## Quantifying the Burden of Documentation in the Electronic Health Record in Outpatient Orthopaedic Surgery Encounters

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INTRODUCTION: Documentation within the electronic health record (EHR) is a time-consuming, onerous task that contributes to physician burnout and interferes with both clinical and personal responsibilities. There is a paucity of literature on the burden of the EHR, most specifically the documentation process, in the field of orthopaedic surgery. METHODS:

A retrospective, quality improvement study of outpatient EHR data from faculty within the Department of Orthopaedics at an urban, academic medical center and satellite facilities over a 1-year period was conducted. Epic Signal data, which provides detailed provider-level information were used to quantify the burden of EHR-related tasks including documentation. Metrics included the number of appointments per day, average time in notes per day, pajama time, progress note length, and percent of appointments closed per day. Pajama time is defined as the average number of minutes a provider spends on charting activities on weekdays outside the hours of 7:00 AM - 5:30 PM or outside scheduled hours on weekends or non-scheduled holidays. Physicians were categorized based on orthopaedic subspecialty and experience (years in practice).

**RESULTS**:

52 providers from 9 orthopaedic subspecialties were included. The average number of appointments per day were 23.4 and the average progress note length was 3,427 characters. The average time in notes and pajama time were 21.4 and 27.1 minutes per day, respectively. The average percentage of appointments closed the same day was 65.6% (Table 1). Sports/Shoulder had the highest average number of appointments per day (32.0) compared to Spine, which had the fewest (11.3). Joints had the longest average progress note length at 5,459 characters and largest average time in notes per day (30.2 minutes). However, Tumor and Trauma demonstrated the greatest average pajama times (56.9 and 71.2 minutes, respectively). General orthopaedists had the highest percentage of appointments closed the same day at 97.4% (Table 2). Physicians with 5 years or less experience had the highest percentage appointments closed the same day (74.8%) while having the largest pajama time (40.3 minutes). Interestingly, providers with >20 years close a similar percentage of appointments the same day (73.5%), but with only 20.4 minutes of pajama time. Additionally, those between 15 and 20 years of experience had a markedly reduced percent of appointments closed the same day (24.4%) (Table 3).

## DISCUSSION AND CONCLUSION:

Quantification of EHR metrics provides a baseline understanding of the orthopaedist's experience with the EHR, including the documentation process, and its resultant burden on both clinical and personal obligations. Analysis of EHR metrics using Epic Signal data is a novel method to identify groups of individuals for targeted efficiency improvement and to

future.

evaluate	the			utility	of workflow						interventio	in			the					
Metric	Mean	SD	Min	Max	Average Velow for All Physicians Based on Subspecialty: N = 52							Average Value for AB Physicians Based on Years in Practice; N = 52								
Appointments per Day	23.4	10.3	1.0	55.0				Foot and	Sports at	nd		Hand as Upper	nd r		Menix	0 < Years <= 5	5 < Years <= 10	10 < Years <= 15	15 < Years <= 20	> 20 Yours
Progress Note Length	3,427	1,804	545	11,911	Metrie	General	Joints	Atkle	Shoulde	e Tumo	r Pediatr	ics Estreni	ity Treas	a Spine	Number of Frividers	15	13	6	3	12
Time in Notes per Annointment	3	2	0	19	Number of Previders	2	2	7	12	2			4	\$	Appointments per Day	29.1	23.7	26.8	33.8	20.6
Tane at rocks per reponducent			0		Apponiments per Day	18.3	29.8	20.5	32.0	18.6	14.0	23.5	29.8	11.3	Progress Note Largeh	1,934	4,008	3,348	2,997	2,299
Time in Notes per Day	21.4	16.2	0.0	128.5	Program Note Langes	2,415	3,409	3,199	3,135	3,238	2,101	3,947	2,234	3,085	Time in Notes per Appointment Time in Notes and Day	15.4		15.8	7.6	224
Pajama Time	27.1	29.2	0.0	196.8	Time in Notes per Apponintent		39.2	22.0	21.0		10.1				Painte Titer	43.5	25.1	23.4	15.9	20.4
r opinin r no	20111	10710	0.0	1,7000	The in costs per Day	14.1	20.4	43.9	40.0	19.0	19.1	43.0		10.2	Time On Unscheduled Dava	35.5	36.6	25.2	12.6	20.5
Time On Unscheduled Days	29.0	17.2	1.9	103.7	The Or Deside and Albert	6.5	30.5	20.5	20.1	20.9	213	20.7	11.4	27.2	Time Outside of 7 AM to 7 PM	16.5	13.3	18.3	6.5	21.6
Time Outside of 7 AM to 7 PM	16.4	16.2	0.1	103.0	Time On Chickeolece Days	4.9	17.4	14.9	16.1	43.0	16.5	5 36.1	10.2	8.0	Time Outside Scheduled Hours	27.5	21.0	18.1	5.5	22.8
	1011	1018		10010	Time Outside Scheduled Hours	10.1	29.4	22.9	18.3	25.6	26.3	16.6	31.6	18.3	Textus of Appointment Calify Same Day	7474	00.74		2003	12.54
Time Outside Scheduled Hours	21.7	17.3	0.0	82.7	Percent of Appointments Closed Same Day	97.4%	73,0%	55.9%	72.4%	23.5%	47.0%	70.3%	36.0%	91.6%	Netos:					
Percent of Appointments Closed Same Day	65.6%	33.2%	0.0%	100.0%	Nutr:										<ol> <li>There was no pajama time available for February 202.</li> <li>Yaam in reactice were calculated based on enduation</li> </ol>	). a from followship or residency.				
Notes:					[1] There was no pajaran time available for February Table 2. Opportification of baseling orthorogen	2023. lic suronon FHR	metrics b	v orthonao	die subsre	cialty.					Table 3. Quantification of baseline orthops	aedic sargeon EHR me	tries by years in pra	ctice.		

There was no pajama time available for February 2023.
 There were 52 physicians included in this analysis.

Table 1. Quantification of baseline orthopaedic surgeon EHR metric: