



Every minute counts:

using health information technology to reduce chart abstraction times

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Significance

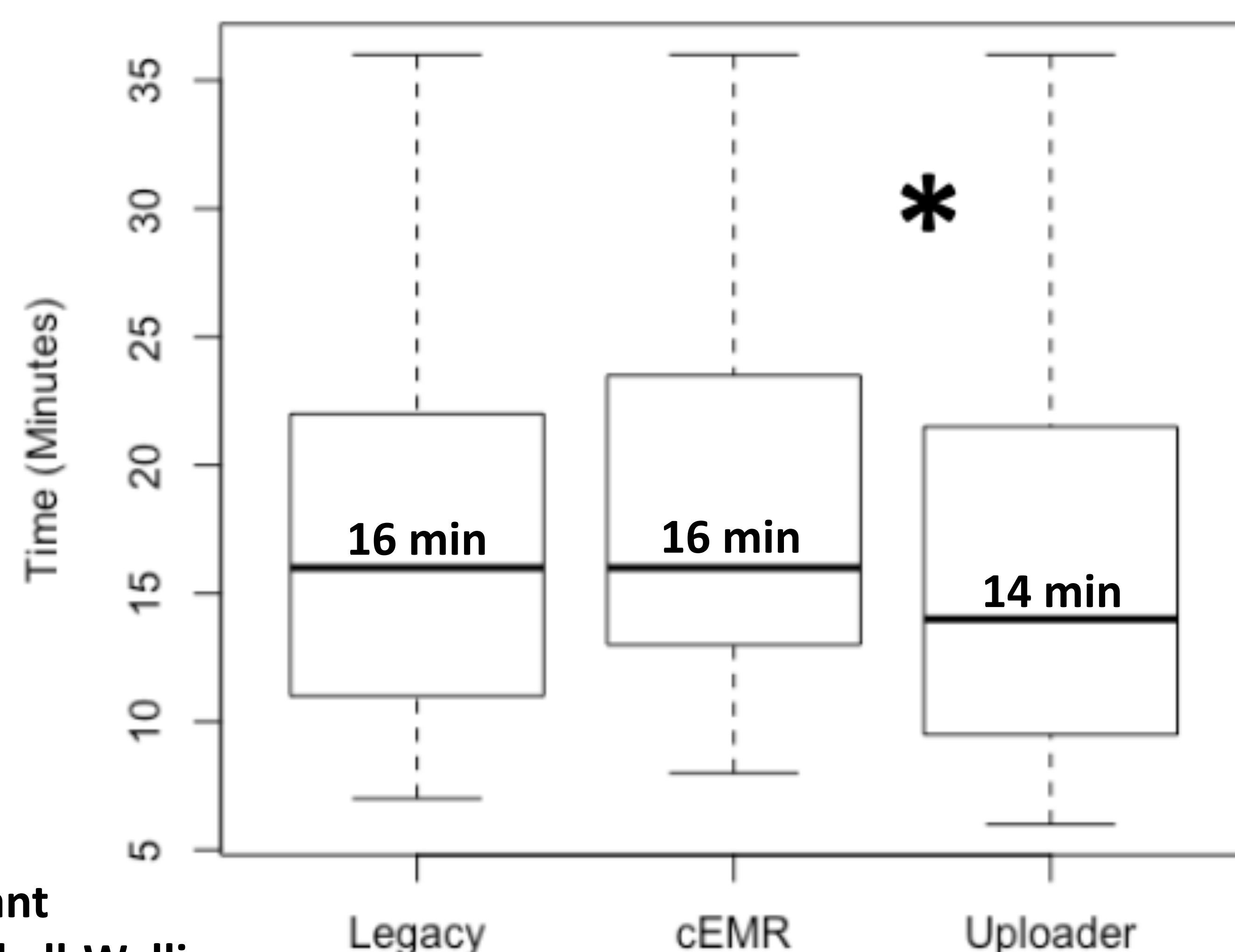
Quality improvement specialists are under increased demands due to the increasing quantity and complexity of quality metrics and associated databases and pressures to not only collect, but act on data as well. Efficient, yet reliable data abstraction is necessary for any quality improvement initiative. Can information technology help to increase this efficiency?

Results

No difference in case characteristics between study phases

	Legacy (N=107)	cEMR (N=115)	Uploader (N=68)	Total	p
Inpatient Status (%)	65 (61)	71 (62)	43 (63)	179	0.947
Elective Surgery (%)	81 (76)	90 (78)	50 (74)	221	0.759
Surgical Specialty (%)					0.922
General Surgery	81 (76)	90 (78)	49 (72)	220	
Plastics	15 (14)	14 (12)	11 (16)	40	
Vascular	11 (10)	11 (9.6)	8 (12)	30	
Length of Stay (%)					0.262
<1 day	39 (36)	30 (26)	15 (22)	84	
1-3 days	27 (25)	39 (34)	22 (32)	88	
4-7 days	21 (20)	28 (24)	21 (31)	70	
>7 days	20 (19)	18 (16)	10 (15)	48	
Any Complication (%)	5 (4.6)	7 (6.1)	4 (5.9)	16	0.889
Any Hospital Readmission (%)	5 (4.6)	1 (0.9)	3 (4.4)	9	0.205

Significant reduction in case abstraction times with uploader



* Denotes significant difference on Kruskal-Wallis

Population and Methods

NSQIP General Vascular Procedure Targeted with complete case collection for 16 procedures

Prospective observational study of abstraction times during three phases of EMR implementation.

- Excluded initial 25 cases abstracted in a new system
- Excluded outliers with time >2 standard deviations from the median time.

Legacy (2016)	Comprehensive EMR (2017)	Epic Uploader (2018)
5 applications	1 application - Epic	1 application - Epic
Included scanned hand written notes	Digital notes – cluttered with “copy and paste”	Digital notes – cluttered with “copy and paste”
Bulky and long OR log	Streamlined OR log	Streamlined OR log
Combination of industry standard and proprietary applications	Add documentation of phone calls, emails and portal communications	Automated data upload – requires manual verification

Current Uploader Variables	Future General Variables	Future Colorectal ERAS
Age, race, sex	Procedure start/stop times	First VTE chemoppx dose
Height and Weight	Post-op ICD-10	First postop liquids by order
Wound Class	Inpatient/Outpatient status	First postop solids by order
ASA Class	Elective/emergency surgery	Foley removal
Operation date	Primary Payer	First postop mobilization
Anesthesia technique	Wound closure	First BID mobilization
Labs	Surgical Service	

Lessons Learned

- Time reduction (10-15%) was seen only after implementation of automated data abstraction through an uploader tool.
- Comprehensive EMRs alone may not decrease abstraction times if all abstraction must still be performed manually.
- Digital notes carry the added burden of “copy and paste”
- Automated data abstraction may save time, but improvements will be incremental as optimization and discrete data entry improves
- Automated abstraction still requires manual verification