Supplemental Digital Appendix 1

All Electronic Health Record Click Types for Attribution of Primary Interns on Internal Medicine Inpatient Teams

METRIC ID NUMBER	METRIC NAME
34005	Notes viewed
17304	Related encounters requested
34010	Notes activity and navigators accessed
20620	Visit Navigator template loaded
14200	Printing occurred
17104	Patient Encounter opened
34111	Flowsheet activity accessed
34101	Inpatient MAR activity accessed
20040	SmartText used
17227	Note viewed in Chart Review
20030	SmartLink used
17234	Order viewed in Chart Review
34200	Barcode scanned
17108	Order list changed
34707	Flowsheet accepted
34122	Inpatient Sign Out Report activity accessed
34150	Order Reconciliation Section accessed
34706	Flowsheet viewed
34141	MAR accessed
20045	SmartPhrase used
49008	Visit Navigator Flowsheet section is accessed
20001	In Basket message viewed
17106	Medications activity accessed
48000	Order Verification Activity accessed
48003	Verified order dispensed
34146	MAR administration form accessed
17338	BestPractice Advisories displayed
49077	Narrator Event Log accessed
49031	Narrator accessed
34105	Inpatient Education activity accessed
34142	MAR administration accepted
49017	Visit Navigator Flowsheet section viewed
34127	Inpatient Orders section accessed
17015	Problem List activity accessed

17336	BestPractice Advisories viewed
24550	Patient Station accessed
60012	Sign clinical note
34100	Inpatient Care Plan activity accessed
49002	ED Visit Navigator Disposition section accessed
48004	i-Vent edited or viewed (pre-2016)
34119	Orders section accessed
49005	Viewed Discharge Instructions
52055	Imaging Schedule Orders Report Row accessed
15651	Form viewed
24058	Patient Summary viewed from Bed Planning
49018	Visit Navigator Flowsheet section accepted
17250	Problem List accessed
49004	Visit Navigator charge capture section viewed
60010	Pend clinical note
24299	Expected Discharge section accessed
17518	BPA follow-up action applied
17017	Envelope form in Letters activity accessed
34009	Viewed Sign Out Report
17121	Demographics activity selected
35030	Patient-based record exported
49003	Visit diagnoses modified
34123	Inpatient Intake/Output activity selected
17228	Encounter viewed in Chart Review
49015	Vist Navigator SmartForm Flowsheet section viewed
17165	Multistep and multistep collection tasks entry form accessed
34117	Opened Inpatient Order Set Activity
35020	Patient based RW report exported
17280	Chart searched
15136	Registration/ADT workflow initiated
72009	Home tab accessed in Care Everywhere activity
17188	Multistep and multistep collection tasks completed
34022	Saved New Sign Out Report Comment
15137	Registration/ADT workflow finished
20093	PCP History accessed
60005	View clinical notes section
49001	ED Visit Navigator Arrival section accessed
19125	Patient Chart Advisories viewed
49010	ED Visit Navigator Follow-Up section accessed
48001	Order History Activity accessed
17333	Actions taken from a BestPractice Advisory

51091	Order inquiry accessed
60000	Print notes from inpatient notes activity
49032	Orders accessed from Narrator
34175	Inpatient Work List task edited
34120	Inpatient Fast Note activity accessed
34137	Patient Education information viewed
17046	Charge Capture section accepted
17158	Visit diagnoses viewed
17152	OB and Lactation Status section accessed
60015	Cosign clinical note with attestation
34167	Patient Education documented on
17060	Patient Implants section or activity accessed
49061	Orders acknowledged in Narrator
20621	Visit Navigator section added to navigator
17102	Progress Notes navigator section accessed
34704	Intake/Output activity accessed
20500	Successful Break-the-Glass
49076	Flowsheet Filed in Popup/Entry activity
34051	OB and Lactation Status accessed
60006	View clinical note from copy previous
49078	Narrator Event Log accessed
17281	Chart search results viewed
15604	Patient Emergency contacts grid accessed
41038	Account Note form accessed
17251	Problem List modified
15502	Coverage Additional Items subcomponent accessed
15505	Coverage Level Copay subcomponent accessed
15540	Coverage FC form Condensed Summary HTML subcomponent accessed
72011	Documents tab accessed in Care Everywhere activity
34118	Order sets accessed
17126	Allergies activity accessed
48020	i-Vent viewed
17259	Patient SnapShot viewed
15542	Coverage FC form Single Member Info subcomponent accessed
49054	ED Workup Activity viewed
48021	i-Vent created or edited
24032	ADT View Only Admission activity accessed
17148	Communication Management navigator section accessed
20075	Prelude Documents list accessed
34110	Inpatient Synopsis activity accessed
24205	Provider Info subcomponent accessed

49067	Flowsheet filed in Narrator
17124	Chief Complaint navigator section accessed
72013	Other Results tab accessed in Care Everywhere activity
41078	Hospital Billing Coverage Info accessed
17040	Diagnosis association updated
49033	Flowsheets accessed from Narrator
49030	ED Narrator Note accessed
72012	Lab Results tab accessed in Care Everywhere activity
24552	Form Reprints report viewed
15047	Patient Address subcomponent accessed
15048	Patient Demographics subcomponent accessed
15606	Patient Employer Information subcomponent accessed
34997	Time for Inpatient Medication adjusted
15167	Hospital Accounts form accessed from HAR Advisor
34012	Care Plan modified
24015	Event Management activity accessed
49037	ED Visit Navigator Clinical Impressions section accessed
49064	Note filed in Narrator
34700	LDA properties accessed
15501	Coverage Subscriber Employment subcomponent accessed
15506	Coverage Demographics subcomponent accessed
34014	Care Plan progress modified
17664	Synopsis activity accessed
17239	Note printed from Chart Review
20510	Break-the-Glass canceled
17821	Care Teams viewed
17822	Care Teams exited
15525	Coverage FC form Plan and Group Number subcomponent accessed
34701	LDA properties accepted
15544	Coverage FC form Auth Phone and Group Name subcomponent accessed
41087	Hospital Billing Account Maintenance accessed
52054	Radiology Protocol Work List Row accessed
15541	Coverage FC form Group number and Subscriber ID subcomponent accessed
17142	SmartForms accessed
15602	Patient Documents/Notices and Misc Info subcomponent accessed
72010	Summary tab accessed in Care Everywhere activity
34152	MAR administration edited
15611	Patient PCP Display Only HTML subcomponent accessed
15067	Hospital Accounts form accessed
17215	Release Orders activity accessed

35015	Detailed report viewed in Reporting Workbench
15532	Coverage FC form Covered Through subcomponent accessed
24246	Discharge Date and Time subcomponent accessed
24248	Discharge Disposition and Destination subcomponent accessed
24249	Discharge Comments subcomponent accessed
49050	ED Disposition Activity viewed
34143	MAR administration aborted
41077	Hospital Billing Account Summary accessed
41109	Hospital Account Note accessed
15621	Patient Relationships subcomponent accessed
24250	Discharge Bed Status and Service Priority subcomponent accessed
24251	Discharge Provider subcomponent accessed
24252	Discharge HTML Summary subcomponent accessed
24253	Discharge Code and Means of Departure subcomponent accessed
24553	ADT Transfer Accommodation Code & Reason subcomponent accessed
24558	ADT Transfer Destination subcomponent accessed
24566	ADT Transfer Patient Class & Service subcomponent accessed
49025	Edited Discharge Instructions
24560	ADT Transfer Date and Time subcomponent accessed
24561	ADT Transfer HTML Display subcomponent accessed
24563	ADT Transfer Old Bed Status and Service subcomponent accessed
24565	ADT Transfer Old Bed Pend with Check Box subcomponent accessed
24567	ADT Transfer Providers subcomponent accessed
17233	Media viewed in Chart Review
17380	Automatic actions performed by a BestPractice Advisory
15402	Guarantor Employer Information subcomponent accessed
15411	Guarantor Demographics subcomponent accessed
17325	Episode viewed
24059	Bed Planning request opened
49012	After Visit Summary Viewed
49034	Medications accessed in Narrator
24201	Diagnoses subcomponent accessed
24202	Procedures subcomponent accessed
24227	Expected Date and Time subcomponent accessed
24520	ADT L&D Delivery Method/Multiple Birth subcomponent accessed
15632	Documents list accessed
34135	Patient device removed
72002	Care Everywhere Request Outside Records activity accessed
49016	Visit Navigator SmartForm Flowsheet section accepted
15619	Registration Research subcomponent accessed
24206	Other Provider subcomponent accessed

15655	Benefit Collection opened
34133	Patient device added
34157	Patient Education title added
60017	Delete clinical note
60013	Cosign clinical note
17824	Care Teams modified
17225	Order Entry activity accessed
15405	Guarantor Account Coverage Summary subcomponent accessed
15406	Guarantor Account Miscellaneous Info subcomponent accessed
17623	Communication Management accessed
17624	Communication Management exited
56004	Procedure event log accessed
17321	New alternative orders accepted
49024	Visit Navigator Follow-Up section accepted
48007	Prescription history activity accessed
34994	Inpatient Adjust Times activity viewed
24214	Admission Date and Time subcomponent accessed
24216	Room Assignment subcomponent accessed
24229	Service subcomponent accessed
24263	Room and Bed Needs subcomponent accessed
34015	Care Plan reviewed
41115	Universal Charge Line details viewed
17213	Pharmacy for encounter modified
24224	Arrival Date and Time subcomponent accessed
24225	Means of Arrival subcomponent accessed
17136	Episodes activity accessed
17171	Document viewed
24204	Admission Comments subcomponent accessed
17041	Allergies modified
49063	Infusion stopped in Narrator
49060	MyNote opened
15172	Medicare as Secondary Payor Part I form accessed
15173	Medicare as Secondary Payor Part II form accessed
15174	Medicare as Secondary Payor Part III form accessed
15037	Coverage Summary form accessed
60008	View FastNote activity
17319	Alternative selection form aborted
17218	Home Medications modified
17622	Communication printed
41035	Coding form selected
17784	Results acknowledged in IB

18181	Results reviewed in IB
15175	Medicare as Secondary Payor Part IV form accessed
34124	Inpatient Data Validate activity accessed
15653	MSPQ opened
60021	PEND ATTESTATION TO CLINICAL NOTE
17117	SmartSets activity selected
60002	Route from inpatient notes activity
17320	Alternative orders not taken and original order placed
34145	MAR administration timeout
34172	Patient Education assessment filed
15012	Registration Coverage HTML member table accessed
17237	Order printed from Chart Review
24571	L&D Status for Non-L&D Workflows accessed in EPT workflow
41014	Hospital Account History accessed
60016	Edit attestation on clinical note
15403	Guarantor Account Add'l Items HTML display subcomponent accessed
1103	Patient Sidebar report accessed
15043	Account Summary form accessed
17210	Child order released for a procedure order
49035	Events accessed in Narrator
38205	Coding Query viewed
17128	Patient Instructions navigator section accessed
24240	Admission Source and Level of Care subcomponent accessed
15013	Edit Claim Information window accessed
17257	Results Review printed
41039	Hospital Billing Tx Inquiry accessed
17139	Clinical References activity accessed
49014	ED Visit Navigator Arrival section accepted
17039	Chief Complaint modified
41114	Hospital Billing report accessed
17252	Problem List reviewed
34708	Flowsheet data copied forward
49062	Order completed in Narrator
49013	Orders accessed in Single Screen Disposition
17208	Medication taking status modified
15143	New Coverage (CVG) created
15144	New hospital account created
34023	Deleted Sign Out Report Comment
49052	ED Triage Activity viewed
17133	Contacts navigator section accessed
34128	Patient device data accessed

34702	LDA removed
24554	ADT Transfer Acuity and LOC subcomponent accessed
24556	ADT Transfer Bed Manager Info subcomponent accessed
24568	ADT Transfer Room & Bed Type subcomponent accessed
94023	Report viewed
34025	Marked Discharge Instructions as Reviewed
49075	One-Step Medication filed
49036	Staff events accessed in Narrator
24150	Encounter Events Summary accessed
41101	Hospital Account information accessed from Charge Review Workqueue
26026	Contacts navigator section viewed
38007	Deficiency Completion activity accessed
17277	Specialty comments modified
49065	Result edited in Narrator
34052	OB and Lactation Status accepted
48008	Label History Activity accessed
17103	Addendum opened
17302	Active Guidelines web integration record accessed
17330	Immunization record saved
49066	Staff updated in Narrator
15177	Medicare as Secondary Payor Part V form accessed
17312	Active Guidelines is launched
17619	Letters activity accessed
17620	Letters activity exited
17905	SmartForm saved
34158	Patient Education point added
17516	Letter status changed
41045	Hospital Billing Unit Charge Entry accessed
94005	Integration link opened
15146	View Only MSP Questionnaire accessed
17904	SmartForm viewed
34703	Existing LDA added
49040	Clinical References viewed
41092	Account Status Summary accessed
41037	Hospital Billing Liability Bucket Information accessed
94240	Patient photo taken from Haiku
17515	Letter printed
17134	Vitals navigator section accessed
17200	Research Studies activity accessed
34163	Patient Education resolved
49059	Event accepted in Narrator

56010	Procedure Event Log accessed
24247	Discharge Diagnoses subcomponent accessed
15102	Coverage Termination Questionnaire accessed
49041	Clinical References accepted
24503	Event Management activity accessed
34040	Education Sidebar accessed
15142	New guarantor account created
17207	Medication note saved
34144	MAR printed
49070	Patient Events Log viewed
15654	MSPQ view only
17032	Printing from Comm Mgt section
17174	Document created
17223	Image edited
17275	Document printed
55006	Treatment plan accessed
15132	MSP Pull EGHP Info window accessed
15182	Medicare as Secondary Payor Part V form page 3 accessed
17035	Benefit plan changed
34168	Patient Education documentation deleted
41040	Account accessed within Combine Accounts form
49006	ED Patient Events Log activity is accessed
55005	Treatment plan modified
15652	Registration subcomponent viewed
17331	Immunization record deleted
49021	ED Visit Navigator Disposition section accepted
89040	LDA created via procedure documentation
17457	Outside historical medications filed
34125	Inpatient BestPractice Alerts navigator accessed
15181	Medicare as Secondary Payor Part II form page 2 accessed
17042	Allergies timed out
17322	External link in an alternative form clicked
17618	Letter viewed
26030	Contacts section saved
41094	Claim Information form accessed
60022	Order Canceled from Note
15176	Medicare as Secondary Payor Part IV form page 2 accessed
17236	Encounter printed from Chart Review
17627	FYI flag changed
24210	Previous Admissions subcomponent accessed
24230	ED Complaint subcomponent accessed

34165	Patient Education marked not applicable
34166	Patient Education marked applicable
41095	Account Summary accessed from Enterprise Guarantor Summary
49019	ED Visit Navigator Clinical Impressions section accepted
49074	ED Wet Read report viewed
15001	Add Account window opened in patient registration
17146	Image imported
17150	Result note filed
17344	Immunization registry data requested
20076	Document Information form accessed
15014	Edit Claim Information window for new claim accessed
15153	Registration Hospital Account questionnaire accessed
15520	Coverage FC form HTML Summary subcomponent accessed
15521	Coverage FC form Plan and All Group Info subcomponent accessed
15522	Coverage FC form Signature and Accept Assignment subcomponent accessed
15523	Coverage FC form Payor and Sequence Number subcomponent accessed
15524	Coverage FC form Non-Managed Care Effective Dates and Coverage grid subcomponent accessed
17119	Letters activity accessed
41024	Hospital Billing Tx Details accessed
41034	Code Integration accessed
41107	Hospital Billing Bucket Information accessed
41120	Claim source accessed
53018	Patient information accessed through Edit Claim Vals

Supplemental Digital Appendix 2

Resident Prioritized Electronic Health Record Click Types for Attribution of Primary Interns on Internal Medicine Inpatient Teams

Metric ID Number	Metric Name	Resident Circles	Resident Stars
14200	Printing occurred	9	2
17015	Problem List activity accessed	7	1
17102	Progress Notes navigator section accessed	10	5
17104	Patient Encounter opened	4	1
17106	Medications activity accessed	10	4
17108	Order list changed	8	1
17126	Allergies activity accessed	5	1
17128	Patient Instructions navigator section accessed	11	1
17134	Vitals navigator section accessed	12	4
17227	Note viewed in Chart Review	11	6
17228	Encounter viewed in Chart Review	7	1
17234	Order viewed in Chart Review	10	4
17239	Note printed from Chart Review	6	1
17280	Chart searched	5	1
20040	SmartText used	4	1
20045	SmartPhrase used	6	
24247	Discharge Diagnoses subcomponent accessed	6	
24248	Discharge Disposition and Destination subcomponent accessed	5	
24249	Discharge Comments subcomponent accessed	3	
34005	Notes viewed	10	4
34010	Notes activity and navigators accessed	4	2
34101	Inpatient MAR activity accessed	11	7
34110	Inpatient Synopsis activity accessed	3	1
34111	Flowsheet activity accessed	10	1
34122	Inpatient Sign Out Report activity accessed	13	9
34123	Inpatient Intake/Output activity selected	8	2
34127	Inpatient Orders section accessed	13	7
48001	Order History Activity accessed	5	
49005	Viewed Discharge Instructions	7	2
72002	Care Everywhere Request Outside Records activity accessed	8	1

Supplemental Digital Appendix 3

Author Prioritized Electronic Health Record Click Types for Attribution of Primary Interns on Internal Medicine Inpatient Teams

METRIC ID NUMBER	METRIC NAME
14200	Printing occurred
17015	Problem List activity accessed
17040	Diagnosis association updated
17102	Progress Notes navigator section accessed
17104	Patient Encounter opened
17106	Medications activity accessed
17108	Order list changed
17126	Allergies activity accessed
17128	Patient Instructions navigator section accessed
17134	Vitals navigator section accessed
17227	Note viewed in Chart Review
17228	Encounter viewed in Chart Review
17233	Media viewed in Chart Review
17234	Order viewed in Chart Review
17239	Note printed from Chart Review
17280	Chart searched
20001	In Basket message viewed
20040	SmartText used
20045	SmartPhrase used
24210	Previous Admissions subcomponent accessed
24230	ED Complaint subcomponent accessed
24246	Discharge Date and Time subcomponent accessed
24247	Discharge Diagnoses subcomponent accessed
24248	Discharge Disposition and Destination subcomponent accessed
24249	Discharge Comments subcomponent accessed
24253	Discharge Code and Means of Departure subcomponent accessed
34005	Notes viewed
34010	Notes activity and navigators accessed
34101	Inpatient MAR activity accessed
34110	Inpatient Synopsis activity accessed
34111	Flowsheet activity accessed
34122	Inpatient Sign Out Report activity accessed
34123	Inpatient Intake/Output activity selected
34127	Inpatient Orders section accessed

34150	Order Reconciliation Section accessed
34997	Time for Inpatient Medication adjusted
48001	Order History Activity accessed
48007	Prescription history activity accessed
49001	ED Visit Navigator Arrival section accessed
49002	ED Visit Navigator Disposition section accessed
49003	Visit diagnoses modified
49005	Viewed Discharge Instructions
49008	Visit Navigator Flowsheet section is accessed
49030	ED Narrator Note accessed
49032	Orders accessed from Narrator
49033	Flowsheets accessed from Narrator
49034	Medications accessed in Narrator
49035	Events accessed in Narrator
60000	Print notes from inpatient notes activity
72002	Care Everywhere Request Outside Records activity accessed

Supplemental Digital Appendix 4
Attribution of Primary Interns on Internal Medicine Inpatient Teams Decision Points in Model 2

	Path (decision point)	Validation Data		
		Count	No	Yes
0	Root Node	642	91.1%	8.9%
1	Progress note author = Yes	72	50.0%	50.0%
2	Progress note author = No	570	96.3%	3.7%
3	PGY = 2,3	22	100.0%	0.0%
4	PGY = 1	50	28.0%	72.0%
5	PGY = 3	173	100.0%	0.0%
6	PGY = 2	192	100.0%	0.0%
7	PGY = 1	205	89.8%	10.2%
8	Resident placed orders on patient for specified date < 0.01	43	30.2%	69.8%
9	Resident placed orders on patient for specified date ≥ 0.01	7	14.3%	85.7%
A	Click rank among residents < 1.98	50	70.0%	30.0%
B	Click rank among residents ≥ 1.98 AND < 3.94	117	95.7%	4.3%
C	Click rank among residents ≥ 3.94	38	97.4%	2.6%
D	Click rank among residents < 1.98	37	24.3%	75.7%
E	Click rank among residents ≥ 1.98 AND < 2.96	5	60.0%	40.0%
F	Click rank among residents ≥ 2.96	1	100.0%	0.0%
G	Discharge summary author = 1	15	33.3%	66.7%
H	Discharge summary author = 0	35	85.7%	14.3%
I	Number of clicks deemed to have medium importance among residents < 9.12	95	97.9%	2.1%
J	Number of clicks deemed to have medium importance among residents ≥ 9.12 AND < 21.28	10	100.0%	0.0%
K	Number of clicks deemed to have medium importance among residents ≥ 21.28	12	75.0%	25.0%
L	Number of clicks deemed to be of high importance by physician authors < 7.3	8	12.5%	87.5%
M	Number of clicks deemed to be of high importance by physician authors ≥ 7.3 AND < 26.28	27	22.2%	77.8%
N	Number of clicks deemed to be of high importance by physician authors ≥ 26.28	2	100.0%	0.0%
O	Number of clicks deemed to be of high importance by physician authors < 17.52	5	60.0%	40.0%
P	Number of clicks deemed to be of high importance by physician authors ≥ 17.52 AND < 18.98	0	.	.
Q	Number of clicks deemed to be of high importance by physician authors ≥ 18.98	0	.	.
R	Number of clicks deemed to have high importance among residents < 0.29	1	100.0%	0.0%

S	Number of clicks deemed to have high importance among residents ≥ 0.29	14	28.6%	71.4%
T	Number of clicks deemed to be of high importance by physician authors < 32.12	32	87.5%	12.5%
U	Number of clicks deemed to be of high importance by physician authors ≥ 32.12 AND < 75.92	1	100.0%	0.0%
V	Number of clicks deemed to be of high importance by physician authors ≥ 75.92	2	50.0%	50.0%
W	Number of clicks deemed to be of high importance by physician authors < 20.44	9	100.0%	0.0%
X	Number of clicks deemed to be of high importance by physician authors ≥ 20.44 AND < 35.04	1	100.0%	0.0%
Y	Number of clicks deemed to be of high importance by physician authors ≥ 35.04	0	.	