



Hospital EHRs Role in Integration



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Emergency Medicine



~ 1,000 Emergency Department's utilizing Cerner FirstNet



133,908,096 Dynamic Documents signed annually

Check out Time	Pre-Check Location	Patient Information	MD	HL	BN	Discharge Disposition	LOS
08/20/2019 12:05	ED03	1 KING, CHARLES	79y	M	ES	Dx: Cellulitis of leg	0h 19m
08/20/2019 10:54	ED07.A	2 FRANKLIN, BILL	69y	M	ES	Dx: Cellulitis; leg; Surgical wound infection	0h 39m
08/20/2019 09:34	ED14.A	2 CONKLING, AISA	69y	F	BH	Dx: Anxiety; Type 2 diabetes mellitus	1h 59m
August 29, 2019							
08/29/2019 17:08	ED-Hold,02	2 CONKLING, AISA	69y	F	BH	Dx: Anxiety; Type 2 diabetes mellitus	1h 42m
08/29/2019 17:03	WR	LABARRE, MICHAEL	69y	M	ES	Dx: Abdominal pain	0h 25m
08/29/2019 16:02	ED07.A	3 PAIS, JUDY	40y	F	ES	Dx: Cellulitis; leg; Wound, surgical, infected	0h 22m
08/29/2019 15:35	ED01.A	3 PAIS, JUDY	40y	F	ES	Dx: Cellulitis; Surgical site infection	0h 42m
08/29/2019 11:02	ED01.A	2 CONKLING, AISA	69y	F	BH	Dx: Anxiety; Type 2 diabetes mellitus; Dyspnea	4h 32m
08/29/2019 11:00	WR	THAYER, ETHEL	63y	F	ES	Chest pain - Cardiac	1h 05m
08/29/2019 08:27	ED11.A	WATTS, JAMES	67y	M	ES	SCB	0h 17m
August 28, 2019							
08/28/2019 16:41	WR	JANAE, NINA	51y	F	ES	Dx: CAP (community acquired pneumonia)	1h 32m
08/28/2019 13:39	ED03.A	2 CONKLING, AISA	69y	F	BH	Dx: Dyspnea; Anxiety; Type 2 diabetes mellitus	1h 39m
08/28/2019 09:37	WR	BURKINSON, JAMESLEY	69y	M	ES	Abdominal pain	1h 35m
08/28/2019 05:29	WR	PHILLIPS, MANNAN	52y	F	ES	Chest pain - Cardiac	0h 01m
08/28/2019 05:28	WR	STEVENS, LORRY	59y	F	ES	Trauma - major multi-system	0h 01m
08/28/2019 05:26	ED04.B	2 STEVENS, LORRY	74y	M	ES	Dx: AFB	0h 01m
August 27, 2019							
08/27/2019 15:48	WR	2 FRANKLIN, STEWART	79y	M	ES	Dx: Injury of head and neck due to motor vehicle accident	4h 06m
08/27/2019 10:51	ED04.B	2 FRANKLIN, BILL	69y	M	EP	Dyspnea	3h 21m
08/27/2019 10:51	ED01.B	3 LONG, TRISHA	11y	F	EP	Dyspnea	3h 51m
08/27/2019 08:20	TRAUMAL.B	2 UNKNOWN, FEMALE 19L...	30y	F	ES	Trauma - major multi-system	1h 35m
08/27/2019 07:47	ED11.A	2 SHAFER, BRANDON	40y	M	ES	Dx: Arm laceration	1h 07m
08/27/2019 07:04	ED10.A	3 JONES, SIZIE	11y	F	ES	Autismic breathing	0h 44m
08/27/2019 06:08	CARDI.B	2 JONES, SIZIE	11y	F	ES	"I left critical chest pain medication to left shoulder and arm."	0h 26m

LaunchPoint Checkout List

Tracking Events	Time	Event	Provider	Duration
Arrive - Request, Start, Complete	11:17	Arrive - Request, Start, Complete	Collis, Anna	0 hours 00 minutes
Triage to Bed Assign (11 minutes)	11:17	Triage - Start, Complete	Martin RN, Kevin	0 hours 13 minutes
Bed Assign to Provider Exam (24 minutes)	11:30	T: 37.1 degC oral, BP: 199/97 cuff, P: 92 cuff, RR: 24, SpO2: 99	Martin RN, Kevin	0 hours 13 minutes
Bed Assign - Request, Start, Complete	11:41	Bed Assign - Request, Start, Complete	Binder RN, Sue	0 hours 24 minutes
Waste Signs	12:03	T: 37.0 degC oral, BP: 186/92 cuff, P: 95 cuff, RR: 19, SpO2: 100	Jones RN, Victoria	0 hours 46 minutes
Nurse Documentation	12:04	ED Nurse Assessment - Breath Sounds Assessment, Cardiac Rhythm Analysis, Cardiovascular Assessment, Edema Assessment, Glasgow Coma Assessment, Integumentary Assessment, Measurements, Neurological Assessment, NIH Stroke Scale	Martin RN, Kevin	0 hours 47 minutes
Provider Exam to Disposition (6 hours 58 minutes)	12:09	Provider Assignment - Request, Start, Complete	Brickman MD, Katherine	0 hours 48 minutes
Orders - Cardiology	12:17	ECG 12 Lead, Cardiac Monitoring	Brickman MD, Katherine	01 hour 00 minutes
Orders - Laboratory	12:17	Complete Blood Count with Differential, Comprehensive Metabolic Panel, D-Dimer, PT, PTT, Pulse Oximetry, Topiron	Brickman MD, Katherine	01 hour 00 minutes
Orders - Medications	12:17	aspirin 325 mg, ibuprofen 800 mg, morphine 1 mg/0.5 mL, nitroglycerin, 0.4 mg/1 spray, NS 1,000 mL, Sodium Chloride 0.9% 1,000 mL, ondansetron (Zofran) 4 mg	Brickman MD, Katherine	01 hour 00 minutes
Medis Administration	13:02	morphine 1 mg-0.5 mL IV Push Once, nitroglycerin 0.4 mg-1 spray SL, d5min PRN, NS 1,000mL IV Piggyback, Zofran 4 mg-2 mL IV Push	Jones RN, Victoria	01 hour 45 minutes
Test Results Laboratory	17:06	Abnormal Results - CBC-Differential - RBC: 3.05 (Low), HGB: 7.9 (Low), HCT: 26 (Low), MCHC: 31 (Low), RDW: 19.4 (High), Platelet Count: 151 (Critical), Est. GFR Non-African-American: 51 (Low), General Chemistry - Calcium Level: 8.4 (Low), Pheochrom Level: 8 (Low), Albumin Level: 2.2 (Low), Total Protein: 4.2 (Low), Alkaline Phosphatase (ALP): 498 (Critical), ALT: 29 (High), AST: 55 (High)	System	05 hours 49 minutes
Disposition to Checkout (1 hour 58 minutes)	19:02	Admit to INP - Request	Brickman MD, Katherine	07 hours 45 minutes

Chronological View

- ED Dashboard in **438** EDs
- Results Callback in **385** EDs
- LaunchPoint in **352**
- Collaborating with multiple ePCR's

Recently released...

- LaunchPoint checkout list & additional icons
- Results Call Back checkout filter
- RTLS Integration with Capacity Management
- Follow Up search enhancements

What's to come...

- LaunchPoint condensed view
- Chronological View - orders, filters, usability improvements
- Emergency Event (Trauma) Documentation

Efforts have been made to ensure system related data returned is complete and accurate, but no guarantee is made to that effect.

The Joint Commission – Record of Care Standard

ED Documentation Requirements - RC.02.01.01.EP 2

RC.02.01.01.02 / D

02. The medical record contains the following clinical information:

- The reason(s) for admission for care, treatment, and services
- The patient's initial diagnosis, diagnostic impression(s), or condition(s)
- Any findings of assessments and reassessments (See also PC.03.01.03, EPs 1 and 8)
- Any allergies to food
- Any allergies to medications
- Any conclusions or impressions drawn from the patient's medical history and physical examination
- Any diagnoses or conditions established during the patient's course of care, treatment, and services (including complications and hospital-acquired infections). For psychiatric hospitals using Joint Commission accreditation for deemed status purposes: The diagnosis includes intercurrent diseases (diseases that occur during the course of another disease; for example, a patient with AIDS may develop an intercurrent bout of pneumonia) and the psychiatric diagnoses.
- Any consultation reports
- Any observations relevant to care, treatment, and services
- The patient's response to care, treatment, and services
- Any emergency care, treatment, and services provided to the patient before his or her arrival
- Any progress notes
- All orders
- Any medications ordered or prescribed
- Any medications administered, including the strength, dose, route, date and time of administration
- Any access site for medication, administration devices used, and rate of administration
- Any adverse drug reactions
- Treatment goals, plan of care, and revisions to the plan of care (See also PC.01.03.01, EP 23)
- Results of diagnostic and therapeutic tests and procedures
- Any medications dispensed or prescribed on discharge
- Discharge diagnosis

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Preambival Documentation

LaunchPoint & Tracking

- Can be utilized for any prearrival patient
- EMS Preambival
- Completed by clinician receiving patient information
- Universally available

The screenshot displays a software window titled "Pre-Arrival Form" with the following fields and content:

- Pre-Arrival Type:** EMS
- EMS Service:** KCFD
- Location:** PA (1)
- Gender:** Male
- Date of Birth:** 11/05/1964
- Age:** 55 years
- Presenting Problem:** Chest Pain
- Primary Care Physician:** (empty)
- Referring Source:** (empty)
- Estimated Arrival Date:** 12/18/2019
- Estimated Arrival Time:** 0917
- Vital Signs:** BP: 150, HR: 120, Resp: 28, O2: 96, EKG: STEMI, Blood Sugar: (empty)
- Template:** prearrival ed
- IV:** (empty)
- Blood Draw:** (empty)
- Backboard:** (empty)
- Collar:** (empty)
- CPR:** (empty)
- Code Status:** (empty)
- Pre-Arrival User:** Duethman, Alan

Other Information:

PreArrival Communication Form
BaseWest Emergency Department
2800 Rockcreek Parkway
Kansas City, MO 65112

Additional Information:
911 called for male patient that left sided chest pain experienced upon exertion during company softball game. Administered aspirin in field. |

Buttons: OK, Cancel

Preadmission Documentation

LaunchPoint & Tracking

- Preadmissions highlight and indicate critical information face up

The screenshot displays the 'FirstNet Organizer' software interface. The main window is titled 'ED LaunchPoint' and shows a list of patients. The interface includes a menu bar at the top with options like 'Task', 'Edit', 'View', 'Patient', 'Chart', 'Links', 'Navigation', and 'Help'. Below the menu, there are various toolbars and navigation options. The patient list is organized into columns: 'Room', 'Patient Information', 'DR', 'APC', 'RN', 'Tech', 'Patient Details', 'Status', and 'LOS'. The 'Status' column highlights 'Pre-Arrival' patients in purple, indicating critical information. The 'LOS' column shows the length of stay for each patient.

T	Room	Patient Information	DR	APC	RN	Tech	Patient Details	Status	LOS
	CARD1,B	WGH EMS 2, 65 F					Chest Pain	Pre-Arrival ETA 00:00	
	CARD2,A Isolation	*BROWN, MASON 64y M	EP		EP		Chest pain	Eval In Progress 02:12	02:42
	CARD2,A	Inyo, M					Chest Pain	Pre-Arrival ETA 00:00	
	ED01,A Pregnant	FRASER, OLIVIA 31y F	EP		EP		Dx: Acute laryngitis	17:29	02:12
	ED01,A ED-Hold,01	WATTS, JAMES 67y M			EK		Dyspnea - adult	00:53	00:57

Prearrival Documentation

LaunchPoint & Tracking

- On patient arrival, prearrival document is linked to patient's record
- Icon indicates prearrival document is available to view

The screenshot displays the FirstNet Organizer ED LaunchPoint interface. The main window shows a patient list with columns for Room, Patient Information, DR, APC, RN, Tech, Patient Details, and Status. A blue arrow points to a red icon in the Patient Information column for patient DAVIES, FRANK, which is labeled 'ED Pre-Arrival Note' in a tooltip. The interface also shows various navigation tabs and department statistics.

T	Room	Patient Information	DR	APC	RN	Tech	Patient Details	Status	LOS	
	ED01,A	FRASER, OLIVIA 31y F	EP		EP		Dx: Acute laryngitis	6	17:40	02:23
	ED01,A	WATTS, JAMES 67y M			EK		Dyspnea - adult	2	01:03	01:08
	ED01,B	STRONG, WILLARD 76y M	EP		EP		Dyspnea	1	01:23	03:28
	ED02,A	DAVIES, FRANK 66y M			TIF		Dyspnea	66	01:23	01:53

EMS Run Sheet Access

Triage Documentation ↻ ☰

2 **Potential stroke, POSS STROKE**
 EMS brought pt from home. Pt had stroke like symptoms.

[Pre-Arrival Note\(2\)](#)
 Ambulance Run Sheets
 ED Pre-arrival Note Form - Text

Temperature 98.2 DegF <small>06/28/17 09:43</small>	Heart Rate 86 BPM <small>06/28/17 09:43</small>	Blood Pressure -- / --	Respiratory Rate 20 breaths/minute <small>06/28/17 09:43</small>	O2 Saturation 98 % <small>06/28/17 09:43</small>	Pain --
Height 175.26 cm <small>06/28/17 09:43</small>	Weight 106 kg <small>06/28/17 09:43</small>	Body Mass Index 34.51 kg/m2 <small>06/28/17 09:43</small>	Visual Acuities L:-- R:--	Glasgow Coma Scale 15 <small>06/28/17 09:43</small>	Fetal Heart Tones --

General Information

Language : English

Advanced Directive

No results found

Fall Risk

No results found

Suicide Risk

Pre-Provider Treatments

No results found

Pregnancy

No results found

Documents (5) ↻ ☰

Last 50 Notes
All Visits
Last 24 hours
More ▾

My notes only
 Group by encounter
 Display: ED Default Filter ▾

Time of Service	Subject	Note Type	Author	Last Updated	Last Updated By
06/29/17 11:02	ED Note	ED Physician Documentation	SLATER , JODIA M NP	06/29/17 12:35	DUTTON , CAROLYN S MD
06/29/17 09:39	ED Head Injury	ED Head Injury Form - Text	DUTTON , CAROLYN S MD	06/29/17 09:39	DUTTON , CAROLYN S MD
06/29/17 09:39	ED Note	ED Physician Documentation▲	DUTTON , CAROLYN S MD	06/29/17 12:35	DUTTON , CAROLYN S MD
06/29/17 08:55	Ambulance Run Sheet	Ambulance Run Sheets	Contributor_system, EMT	06/29/17 09:23	CONTRIBUTOR_SYSTEM , EMT
03/23/15 10:22	Minute Clinic	UC Visit Note	SHERRILL , HEATHER G RN	03/23/15 10:23	SHERRILL , HEATHER G RN

* Displaying up to the last 50 recent notes for all visits

EMS Run Sheet Access

Triage Documentation

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EMS Run Sheet Access

Triage Documentation

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Suicide Risk

 [Pre-Arrival Note\(2\)](#)

Ambulance Run Sheets
 ED Pre-arrival Note Form - Text

O2 Saturation

08 %

Pai

Documents (5) +

Last 50 Notes All Visits Last 24 hours More

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Documents (5) + Last 50 Notes | All Visits | Last 24 hours | More ▾

My notes only Group by encounter | Display: ED Default Filter ▾

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Pre-Arrival Note(2)

Ambulance Run Sheets
ED Pre-arrival Note Form - Text

O2 Saturation
98 %

Pain

EMS Run Sheet Access

Triage Documentation

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Documents (5) +

Last 50 Notes | All Visits | Last 24 hours | More | Refresh | Filter

My notes only | Group by encounter | Display: ED Default Filter

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			SHERRILL, HEATHER G RN	03/23/15 10:23	SHERRILL, HEATHER G RN

Pre-Arrival Note(2)
Ambulance Run Sheets
ED Pre-arrival Note Form - Text

O2 Saturation
98%

PDF View of Run Sheet

Ambulance_Run_Sheet.pdf_d3074555f2a34983971947041363b9b0V.pdf - Adobe Acrobat Reader DC

File Edit View Window Help

Home

1 / 10 104%

Cabarrus County EMS
Patient Care Record

Name: [Redacted] Incident #: [Redacted] Date: 06/29/2017 Patient 1 of 1

Patient Information				Clinical Impression			
Last	[Redacted]	Address	[Redacted]	Primary Impression	Traumatic injury		
First	[Redacted]	Address 2	[Redacted]	Secondary Impression			
Middle	[Redacted]	City	[Redacted]	Protocol Used	Multiple Trauma		
Gender	[Redacted]	State	[Redacted]	Anatomic Position	General/Global		
DOB	[Redacted]	Zip	[Redacted]	Chief Complaint	MVC w/injury		
Age	[Redacted]	Country	[Redacted]	Duration	20	Units	Minutes
Weight	[Redacted]	Tel	[Redacted]	Secondary Complaint			
Pedi Color	[Redacted]	Physician	[Redacted]	Duration		Units	
SSN	[Redacted]	Ethnicity	Not Hispanic or Latino	Patient's Level of Distress	Mild		
Race	[Redacted]	Advanced Directive	None	Signs & Symptoms	Injury - Unspecified - Multiple Sites Abdominal - Right Upper Quadrant Pain Abdominal - Left Upper Quadrant Pain		
Resident Status	[Redacted]			Injury	Motorized Vehicle Accident - Auto Traffic Accident - Street or Highway - 06/29/2017		
				Medical/Trauma	Trauma		
				Barriers of Care	Uncooperative		
				Alcohol/Drugs	Patient Admits to Drug Use		

Medications		Denies	
Allergies		Denies -	
History		Denies -	

Vital Signs														
Time	AVPU/Side	POS	BP	Pulse	RR	SPO2	ETCO2	CO	BG	Temp	Pain	GCS(E-V-M)/Qualifier	RTS	PTS
PTA	A	Sit	124/52 M	77 R	16 R	100 Rm						14-4-4-6	12	
PTA	A	Lay	125/82 A	83 R	16 R	99 Rm						14-4-4-6	12	
09:00	A	R Lay	120/68 M	96 R	16 R	97 Rm			91	98.4 F/O	10	15-4-5-6	12	
09:07	A	R Lay	118/69 A	72 R	16 R	100 Ox					10	15-4-5-6	12	
09:17	A	R Lay	119/79 A	72 R	16 R	100 Ox					10	15-4-5-6	12	

ECG		
Time	3-Lead ECG	12-Lead ECG
09:07	Sinus Rhythm	NSR; 12-lead unremarkable.

Flow Chart			
Time	Treatment	Description	Provider
PTA	IV Bolus	Antecubital-Left, Normal Saline; Total Fluid 300; Patient Response: Unchanged; Successful;	
PTA	C-Spine Clearance	Comments No-neck secured by EMS61 personnel prior to transfer of care to EMS21 personnel.; Patient Response: Unchanged;	
09:05	Oxygen	NC; Flow Rate 2 lpm; Patient Response: Improved;	Rickard, Scarlett
09:07	12-Lead ECG	Comments NSR noted; no ST elevation present, inverted T-waves in V3. 12-lead unremarkable.; Patient Response: Unchanged;	Rickard, Scarlett
09:08	IV Therapy	18 ga; Antecubital-Right, Normal Saline; Total Fluid 10; Patient Response: Unchanged; Successful;	Rickard, Scarlett

Initial Assessment			
Category	Comments	Abnormalities	
Mental Status	EMSC1 was advised of LOC prior to his arrival.	Mental Status	Eye Oriented, Verbal Oriented, Place Oriented, Time Oriented

PDF View of Run Sheet



Cabarrus County EMS

Patient Care Record

Name: [REDACTED]

Incident #: [REDACTED]

Date: 06/29/2017

Patient 1 of 1

Narrative

EMS21 called out as additional unit to MVC. EMS61 requesting additional unit due to other complications not affecting pt care. Upon arrival pt care was transferred to EMS21 personnel for continued treatment and transport. Pt moved onto EMS21 stretcher via sheet lift and secured via rails/straps. Pt loaded into unit without incident.

Pt placed on cardiac monitor. Report received from EMS61 crew. Pt was restrained driver of sedan style vehicle. Advised of positive loss of consciousness. Pt was driving and fell asleep at the wheel and made impact with another vehicle. Pt did advise she was wearing her seat belt. Pt was initially confused during EMS61 personnel assessment, however, regained full awareness with a GCS of 15 at time of transfer of pt care. IV had previously been established with fluid bolus running.

Pt's pupils are normal and reactive. Pt has no obvious injury to head, non-tender to palpation. Pt does C/O pain in right shoulder radiating into her neck; no obvious deformity/contusion noted to area. Pt was placed in a C-collar prior to transfer of care. Pt denies any back pain. Pt rested in comfortable position on stretcher during transport to ED Pt's chest is non-tender, no deformity noted. Pt's RUQ and LUQ are tender, non-distended; both lower quadrants are soft/non-tender. Pt's extremities palpated with no significant injuries noted. Pt's hips are stable. Pt's lower right leg is noted to have some minor abrasions.

Pt did have some drops in SpO2 levels, possibly due to her holding her breath. O2 administered via NC to maintain normal SpO2 levels. Second IV established. Vitals continuously monitored while en route to ED with no significant changes noted; pt remained stable during transport.

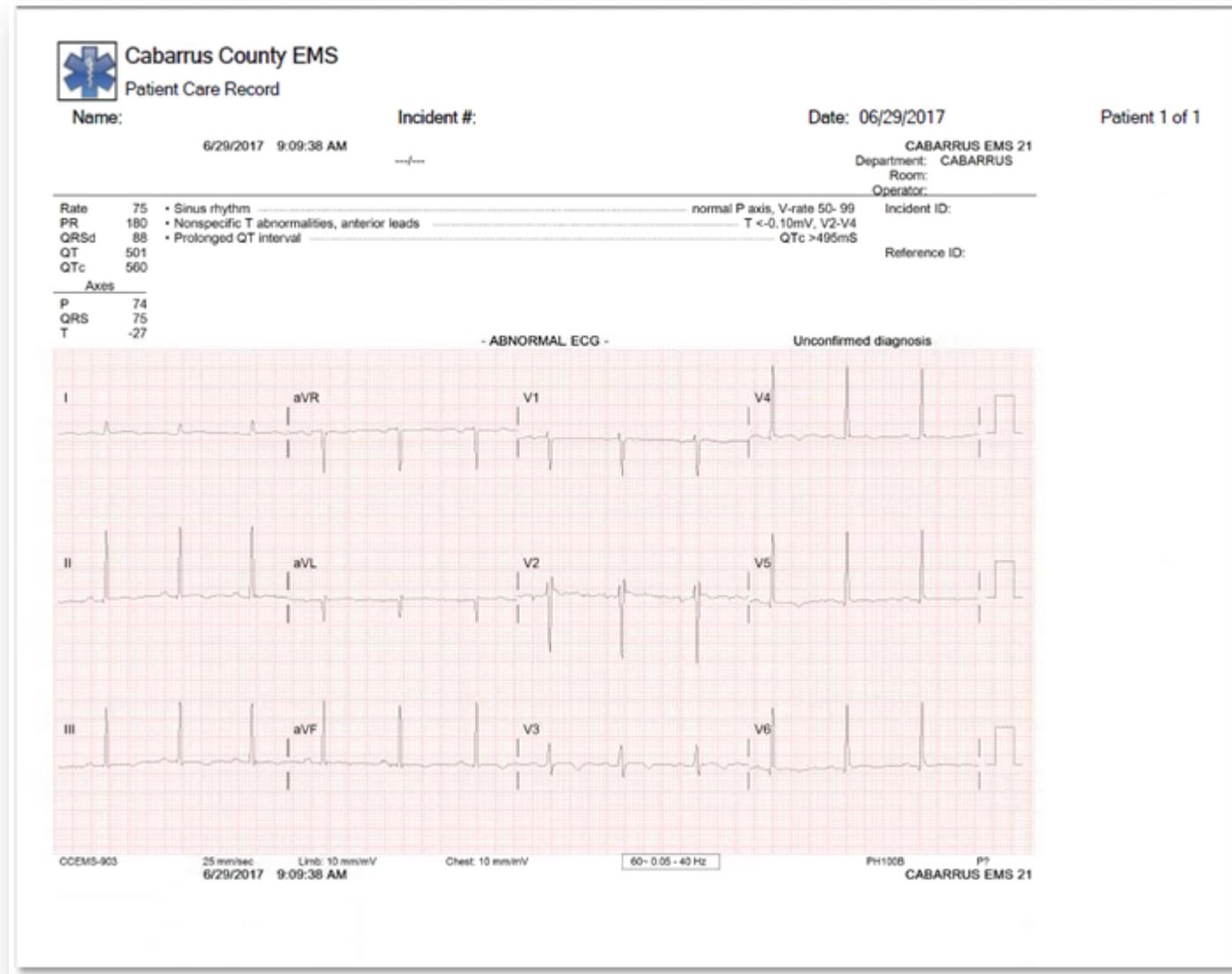
Upon arrival at ED pt was unloaded, weighed and taken to room 2. Trauma alert had been activated during transport. Pt was prepared for movement. Pt was moved over via sheet lift after report given to receiving RN and physician. All signatures acquired. Pt left in care of facility staff.

Time	Intervention	Comments	Signature
PTA	IV bolus	Anticubital-Left, Normal Saline; Total Fluid 300; Patient Response: Unchanged; Successful	
PTA	C-Spine Clearance	Comments No-neck secured by EMS61 personnel prior to transfer of care to EMS21 personnel.; Patient Response: Unchanged;	
09:05	Oxygen	NC; Flow Rate 2 lpm; Patient Response: Improved;	Rickard, Scarlett
09:07	12-Lead ECG	Comments NSR noted; no ST elevation present, inverted T-waves in V3. 12-lead unremarkable.; Patient Response: Unchanged;	Rickard, Scarlett
09:08	IV Therapy	18 ga; Antecubital-Right, Normal Saline; Total Fluid 10; Patient Response: Unchanged; Successful;	Rickard, Scarlett

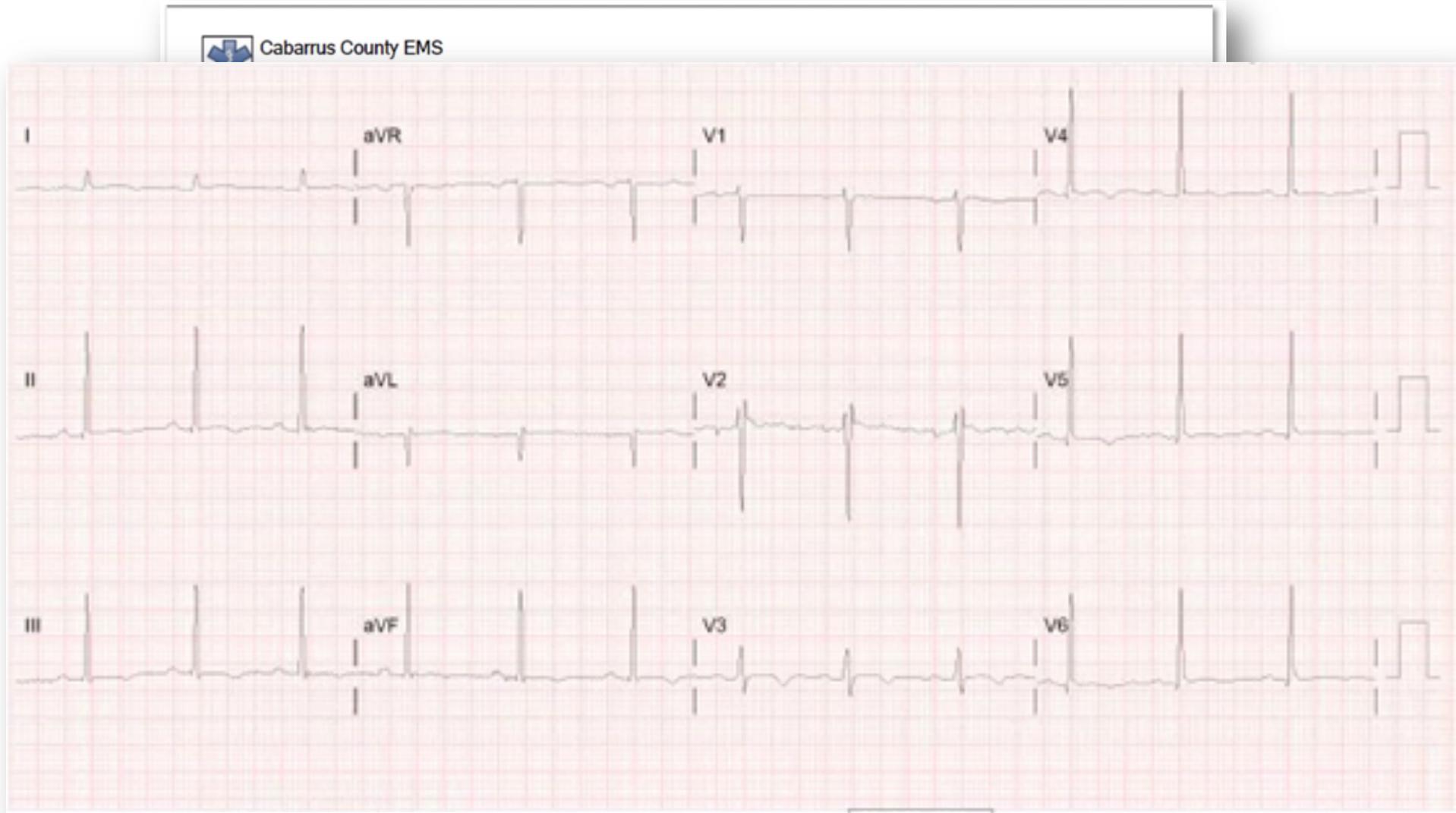
Initial Assessment

Category	Comments	Abnormalities	Other
Mental Status	EMS61 crew advised of LOC prior to their arrival.	Mental Status	Alert Oriented, Responsive Oriented, Disoriented, Time Oriented

High Fidelity Customary View of ECG



High Fidelity Customary View of ECG



Atrium Health Cabarrus Results

- **Run Sheet Uploads ~ 96-98% (~ 40% baseline)**
- **Time to EHR ~ On EMS Departure (~ 2 hrs prior to summary view)**
- **Abstractor Savings**
 - Trauma Registry
 - Code Stroke
 - Code STEMI
 - Code Sepsis
 - Code Cool
- **HIM Savings**
 - Faxing and Scanning
 - Manual matching of records
 - Securing missing EMS Run Sheets

Summary: EHR Current State

- **Widely Disparate Capabilities**
- **EMS Documentation Frequently Missing from Hospital EHR**
- **Rarely Contemporaneous**
- **EMS Run Sheets Predominately Blog Text (i.e. PDF)**
- **Discrete Data Mapping is Resource Intensive (limited availability)**
- **Mapping Interfaces must be Rebuilt for Each System – NonStandard**
 - Staggering number of ePCR and EHR vendors
- **KPI Abstraction – Manual in absence of Discrete Data Mapping**
 - Code Stroke, Code Sepsis, Code STEMI, Trauma Registry, etc.
- **Limited Outcome & Demographic Data Communicated Back to EMS**
- **Most ePCR's are not able to Push a Pre-Hospital Encounter**
 - Pre-Hospital Encounter must be manually reconciled

Summary: Hospital EHR Role

- **Collaborate on Standard Mapping of Discrete Data**
 - Outbound & Inbound Designated Data Decks
 - Turnkey Implementation
- **Pre-Registration**
- **Integrate EMS Information into ED Trackers Realtime**
 - i.e. ETE/ETA, Patient Complaint, Vital Signs, Treatment Received
- **Contemporaneously Integrate EMS Run Sheets into the EHR**
- **Merge Pertinent Discrete Patient Data into EMR**
 - i.e. Vital Signs, Medications Received, IV Fluids Administered, ECG, etc.
- **Throughput Discrete Registry Data**
 - i.e. Code Stroke, Code Sepsis, Code STEMI, Trauma, etc.





Thank You



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