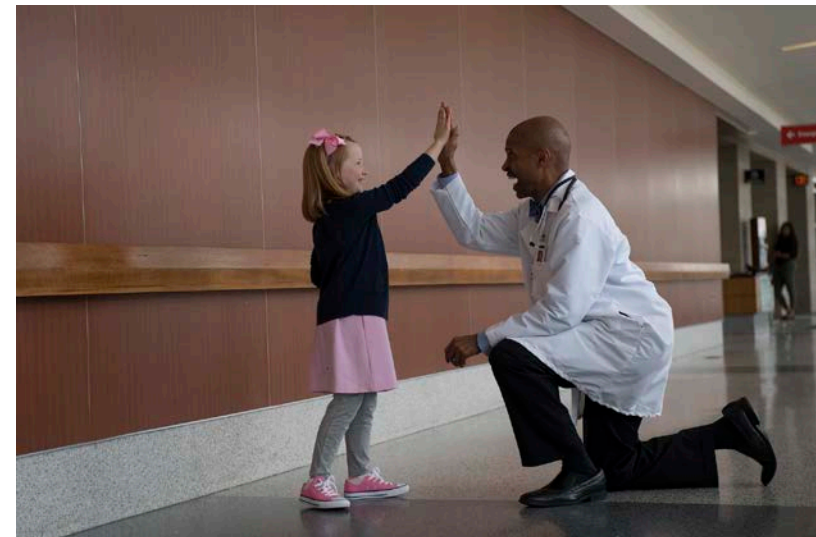
Clinical Documentation Specialists

Outline

- Introduction & Motivation

- **Available Systems**

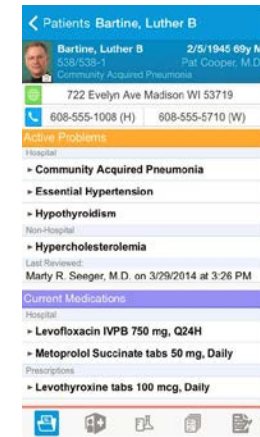- ACGME Core Competencies & Milestones

- Metrics Tools

- Outcomes

Experience spans across a broad swath of clinical information systems
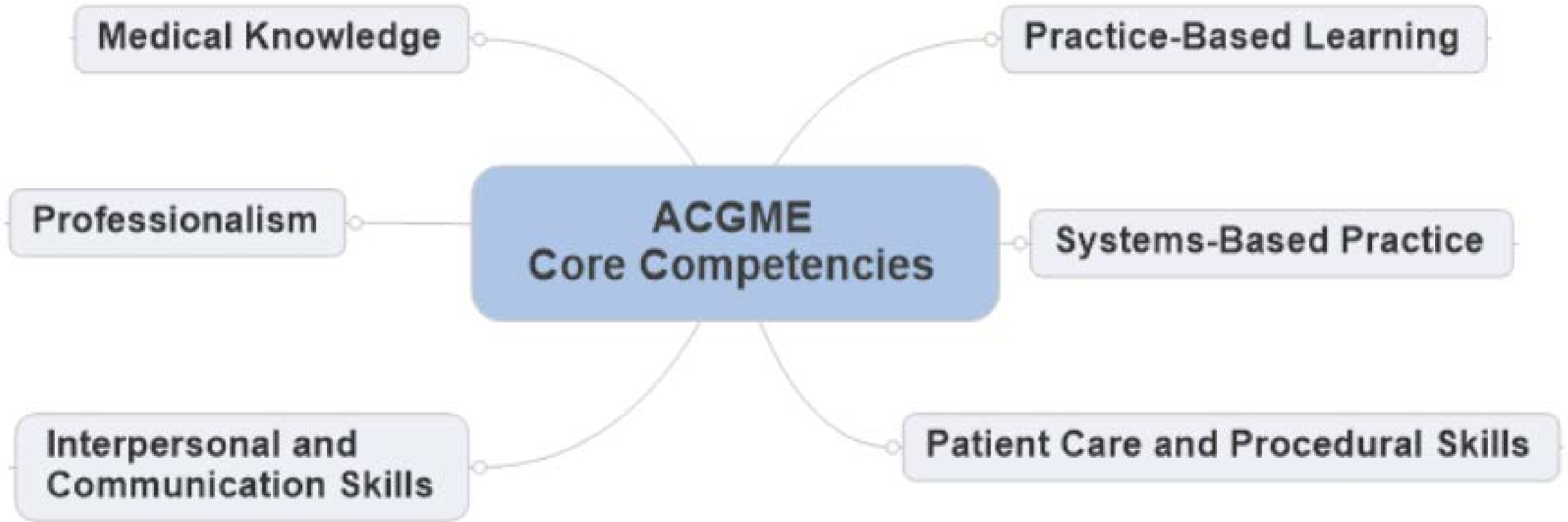
Outline

- Introduction & Motivation

- Available Systems

- **ACGME Core Competencies & Milestones**
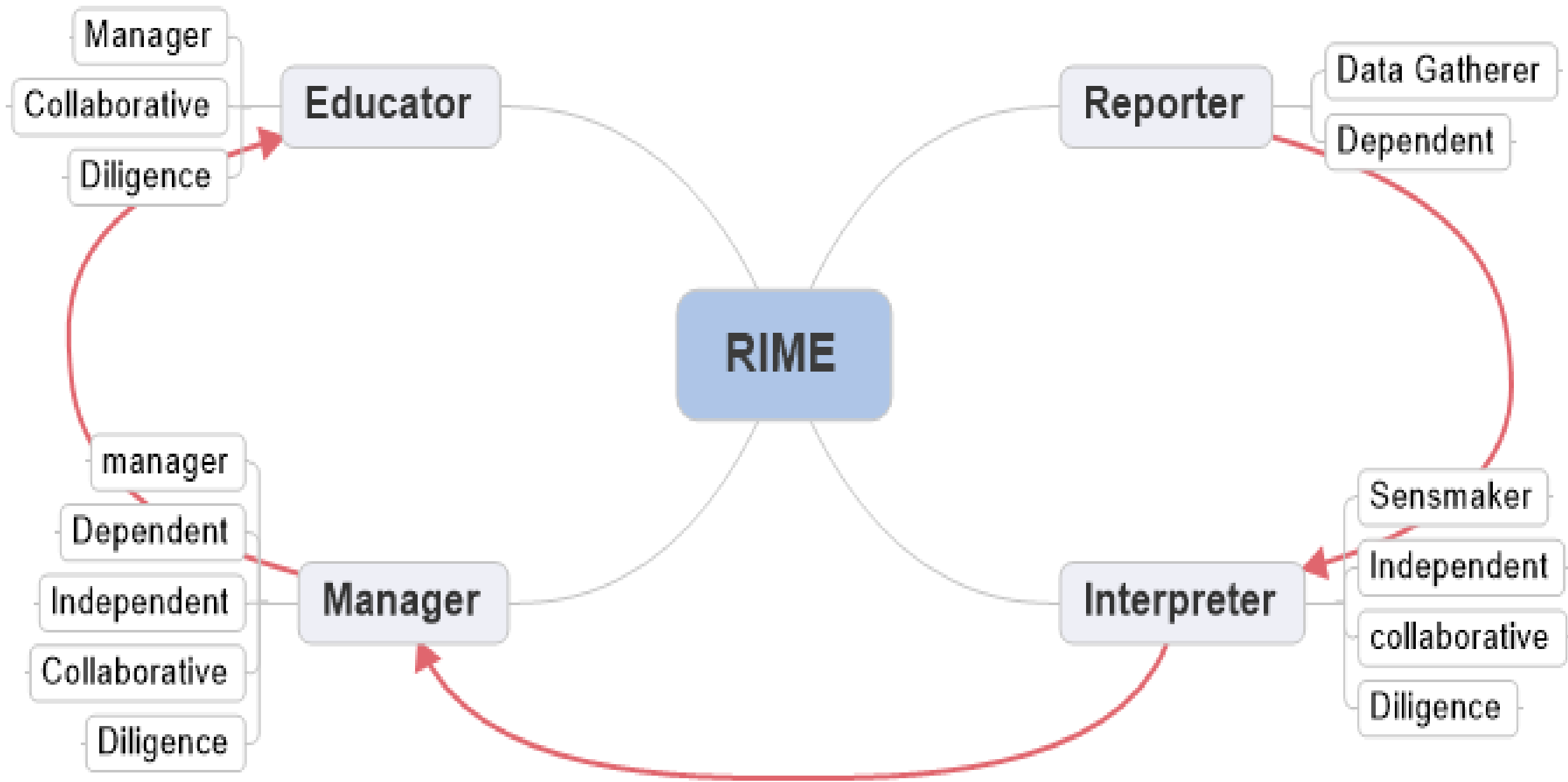
- Metrics Tools

- Outcomes

Milestones

PC1. History (Appropriate for age and impairment)

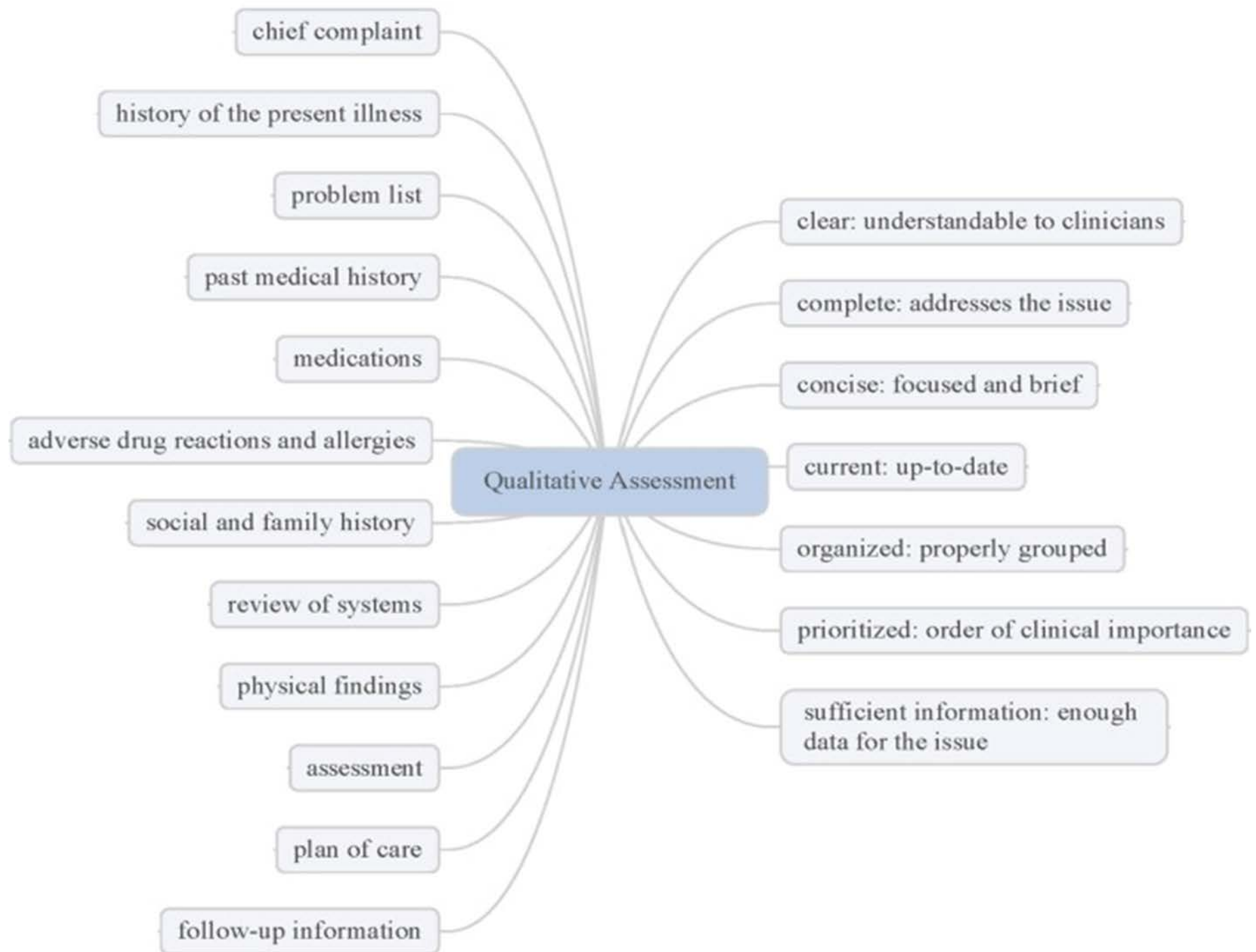| Level 1	Level 2	Level 3	Level 4	Level 5
Acquires a general medical history	Acquires a basic physiatric history including medical, functional, and psychosocial elements	Acquires a comprehensive physiatric history integrating medical, functional, and psychosocial elements Seeks and obtains data from secondary sources when needed	Efficiently acquires and presents a relevant history in a prioritized and hypothesis driven fashion across a wide spectrum of ages and impairments Elicits subtleties and information that may not be readily volunteered by the patient	Gathers and synthesizes information in a highly efficient manner Rapidly focuses on presenting problem, and elicits key information in a prioritized fashion Models the gathering of subtle and difficult information from the patient

Milestone

Post Graduate Year	1			2		3		
TimeLine/ Months	3	6	12	18	24	25	30	36
Milestones	Accurate data collection (History/Physical)	Tracking patients	Integrate, synthesize, manage common medical problems	Engaging patients in shared decision making	Provide comprehensive preventive care	Develop as a role model	Recognize & manage conflict when patient values differ	Manage & treat more complex patients
Competencies	Patient Care							
	Medical Knowledge							
	Interpersonal and Communication Skills							
	Professionalism							
	Practice-Based Learning and Improvement							
	Systems-Based Practice							
Tools / Learners	EHR							
	EHR Simulation							
	Simulation Lab							
	Medical knowledge resources / Up-to-Date							
	Sharepoint Folder							
	Wards / Clinics/Wiki's							
	Research Tool / RStudio							
	Board Examination Preparations							
	Daily conferences / Clinical cases							
	Computer skills / Microsoft office software							
Tools / Educators	QNOTE							
	Reporter-Interpreter-Manager-Educator (RIME)							
	Periodic Evaluations							
Tasks/Skills	(RIME) Reporter			(RIME) Interpreter		(RIME) Manager		(RIME) Educator
	Proficiency using EHR							
	Search Skills							
	Identify gaps in knowledge and skills							
	Clinical Reasoning							
	Evidence Based Practice							
	Population management and Clinical Outcomes							
	Coaching patients							
	Clinical utility							

Outline

- Introduction & Motivation

- Available Systems

- ACGME Core Competencies & Milestones

- **Metrics Tools**

- Outcomes

QNOTE

chief complaint

history of the present illness

problem list

past medical history

medications

adverse drug reactions and allergies

social and family history

review of systems

physical findings

assessment

plan of care

follow-up information

Qualitative Assessment

clear: understandable to clinicians

complete: addresses the issue

concise: focused and brief

current: up-to-date

organized: properly grouped

prioritized: order of clinical importance

sufficient information: enough data for the issue

eQNOTE

Rater [ ] Date [ ]

Patient Name [ ] Patient ID [ ]

1. Chief Complaint
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Sufficient formation	☐	☐	☐	[ ]

2. History of Present Illness
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Sufficient Information	☐	☐	☐	[ ]
B. Concise	☐	☐	☐	
C. Clear	☐	☐	☐	
D. Organized	☐	☐	☐	

3. Problem List
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Current	☐	☐	☐	[ ]
B. Ordered	☐	☐	☐	
C. Concise	☐	☐	☐	
D. Complete	☐	☐	☐	

4. Past Medical History
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Complete	☐	☐	☐	[ ]
B. Concise	☐	☐	☐	
C. Clear	☐	☐	☐	
D. Organized	☐	☐	☐	

5. Medications
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Current	☐	☐	☐	[ ]
B. Complete	☐	☐	☐	
C. Concise	☐	☐	☐	

6. Adverse Drug Reactions and Allergies
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Current	☐	☐	☐	[ ]
B. Sufficient Information	☐	☐	☐	
C. Clear	☐	☐	☐	

7. Social and Family History
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Current	☐	☐	☐	[ ]
B. Sufficient Information	☐	☐	☐	
C. Clear	☐	☐	☐	
D. Concise	☐	☐	☐	
E. Organized	☐	☐	☐	

8. Review of Systems
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Complete	☐	☐	☐	[ ]
B. Clear	☐	☐	☐	
C. Concise	☐	☐	☐	

9. Physical Findings
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Complete	☐	☐	☐	[ ]
B. Clear	☐	☐	☐	
C. Concise	☐	☐	☐	

10. Assessment
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Prioritized	☐	☐	☐	[ ]
B. Sufficient Information	☐	☐	☐	
C. Clear	☐	☐	☐	
D. Concise	☐	☐	☐	

11. Plan of Care
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Prioritized	☐	☐	☐	[ ]
B. Sufficient Information	☐	☐	☐	
C. Clear	☐	☐	☐	
D. Concise	☐	☐	☐	

12. Follow - up Information
☐ Missing

	Fully	Partially	Unacceptable	Score
A. Prioritized	☐	☐	☐	[ ]
B. Sufficient Information	☐	☐	☐	
C. Clear	☐	☐	☐	
D. Concise	☐	☐	☐	

Current Row:

Mean Score [ ]

Scores Visible ☑

[New Form]

[Save To New Row]

[Save To Current Row]

[Previous Row]

[Next Row]

[Go To Row]

[Delete Current Row]

[Exit]

Exercise #1 Jacob

Evaluation #1: Open-Ended

Strengths:

1. Great documentation of etiology of symptoms— "AMS 2/2 herpes encephalitis as seen on MRI + CSF PCR"

2. Great documentation of the progression of mental status under subjective data— "Alert and his memory and cognition is improving" and under Assessment and Plan— "Patient mental status still waxing and waning."

3. Great interpretation of lab result into diagnosis and its progression— "Hyponatremia—improving"

4. Clearly stated thought process under "hyponatremia" and "Liver cirrhosis with hepatic mass"

5. Great interpretation of abnormal EKG--"Our suspicion for old infarct or otherwise severe hypertrophy based on tall q waves on EKG are unfounded by echo"

Improvement Opportunities:

1. Carry through the linking of lab values to specific dx— "Elevated blood sugar: pt. has A1C 9.4, DM II, started on Lantus + lispro, accuchecks"—more specific code of DM II with hyperglycemia could be captured

2. On admission, pt. met 2 SIRs criteria: T 39, HR 104— Attending noted Sepsis due to HSV1 encephalitis

3. Be careful with abbreviations— "He sustained a MVH 3 days ago and has been confused since"—MVA?

Evaluation # 2: 3-Point

	Descriptors	Consistently	Frequently	Rarely	Comments	N/A
A	Documents Specificity e.g., acuity, specificity, or etiology	☐	☐	☐		☐
B	Documents Diagnostic Statements i.e., attributes signs & symptoms, ABN lab values, and variant diagnostic findings to diagnoses	☐	☐	☐		☐
C	Curates Differentials i.e., appropriately discriminates DDX	☐	☐	☐		☐
D	Substantiates Diagnoses i.e., supports diagnoses with clinical validation, diagnostic findings, or treatments	☐	☐	☐		☐
E	Defines Clinical Relationships i.e., documents valid cause and effect situations	☐	☐	☐		☐
Column Totals						
Which column was "✓" the most?		☐	☐	☐		
Translation to 3 point scale		3	2	1		

Indicator	Score Level			Corresponding Descriptor
PCI: Differential	3	2	1	C, D
PC2: Assessment & Plan	3	2	1	A, B,D,E
ICS3: Written Communication	3	2	1	A, B, C, D, E
MK2: Diagnostic Testing	3	2	1	B. D

	Yes	No	N/A
Did the in-session documentation review result in a query? If yes, what was queried:			
Did the resident respond to the CDS team member query?			
Did the resident document a response to the query in the patient chart?			

Evaluation # 3: Milestones

- Differential Diagnosis (PC1 – Element 2)
- Assessment and Plan (PC1 – Element 4)
- Written Communication (ICS3)
- Personal Feedback (SBP2 – Element 3)
- Team Communication (ICS2)
- Diagnostic Testing (MK2)

- Strengths and Improvement Opportunities

Clinical documentation

	Critical Deficiencies	Early Learner	Advanced Learner	N/A
	Misses central problem ('can't see the forest for the trees')	Develops limited differential diagnoses	Identifies main clinical problem and appropriate number of differential diagnoses	Select 'N/A' ONLY if the following apply: -Not enough information to evaluate resident in this area. -Scale is insufficient - resident is commendable beyond provided selections (please provide comments AND contact Program Director)
	▲ Collapse ▲			
1. Differential	○	○	○	○

	Critical Deficiencies	Early Learner	Advanced Learner	N/A
	Assessment and plans are inappropriate or inaccurate	Creates a complete assessment and plan, but may occasionally miss key items	Consistently develops a comprehensive assessment and plan	Select 'N/A' ONLY if the following apply: -Not enough information to evaluate resident in this area. -Scale is insufficient - resident is commendable beyond provided selections (please provide comments AND contact Program Director)
	▲ Collapse ▲			
2. Assessment and plan	○	○	○	○

	Critical Deficiencies	Early Learner	Advanced Learner	N/A
	Health records are absent or missing significant portions of important clinical detail	Health records complete, but may at times be disorganized or inaccurate	Health records are organized and accurate and beginning to communicate clinical reasoning	Select 'N/A' ONLY if the following apply: -Not enough information to evaluate resident in this area. -Scale is insufficient - resident is commendable beyond provided selections (please provide comments AND contact Program Director)
	▲ Collapse ▲			
3. Written Communication	○	○	○	○

	Critical Deficiencies	Early Learner	Advanced Learner	N/A
	■ Ignores feedback ■ Is unwilling or unable to change behavior in response to feedback	May be resistant to feedback	Willing to receive feedback	Select 'N/A' ONLY if the following apply: -Not enough information to evaluate resident in this area. -Scale is insufficient - resident is commendable beyond provided selections (please provide comments AND contact Program Director)

▲ Collapse ▲

4. Personal Feedback	○	○	○	○

	Critical Deficiencies	Early Learner	Advanced Learner	N/A
	Utilizes communication strategies that hamper collaboration and teamwork	■ Uses unidirectional communication with team ■ May resist offers of collaborative input	■ Attempts to engage in collaborative communication with appropriate members of the team ■ Beginning to employ verbal, non-verbal, and written communication strategies that facilitate collaborative care.	Select 'N/A' ONLY if the following apply: -Not enough information to evaluate resident in this area. -Scale is insufficient - resident is commendable beyond provided selections (please provide comments AND contact Program Director)

▲ Collapse ▲

5. Team Communication	○	○	○	○

	Critical Deficiencies	Early Learner	Advanced Learner	N/A
	Does not interpret basic diagnostic testing	Beginning to interpret basic diagnostic testing to patient care	Cosistently interprets basic diagnostic tests accurately	Select 'N/A' ONLY if the following apply: -Not enough information to evaluate resident in this area. -Scale is insufficient - resident is commendable beyond provided selections (please provide comments AND contact Program Director)

▲ Collapse ▲

6. Diagnostic Testing	○	○	○	○

Exercise #2 Samee

Epic CEO Report

Provider Efficiency Profile

» Epic has a special program that allows clients to sign up for efficiency tracks

» Sparrow and Epic have identified in Basket as an area for improvement by comparing our usage statistics to the Epic Community

» Our providers, on average, receive more messages and spend more time in IB than other clients

Meaningful Dashboard
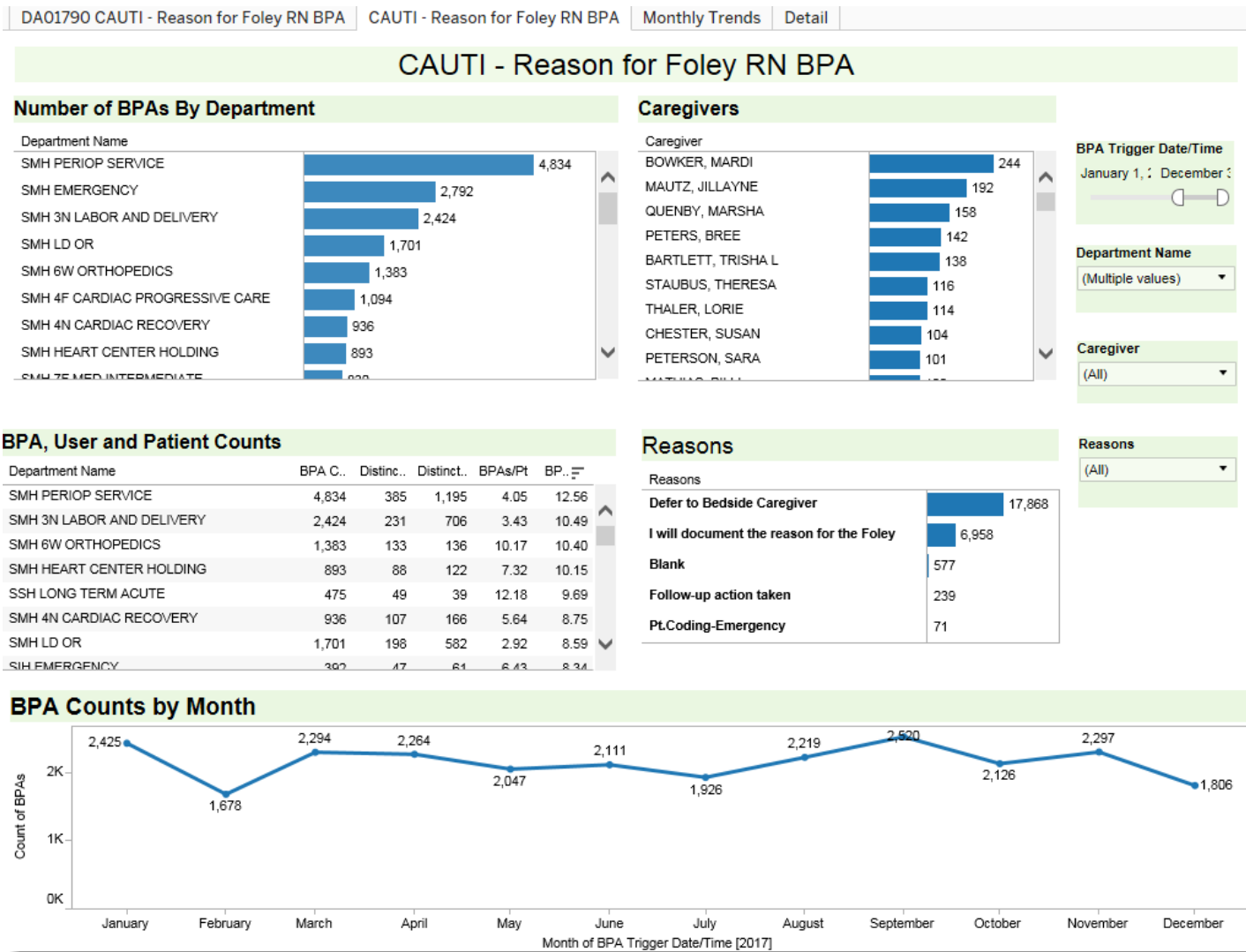
Best Practice Advisorys (BPAs)

This reminder prompts providers/nurses each shift to assess whether the patient's urinary catheter can be removed

Antibiotic Stewardship Program (ASP) Initiative:
Adding Required Indications in iSparrow EMR

Example: Levofloxacin 500mg tablet

Indications:

[search box]

- [ ] Acne Vulgaris
- [ ] Acute Bacterial Sinusitis
- [ ] Acute Exacerbation of Chronic Bronchitis
- [ ] Acute Maxillary Sinusitis
- [ ] Community Acquired Pneumonia
- [ ] Complicated Skin & Skin Structure Infection
- [ ] Complicated Urinary Tract Infection
- [ ] Device-Related Osteoarticular Infection...
- [ ] Genitourinary Infection
- [ ] Infectious Endocarditis

- [ ] Inhalational Anthrax
- [ ] Nongonococcal Urethritis
- [ ] Nosocomial Pneumonia
- [ ] Plague
- [ ] Pyelonephritis
- [ ] Surgical Prophylaxis
- [ ] Traveler's Diarrhea
- [ ] Tuberculosis
- [ ] Uncomplicated Skin and Skin Structure I...
- [ ] Uncomplicated Urinary Tract Infection

Indications (Free Text):

All FDA-approved indications are automatically imported from Medi-Span into iSparrow EMR

Exercise #3 Chris

Outline

- Introduction & Motivation

- Available Systems

- ACGME Core Competencies & Milestones

- Metrics Tools

- **Outcomes**

QNOTE can be used to assess residents' longitudinal progression
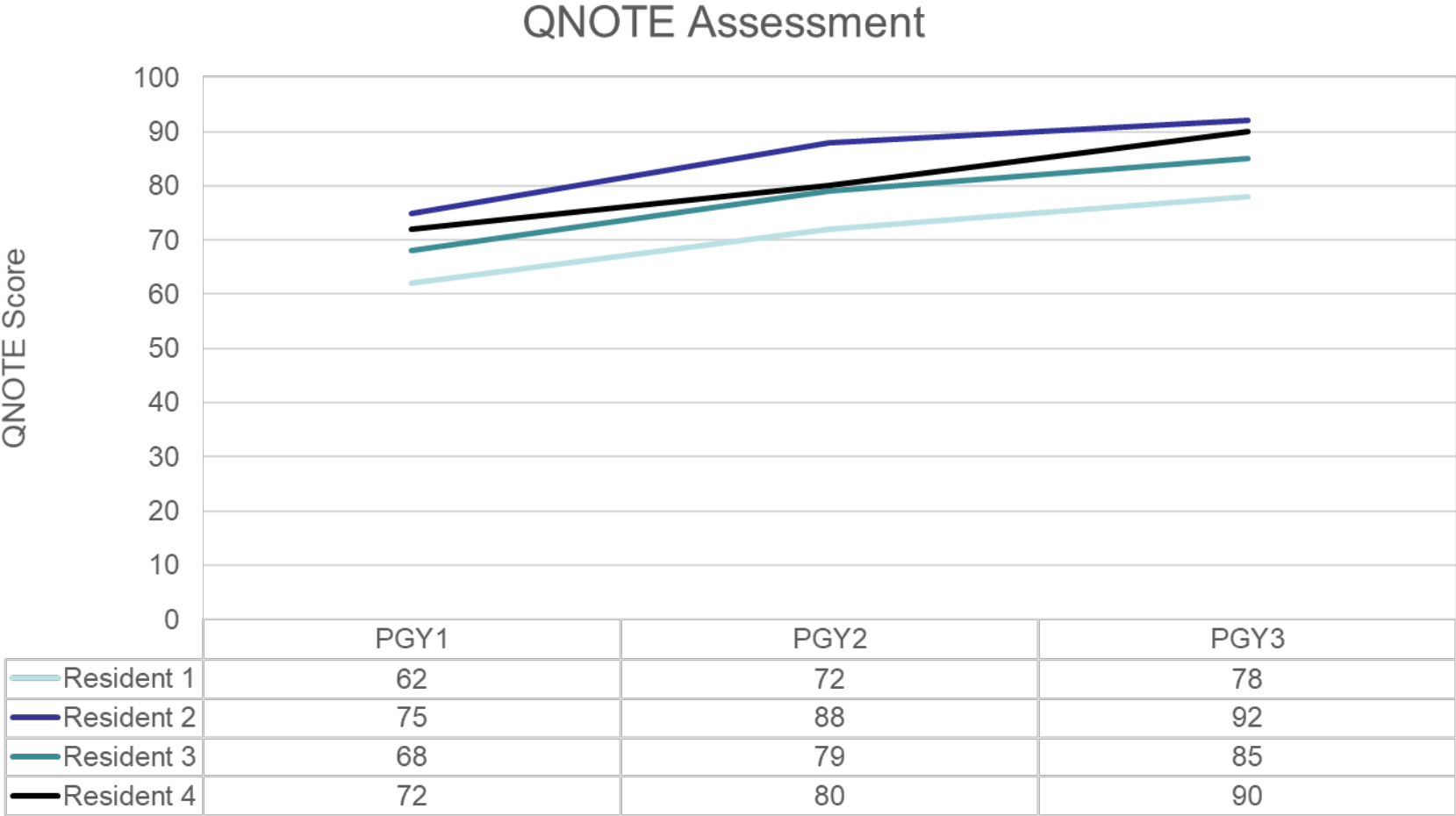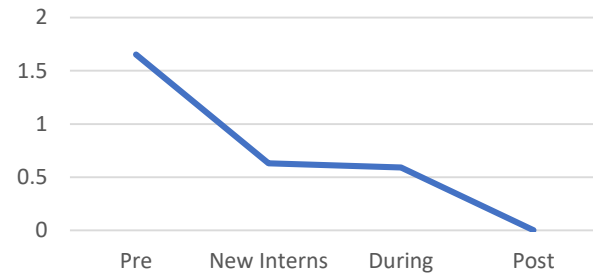
	PGY1	PGY2	PGY3
Resident 1	62	72	78
Resident 2	75	88	92
Resident 3	68	79	85
Resident 4	72	80	90
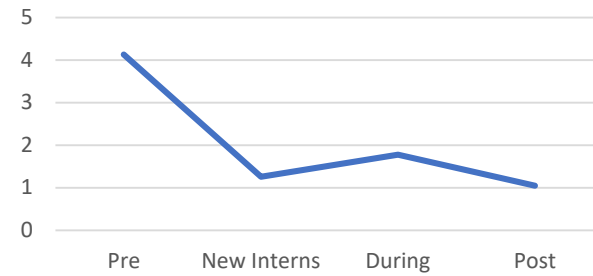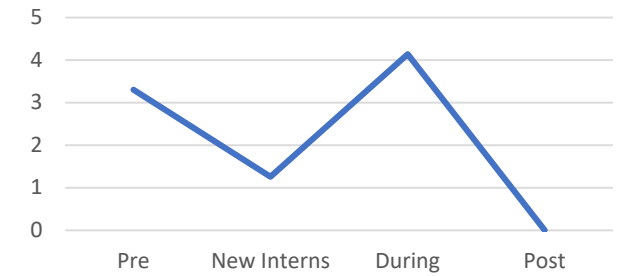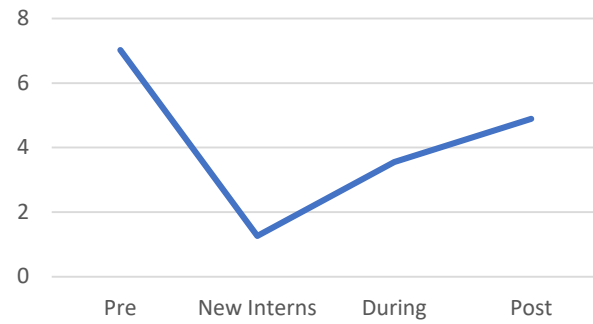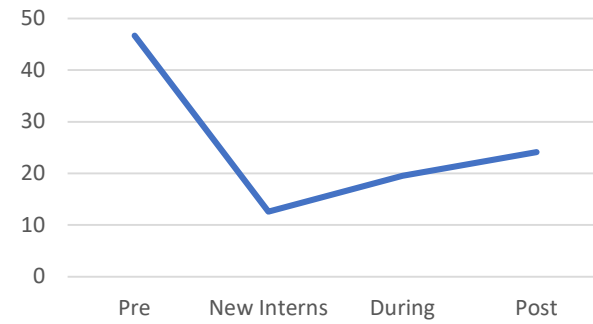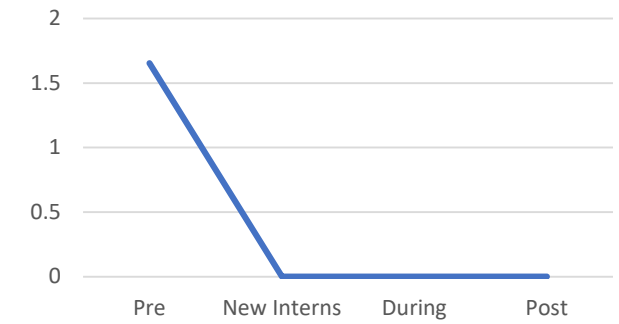
Results

Results

Agreed and Documented
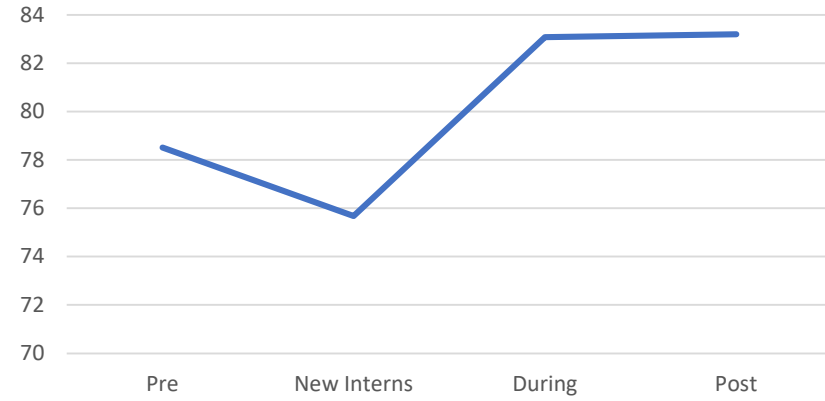
Disagreed
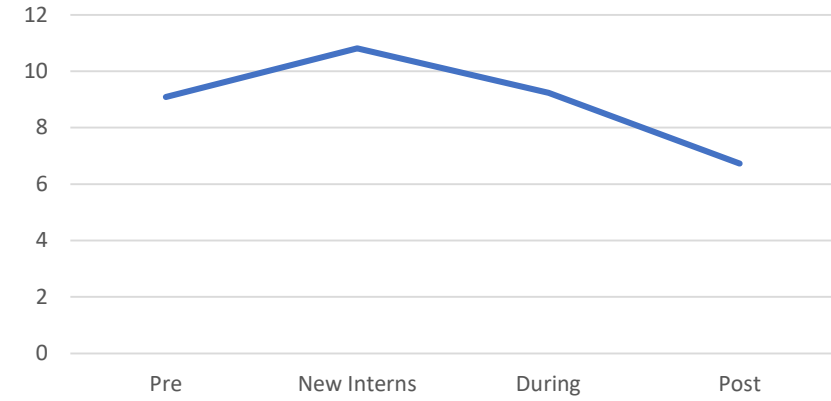
No response
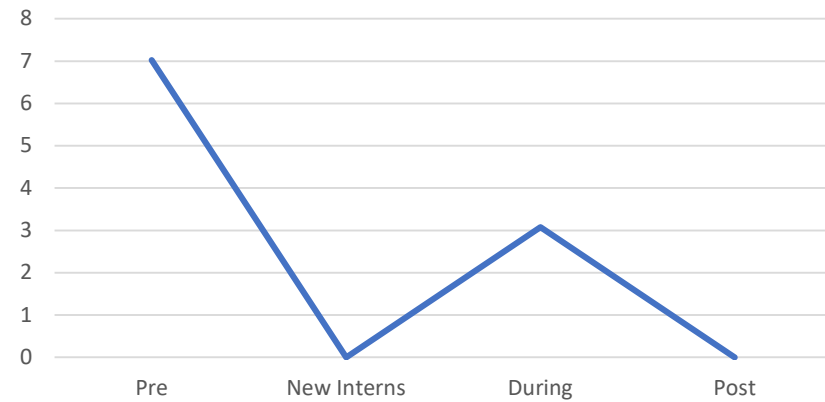
Unable to determine

Epic CEO Report- Provider Efficiency Profile

Provider Efficiency
P R O F I L E

Provider Insight

Background

_____ is a Physician in Family Medicine who has been using Epic at your organization for about 8 years. He/she is slightly less efficient than the average provider at Sparrow Health System based on the volume of work he/she is responsible for. _____ saw 11.7 patients per day in this PEP

Assessment: Focus on In Basket

Based on how _____ uses the system, when reviewed in the context of his/her peers, the largest opportunity for improvement appears to be In Basket. Using QuickActions to automatically complete multiple steps for common messages can be a great way for providers to save up to a minute per message. QuickActions are commonly used for things such as informing support staff to contact a patient about a result, completing refill requests, and responding to common questions from support staff. Review the high volume messages for _____ and consider ways to reduce messages such as addressing more refills proactively during the visit to reduce refill volume or creating written protocols to cut down on the volume of orders needing cosigning. Some organizations have found that moving support staff workstations to be closer to providers has cut

Provider:

Provider
Specialty
Department
Previous Period 11/01/16-11/21/16

User ID:
Provider Type:
Provider Specialty
Provider Department
Department Specialty
EMP Creation Date:
Number of Peers
Days of UAL
Days Out of Contact

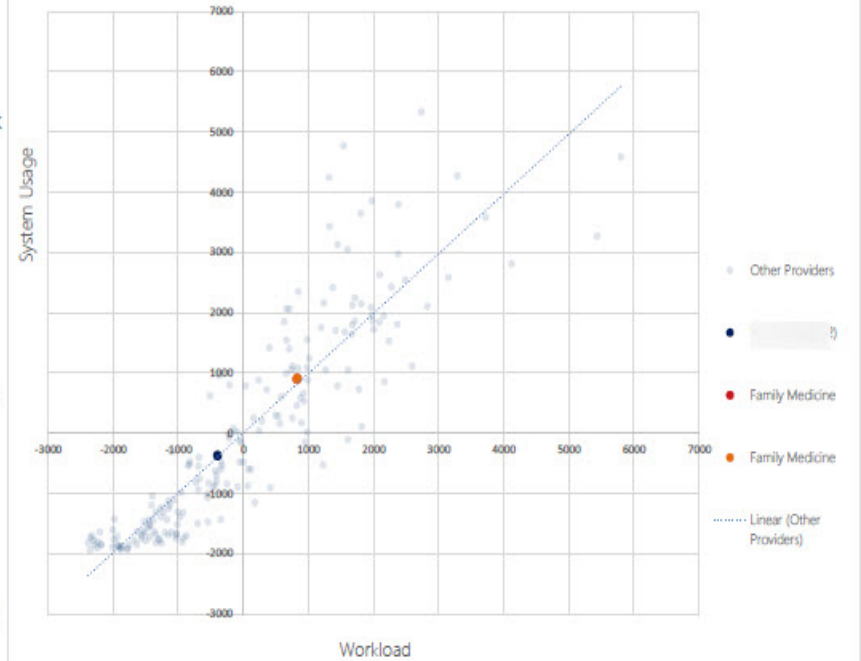Provider Workload and System Usage (Physicians Only)

- Other Providers
- _____
- Family Medicine
- Family Medicine
- Linear (Other Providers)

System Usage Overview

System Activity by Workflow (Per Day of System Use)

Other

System Activity in Select Workflows for Wit, S (4201782)

Thank you

Questions?

References

- Burke HB, Hoang A, Becher D, Fontelo P, Liu F, Stephens M, et al. QNOTE: an instrument for measuring the quality of EHR clinical notes. J Am Med Inform Assoc. 2014;21(5):910-6.

- Burke, H. B., Sessums, L. L., Hoang, A., Becher, D. A., Fontelo, P., Liu, F., … Gimbel, R. W. (2015). Electronic health records improve clinical note quality. Journal of the American Medical Informatics Association : JAMIA, 22(1), 199–205. http://doi.org/10.1136/amiajnl-2014-002726

- Stephens MB, Gimbel RW, Pangaro L. Commentary: The RIME/EMR scheme: an educational approach to clinical documentation in electronic medical records. Acad Med. 2011;86(1):11-4.

- Tierney, M. J., Pageler, N. M., Kahana, M., Pantaleoni, J. L., & Longhurst, C. A. (2013). Medical Education in the Electronic Medical Record (EMR) Era. Academic Medicine, 88(6), 748-752. doi:10.1097/acm.0b013e3182905ceb

- Matthew McNeill, et. al., (2013) Morning Report: Can an Established Medical Education Tradition Be Validated?. Journal of Graduate Medical Education: September 2013, Vol. 5, No. 3, pp. 374-384.

- William Lobst, et. al., (2013) Internal Medicine Milestones. Journal of Graduate Medical Education: March 2013, Vol. 5, No. 1s1, pp. 14-23.

- Radhakrishnan, P. (2013) Demystifying Morning Report: How to Conduct a Stimulating Morning Report, Part I. SGIM Forum: 36(9): 9, 15.

- "About CCDS Certification." ACDIS, acdis.org/certification/about.

Alliance of Independent Academic Medical Centers

Advocate Health Care
Tomorrow starts today.

Sparrow

Orange Park
MEDICAL CENTER