



Evidence Solutions, Inc.

And the

American Association of Legal Nurse Consultants (AALNC)

Present:

Electronic Medical Record Forensics:

Trust the Data, Not the Software!

October 25, 2017

Presented by:

Scott Greene, SCFE, CEO  
Evidence Solutions, Inc.

A Digital Forensics Firm

520-512-5001

866-795-7166

[Scott@EvidenceSolutions.com](mailto:Scott@EvidenceSolutions.com)

# AMERICAN ASSOCIATION OF LEGAL NURSE CONSULTANTS

Faculty:  
Scott Greene

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

# Case Studies in Electronic Medical Record Data Manipulation

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Conflict of Interest Disclosure

- Scott Greene certifies that, to the best of his knowledge, no affiliation or relationship of a financial nature with a commercial interest organization has significantly affected his views on the subject on which they are presenting.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Learning Outcomes

- Introduction / What's Possible, What's Not
- An overview of what is readily available from EMR
- Why metadata, other than the audit log / audit trail, can be important.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Scott Greene

- Has been doing computer consulting for over 35 years.
- Performing:
  - Custom programming
  - Design and optimization
  - Database administration
  - Network and workstation general support
- For:
  - Service
  - Retail
  - Hospitality
  - Legal
  - Manufacturing
  - Medical

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## How am I going to get there?

- A Civil Case: Medical Billing
- With a few other things thrown in...
  - EMR Forensics For Instance

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Electronically Stored Information in Litigation

- Frequently we are presented with data that appears perfectly normal and supports a particular side to a case.
- Unfortunately software, displays data in a sorted and organized form. Manipulated Data will not be evident when looking at standard reports.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Reasons to examine electronic data

- Almost all documents are now 'word processing' documents.
- Nearly all business activities are now computerized
- E-mail communications have surpassed telephone and postal ( snail mail ) communication.
- Text Messages now overshadow E-mail

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## What can data Forensics Tell Us?

- Almost Everything: from the character of the user to their interests, activities, financial health, acquaintances and more.
- Collected from their life online: applications, email systems, web browsers and free space.
- The details from their life, outlook, intelligence and interactions are as individual as any fingerprint.
- All Public & Private business transactions, communications with accomplices, fraud indicators and much more are frequently available.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Billing Case

- Plaintiff Company:
  - Contracted to bill for a high end medical specialist with his own surgical facility.
  - Maintained:
    - That they properly billed for all services.
    - The did so in a timely manner.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Billing Case

- Defendant Doctor/Surgical Facility
  - Maintained that the Plaintiff did not bill timely
  - Determined that the Plaintiff chose to concentrate on the large ticket bills

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Case BS ( Before Scott )

- Procedural issues of the billing dispute
- Discovery disputes – billing company claimed that it didn't have certain data
- Arbitrator failed to order production of billing software until eve of arbitration

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Scott's Special Master Tasks

- Evidence Solutions was tasked with analyzing the software and determining what standard reports were available from the system.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.



## Scott's Special Master Tasks

- Unable to get the software running we decided to look at the data.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

The first report from the  
database.

[claction1\\_package.pdf](#)

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

Recno	Claim	Idnum	Date	Type	Note	Resp	Dateent	Timeent	Whoentered
12966	3167	1279	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED	UHC	01/14/09	16:07	SMW
12967	3216	1279	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED	UHC	01/14/09	16:07	SMW
12968	1249	774	01/14/09	SECONDARY	SECONDARY CLAIM PRINTED	UHC	01/14/09	16:08	SMW
12969	1246	774	01/14/09	SECONDARY	SECONDARY CLAIM PRINTED	UHC	01/14/09	16:08	SMW
12970	1541	845	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED	UHC	01/14/09	16:08	SMW
12971	3221	1369	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED	UHC2	01/14/09	16:08	SMW
12972	3084	1369	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED	UHC2	01/14/09	16:08	SMW
12973	1778	968	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED	UHC2	01/14/09	16:08	SMW
12974	1333	818	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED	UNI6	01/14/09	16:09	SMW
12975	2849	1295	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED	TRI2	01/14/09	16:09	SMW
12976	2858	1304	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED	TRI2	01/14/09	16:09	SMW
12977	1392	830	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED	CIG1	01/14/09	16:09	SMW
12978	1834	485	02/18/09	PRIMARY	PRIMARY CLAIM PRINTED	CIGN	02/18/09	18:36	KW
12979	1692	485	02/18/09	RECEIPT	CLAIM RECEIPT PRINTED	CIGN	02/18/09	18:36	KW
12980	1692	485	02/18/09	PRIMARY	PRIMARY CLAIM PRINTED	CIGN	02/18/09	18:36	KW
12981	2201	878	02/26/09	RECEIPT	CLAIM RECEIPT PRINTED		02/26/09	12:20	SMW
12982	280	231	12/31/06	STATEMENT	STATEMENT PRINTED >120		12/31/06	12:32	SMW
12983	283	243	12/31/06	STATEMENT	STATEMENT PRINTED >120		12/31/06	12:32	SMW
12984	272	209	12/31/06	STATEMENT	STATEMENT PRINTED >120		12/31/06	12:32	SMW
12985	1799	980	12/31/06	STATEMENT	STATEMENT PRINTED >120		12/31/06	12:32	SMW
12986	1871	980	12/31/06	STATEMENT	STATEMENT PRINTED >120		12/31/06	12:32	SMW
12987	1897	987	12/31/06	STATEMENT	STATEMENT PRINTED >120		12/31/06	12:32	SMW
12988	1966	987	12/31/06	STATEMENT	STATEMENT PRINTED >120		12/31/06	12:32	SMW
12989	3282	1416	12/31/06	STATEMENT	STATEMENT PRINTED 31-60		12/31/06	12:32	SMW

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

Recno	Claim	Idnum	Date	Type	Note
12966	3167	1279	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED
12967	3216	1279	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED
12968	1249	774	01/14/09	SECONDARY	SECONDARY CLAIM PRINTED
12969	1246	774	01/14/09	SECONDARY	SECONDARY CLAIM PRINTED
12970	1541	845	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED
12971	3221	1369	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED
12972	3084	1369	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED
12973	1778	968	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED
12974	1333	818	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED
12975	2849	1295	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED
12976	2858	1304	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED
12977	1392	830	01/14/09	PRIMARY	PRIMARY CLAIM PRINTED
12978	1834	485	02/18/09	PRIMARY	PRIMARY CLAIM PRINTED
12979	1692	485	02/18/09	RECEIPT	CLAIM RECEIPT PRINTED
12980	1692	485	02/18/09	PRIMARY	PRIMARY CLAIM PRINTED
12981	2201	878	02/26/09	RECEIPT	CLAIM RECEIPT PRINTED
12982	280	231	12/31/06	STATEMENT	STATEMENT PRINTED >120
12983	283	243	12/31/06	STATEMENT	STATEMENT PRINTED >120
12984	272	209	12/31/06	STATEMENT	STATEMENT PRINTED >120
12985	1799	980	12/31/06	STATEMENT	STATEMENT PRINTED >120
12986	1871	980	12/31/06	STATEMENT	STATEMENT PRINTED >120
12987	1897	987	12/31/06	STATEMENT	STATEMENT PRINTED >120
12988	1966	987	12/31/06	STATEMENT	STATEMENT PRINTED >120
12989	3282	1416	12/31/06	STATEMENT	STATEMENT PRINTED 31-60

Note	Resp	Dateent	Timeent	Who
PRIMARY CLAIM PRINTED	UHC	01/14/09	16:07	SMW
PRIMARY CLAIM PRINTED	UHC	01/14/09	16:07	SMW
SECONDARY CLAIM PRINTED	UHC	01/14/09	16:08	SMW
SECONDARY CLAIM PRINTED	UHC	01/14/09	16:08	SMW
PRIMARY CLAIM PRINTED	UHC	01/14/09	16:08	SMW
PRIMARY CLAIM PRINTED	UHC2	01/14/09	16:08	SMW
PRIMARY CLAIM PRINTED	UHC2	01/14/09	16:08	SMW
PRIMARY CLAIM PRINTED	UHC2	01/14/09	16:08	SMW
PRIMARY CLAIM PRINTED	UNI6	01/14/09	16:09	SMW
PRIMARY CLAIM PRINTED	TRI2	01/14/09	16:09	SMW
PRIMARY CLAIM PRINTED	TRI2	01/14/09	16:09	SMW
PRIMARY CLAIM PRINTED	CIG1	01/14/09	16:09	SMW
PRIMARY CLAIM PRINTED	CIGN	02/18/09	18:36	KW
CLAIM RECEIPT PRINTED		02/18/09	18:36	KW
PRIMARY CLAIM PRINTED	CIGN	02/18/09	18:36	KW
CLAIM RECEIPT PRINTED		02/26/09	12:20	SMW
STATEMENT PRINTED >120		12/31/06	12:32	SMW
STATEMENT PRINTED >120		12/31/06	12:32	SMW
STATEMENT PRINTED >120		12/31/06	12:32	SMW
STATEMENT PRINTED >120		12/31/06	12:32	SMW
STATEMENT PRINTED >120		12/31/06	12:32	SMW
STATEMENT PRINTED >120		12/31/06	12:32	SMW
STATEMENT PRINTED >120		12/31/06	12:32	SMW
STATEMENT PRINTED 31-60		12/31/06	12:32	SMW

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

# Claims Without Payment

[nopaymentclaims prov B 0 payment.pdf](#)

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

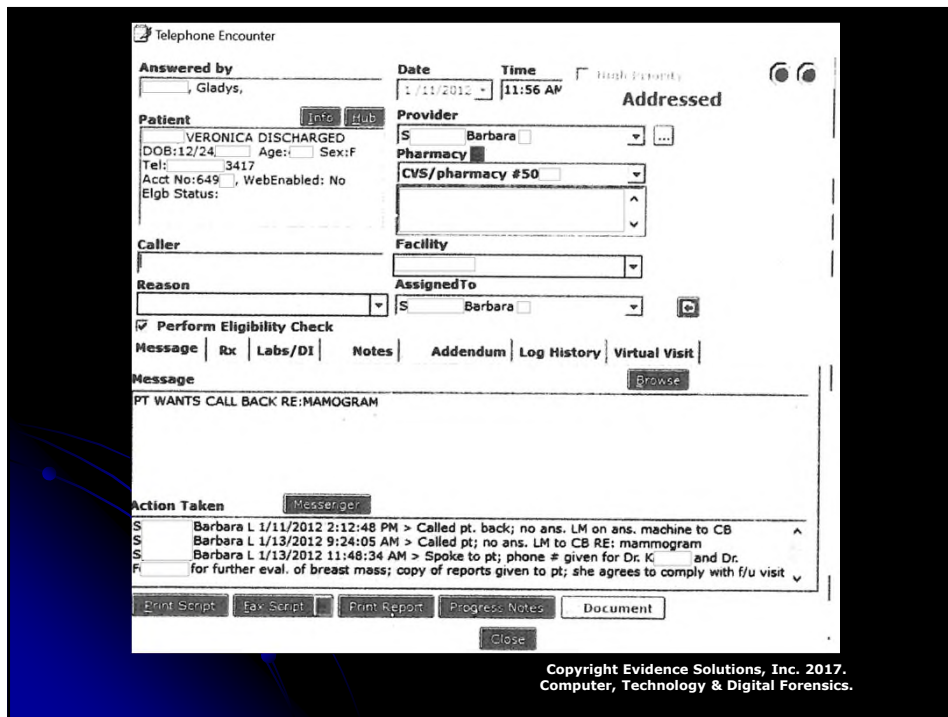
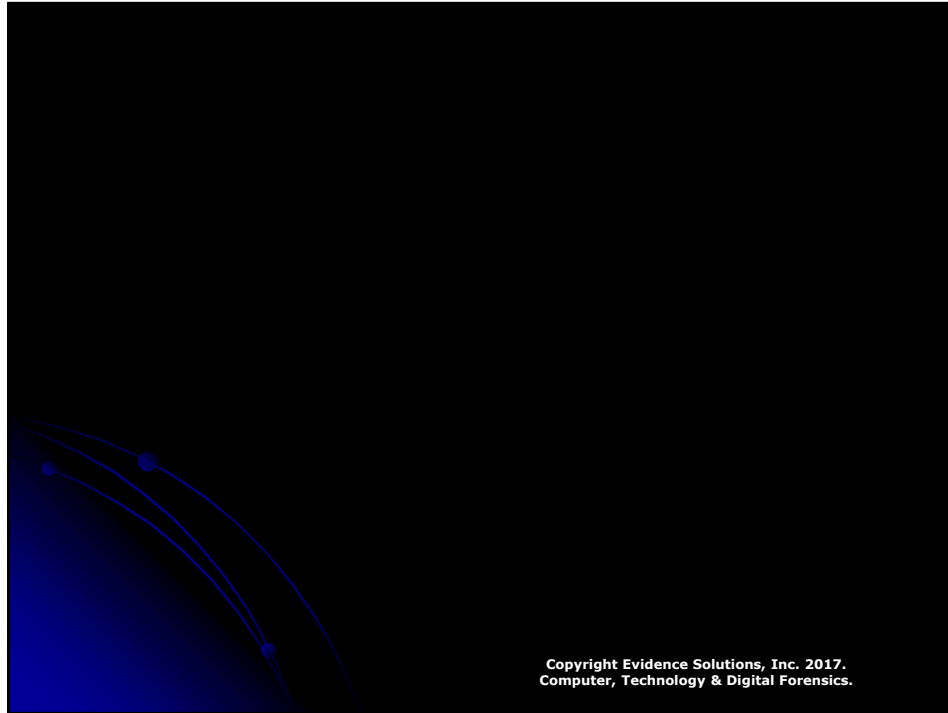
Claims with No Payment Detail Report (n  
Sorted by 'Claim'.

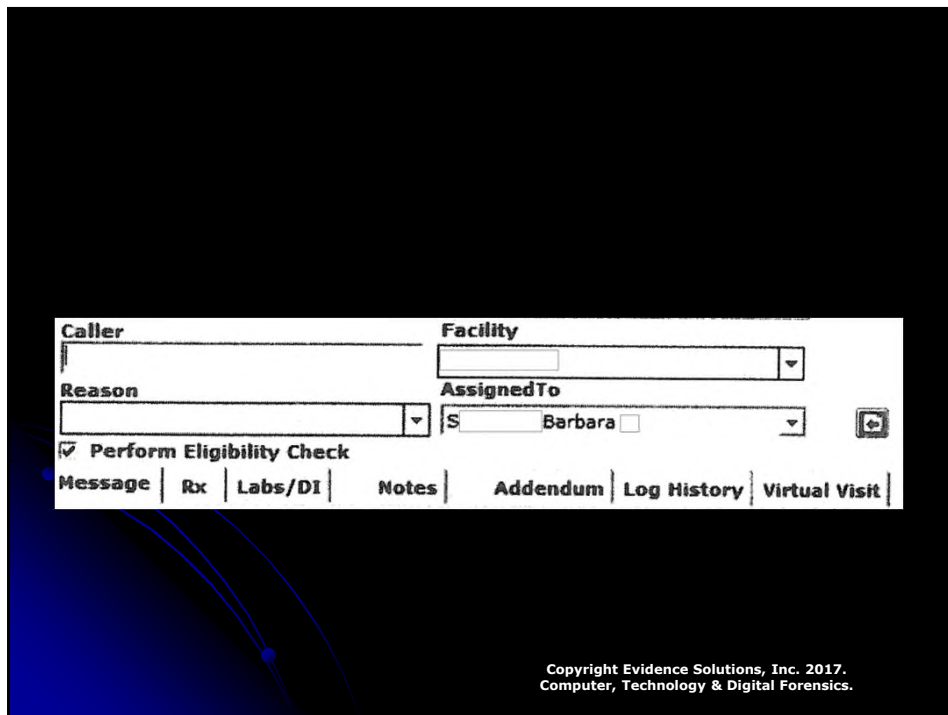
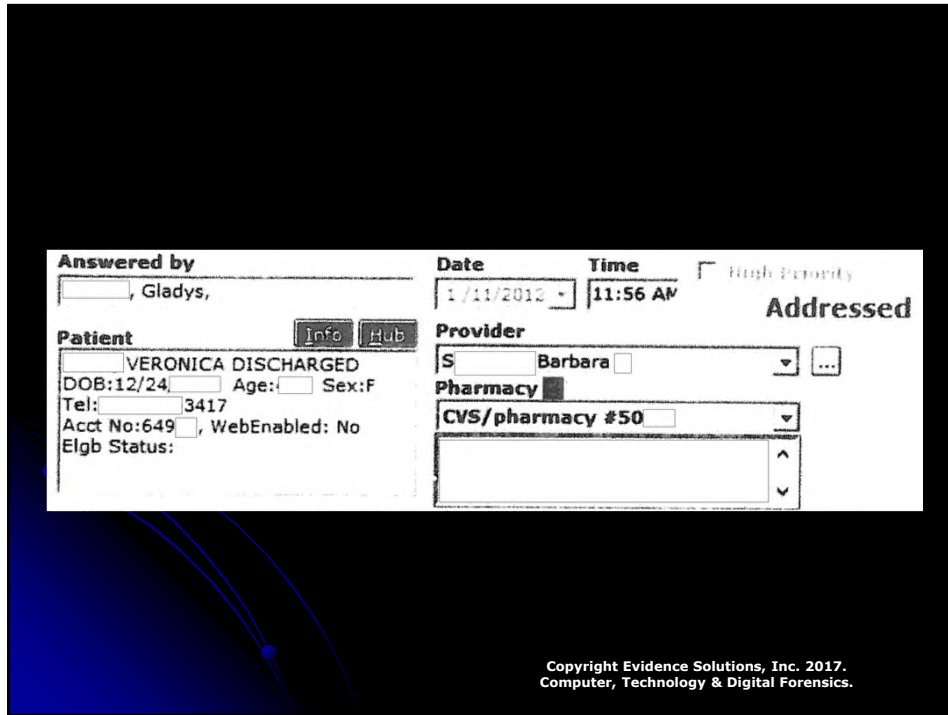
Patient	Claim Date	Claim Dateent	Claim Number	Provider	Procedure Amount
75	02/22/05	04/13/05	77	B	3,500.00
77	04/13/05	04/13/05	79	B	12,500.00
Total for: April					16,000.00
Grand Total for Report:					16,000.00

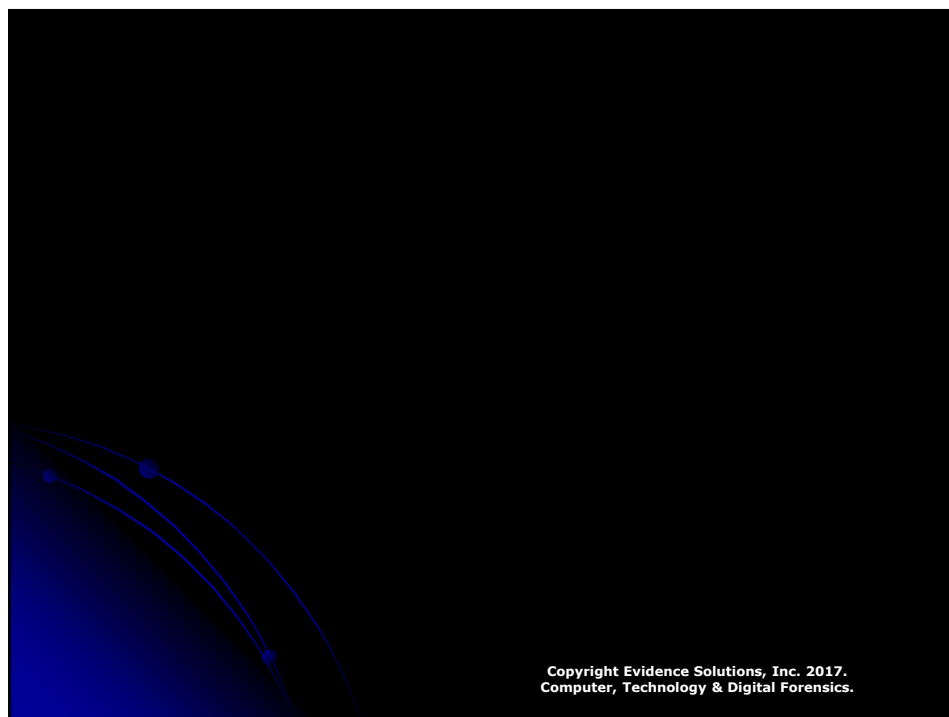
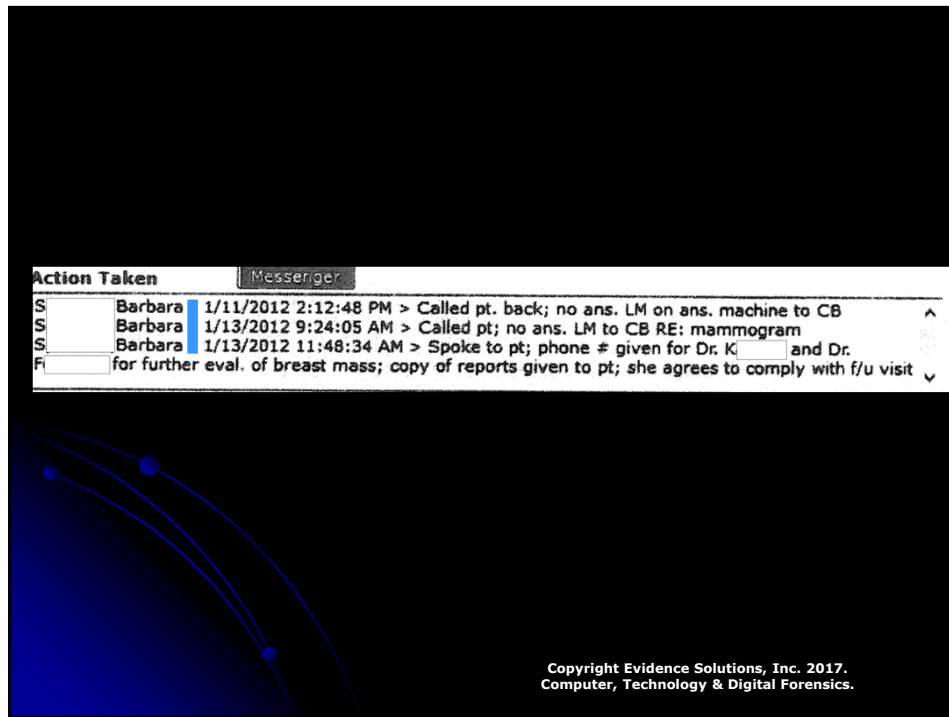
Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

Payment Amount	%	Adjustment or Writeoff Amount	%	Write off Date	Activity Dateent
0.00	0.0	-3,500.00	100.0	09/27/05	09/27/05
0.00	0.0	-12,500.00	100.0	12/31/06	05/14/09
0.00		-16,000.00			
0.00	0.0	-16,000.00	100.0		

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.







# EMR Data What to Look For

8/18/2012 3:06:29 PM	F800209	View	1788395	COF # NURSING GRADERS ONE DAY (12010276)	MR_REPORTS
8/18/2012 3:06:21 PM	F800209	View	1788395	COF # NURSING GRADERS ONE DAY (12010276)	MR_REPORTS
8/18/2012 3:06:16 PM	F800209	View	1788395	FLW CRD ACKNOWLEDGEMENT (12010191)	MR_REPORTS
8/18/2012 3:06:00 PM	F800209	View	1788395	WHAIS AI PAPER (12010495)	MR_REPORTS
8/18/2012 3:05:59 PM	F800209	View	1788395	HOSPITAL ENCOUNTER 05/11/2012	LOW_RELATED_ENCOUNTERS
8/18/2012 3:05:53 PM	F800209	View	1788395	FLW # ENCOUNTER REPORT (12010376)	MR_REPORTS
8/18/2012 3:05:52 PM	F800209	View	1788395	REGISTRATION REPORT (PTAL) (005102)	MR_REPORTS
8/15/2012 19:52	F800209	Exit	1788395	HOSP ENC 5/11/2012	MR_PATIENT_SELECT
8/15/2012 19:52	F800209	Exit	1788395	HOSP ENC 5/11/2012	CRS Note
8/15/2012 19:52	F800209	Exit	1788395	HOSP ENC 5/11/2012	Inpatient MAR
8/15/2012 19:52	F800209	Exit	1788395	HOSP ENC 5/11/2012	Allegation
8/15/2012 19:47	F800209	View	1788395	HISTORY 8/12/2012	Encounter
8/15/2012 19:47	F800209	View	1788395	N/A	History
8/15/2012 19:47	F800209	View	1788395	N/A	Chart Review Imaging Lab
8/15/2012 19:43	F800209	View	1788395	N/A	Chart Review Encounters Lab
8/15/2012 19:43	F800209	View	1788395	WHAIS AI Paper (004502)	Report
8/15/2012 19:43	F800209	View	1788395	HOSP ENC 5/11/2012	Inpatient MAR

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

# EMR Data What to Look For

6/18/2012 3:06:29 PM	F800209	View
6/18/2012 3:06:21 PM	F800209	View
6/18/2012 3:06:16 PM	F800209	View
6/18/2012 3:06:00 PM	F800209	View
6/18/2012 3:05:59 PM	F800209	View
6/18/2012 3:05:53 PM	F800209	View
6/18/2012 3:05:52 PM	F800209	View
6/18/2012 3:06:51 PM	F800209	View
6/18/2012 3:18:52	F800209	View
6/15/2012 19:52	F800209	Exit
6/15/2012 19:52	F800209	Exit
6/15/2012 19:52	F800209	Exit
6/15/2012 19:52	F800209	Exit
6/15/2012 19:47	F800209	View
6/15/2012 19:47	F800209	View
6/15/2012 19:47	F800209	View
6/15/2012 19:43	F800209	View

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.



# EMR Data What to Look For

3769395		GCF IP NURSING ORDERS ONE DAY [120100760]	MR_REPORTS
3769395		GCF IP NURSING ORDERS ONE DAY [120100760]	MR_REPORTS
3769395		FLW GRD ACKNOWLEDGEMENT [120101031]	MR_REPORTS
3769395		Weston All Report [120101450]	MR_REPORTS
3769395	HOSPITAL ENCOUNTER 05/11/2012		UCW_RELATED_ENCOUNTERS
3769395		FLW IP ENCOUNTER REPORT [120100378]	MR_REPORTS
3769395		REGISTRATION REPORT (HTML) [90051003]	MR_REPORTS
3769395			MR_PATIENT_SELECT
	HOSP ENC 5/11/2012		Clinical Notes
	HOSP ENC 5/11/2012		Inpatient MAR
	N/A		Allergies
	HOSP ENC 5/11/2012		Encounter
	HISTORY 8/12/2012		History
	N/A		Chart Review Imaging tab
	N/A		Chart Review Encounters tab
	N/A	Weston All Report [4045002]	Report
	HOSP ENC 5/11/2012		Inpatient MAR

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

# More EMR Data

MRN	DATE	TIME	USER	ACTIVITY	DESCRIPTION	STATUS	REVISION	REVISION_DATE	REVISION_TIME	REVISION_USER	REVISION_DESCRIPTION
1000000000	2011-11-20	16:38:51	SMY	EMRM							
1000000000	2011-11-20	16:39:07	SMY	EMRM							
1000000000	2011-11-20	16:39:07	SMY	EMRM							
1000000000	2011-11-20	16:39:08	SMY	EMRM							
1000000000	2011-11-20	16:41:58	SMY	EMRM							
1000000000	2011-11-20	16:42:05	SMY	EMRM							
1000000000	2011-11-20	16:42:05	SMY	EMRM							
1000000000	2011-11-20	16:42:05	SMY	EMRM							
1000000000	2011-11-20	16:42:06	SMY	EMRM							
1000000000	2011-11-20	16:42:06	SMY	EMRM							
1000000000	2011-11-20	16:42:06	SMY	EMRM							
1000000000	2011-11-20	16:42:07	SMY	EMRM							
1000000000	2011-11-20	16:44:05	SMY	EMRM							
1000000000	2011-11-20	16:44:06	SMY	EMRM							

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

rank	TIMESTAMP	MRN	PATIENT NAME	FACILITY	NURSE_UNIT
0	011/20/2011 16:38:51 EST	ESI936273	MARY	SMY	EMRM
1	111/20/2011 16:39:07 EST	ESI936273	MARY	SMY	EMRM
2	211/20/2011 16:39:07 EST	ESI936273	MARY	SMY	EMRM
3	311/20/2011 16:39:08 EST	ESI936273	MARY		
4	411/20/2011 16:41:58 EST	ESI936273	MARY	SMY	EMRM
5	511/20/2011 16:42:05 EST	ESI936273	MARY	SMY	EMRM
6	611/20/2011 16:42:05 EST	ESI936273	MARY	SMY	EMRM
7	711/20/2011 16:42:05 EST	ESI936273	MARY	SMY	EMRM
8	811/20/2011 16:42:06 EST	ESI936273	MARY	SMY	EMRM
9	911/20/2011 16:42:06 EST	ESI936273	MARY		
10	1011/20/2011 16:42:06 EST	ESI936273	MARY	SMY	EMRM
11	1111/20/2011 16:42:07 EST	ESI936273	MARY	SMY	EMRM
12	1211/20/2011 16:44:05 EST	ESI936273	MARY	SMY	EMRM
13	1311/20/2011 16:44:06 EST	ESI936273	MARY	SMY	EMRM

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

USER_NAME	PRSNL_NAME	ROLE	DEVICE_NAME	CITRIX_SERVER
RJOHNSON1	Ryan	AHTU_PathNet: Medical Technologist	BA108588	AHTUAZCTX19
RJOHNSON1	Ryan	AHTU_PathNet: Medical Technologist	BA108588	AHTUAZCTX19
RJOHNSON1	Ryan	AHTU_PathNet: Medical Technologist	BA108588	AHTUAZCTX19
RJOHNSON1	Ryan	AHTU_PathNet: Medical Technologist	BA108588	AHTUAZCTX19
RJOHNSON1	Ryan	AHTU_PathNet: Medical Technologist	BA108588	AHTUAZCTX19
RJOHNSON1	Ryan	AHTU_PathNet: Medical Technologist	BA108588	AHTUAZCTX19
RJOHNSON1	Ryan	AHTU_PathNet: Medical Technologist	BA108588	AHTUAZCTX19
SYSTEM	SYSTEM	DBA	ahtuaz2	NO INFO
SYSTEM	SYSTEM	DBA	ahtuaz2	NO INFO
RJOHNSON1	Ryan	AHTU_PathNet: Medical Technologist	BA108588	AHTUAZCTX19
SYSTEM	SYSTEM	DBA	ahtuaz2	NO INFO
SYSTEM	SYSTEM	DBA	ahtuaz2	NO INFO
SYSTEM	SYSTEM	DBA	ahtuaz2	NO INFO
SYSTEM	SYSTEM	DBA	ahtuaz2	NO INFO

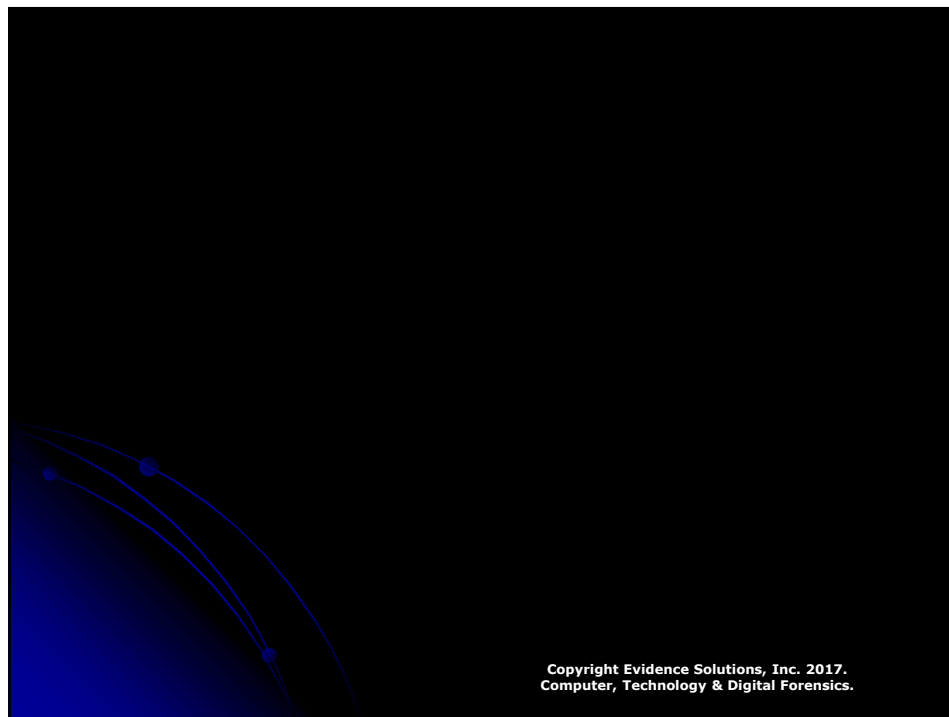
Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

APPLICATION	EVENT_NAME	EVENT_TYPE
PathNet General Lab: Accession Result Entry	Lab Common Inquiry	View Results
PathNet General Lab: Accession Result Entry	Lab Common Modify	Maintain Results
PathNet General Lab: Accession Result Entry	Maintain Order	Tasks
PathNet General Lab: Accession Result Entry	Maintain Clinical Events	Write/Update Results
PathNet General Lab: Accession Result Entry	Lab Common Inquiry	View Results
PathNet General Lab: Accession Result Entry	Lab Common Modify	Maintain Results
PathNet General Lab: Accession Result Entry	Maintain Order	Tasks
Servers and Services: Discern Expert Server	View Orders	Modify Details
Servers and Services: Discern Expert Server	View Orders	Modify Details
PathNet General Lab: Accession Result Entry	Maintain Clinical Events	Write/Update Results
Server: Orm Order Write	Maintain Order	Tasks
Server: Orm Order Write	Maintain Order	Tasks
Server: Inbound Dispense Server	Maintain Order	Medication
Server: Inbound Dispense Server	Maintain Order	Medication

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

task	PARTICIPANT_ID_TYPE	PARTICIPANT_ID	PARTICIPANT_NAME
Accession		728176611-324-01330	
Accession		728176611-324-01330	
UPDATE: Results	Order	303398568	Urine, Nurse collect, Collected, Start Date 11/20/11 13:55, Stat collect, 11/20/11 13:55, Clean Catch, Urine Culture if nitrite + or >, 10 WBC/hpf for Leukocytes
UPDATE: Results	Order	303398568	Reason: uti symptoms
UPDATE: Results	Patient	21873821	Mary
UPDATE: Results	Accession	728176311-324-01327	
UPDATE: Results	Accession	728176311-324-01327	
UPDATE: Results	Order	303393269	Blood, Nurse collect, Stat collect, Start Date 11/20/11 13:41, 11/20/11 13:41
RUN Discern Expert: Server Task	Order	303393269	Blood, Nurse collect, Stat collect, Start Date 11/20/11 13:41, 11/20/11 13:41
RUN Discern Expert: Server Task	Order	303393269	Blood, Nurse collect, Stat collect, Start Date 11/20/11 13:41, 11/20/11 13:41
UPDATE: Results	Patient	21873821	Mary
UPDATE: Results	Order	303403241	Blood, Nurse collect, Collected, Stat collect, Start Date 11/20/11 13:55, 11/20/11 13:55
UPDATE: Results	Order	303403248	Blood, Nurse collect, Collected, Stat collect, Start Date 11/20/11 13:55, 11/20/11 13:55
UPDATE: Results	Order	303393436	4 mg. = 1 mL, Soln, 1/1 Push, q30min, PRN, PRN Reason Pain, Routine, Start Date 11/20/11 13:41, Max total = 12 mg, ED order only
RUN Fill Server	Order	303397652	Soln, As Directed, Once, Start Date 11/20/11 14:05, Physician Stop, Stop date 11/20/11 14:05
RUN Fill Server	Order	303397652	Soln, As Directed, Once, Start Date 11/20/11 14:05, Physician Stop, Stop date 11/20/11 14:05

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.



## What to Ask for?

- **Request for Production**
- **No. 1**: All information in your possession regarding your patient Jane Smith. This request is specifically intended to require production of information beyond what may be deemed the medical records or the “designated record set.”

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## What to Ask for?

- **No. 1**: In the event you maintain an electronic medical records system, this request for production is intended to require the production of every possible data set (or categories of data) that your electronic medical record system can provide. In the event you claim that information in your possession is privileged or work product, provide a privilege log specifying the privileged items.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## What to Ask for?

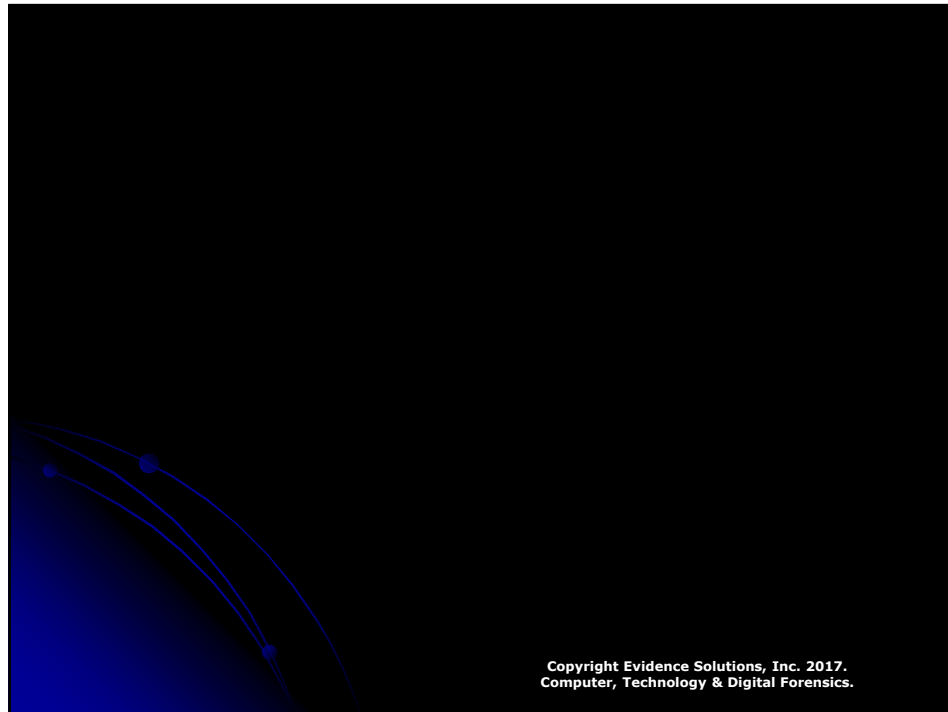
- **No. 2:** The print screen of Defendant's EMR computer system that provides the data sets that Defendant may select for printing of Plaintiff's medical records.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## What to Ask for?

- **No. 3:** Any Room Activity Report, Detailed Room Activity Report, and/or any report documenting any visit by hospital personnel or health care providers to decedent/patient's room or that tracks the location and timing of decedent/patient in the hospital

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.



## Federal Law – medical records

- **45 CFR § 164.524:**
- **(a) Standard: Access to protected health information—**
- **(1) Right of access.** Except as otherwise provided in paragraph (a)(2) or (a)(3) of this section, an individual has a right of access to inspect and obtain a copy of protected health information about the individual in a **designated record set**, for as long as the protected health information is maintained in the designated record set, except for:
  - **(i)** Psychotherapy notes;
  - **(ii)** Information compiled in reasonable anticipation of, or for use in, a civil, criminal, or administrative action or proceeding; and

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Federal Law – medical records

- **45 CFR § 164.501 Definitions.**
- *Designated record set* means:
- **(1)** A group of records maintained by or for a covered entity that is:
  - **(i)** The medical records and billing records about individuals maintained by or for a covered health care provider;
  - **(ii)** The enrollment, payment, claims adjudication, and case or medical management record systems maintained by or for a health plan; or
  - **(iii)** Used, in whole or in part, by or for the covered entity to make decisions about individuals.
- **(2)** For purposes of this paragraph, the term record means any item, collection, or grouping of information that includes protected health information and is maintained, collected, used, or disseminated by or for a covered entity.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.



Doctor's Company: ehr are causing medical errors

- **Analysis of EHR Contributing Factors in Medical Professional Liability Claims**
- **Lack of Physician training:** Not seeing available data, including radiology. GYN not seeing recent CT.
- **Alerts:** Failure of system to transmit data to caregivers, including critical value alerts

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

Doctor's Company: ehr are causing medical errors

- **Analysis of EHR Contributing Factors in Medical Professional Liability Claims**
- **Data Entry:** wrong patient, wrong test, wrong data.

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## What to Ask For

Meta Data  
Inside The System  
Outside The System

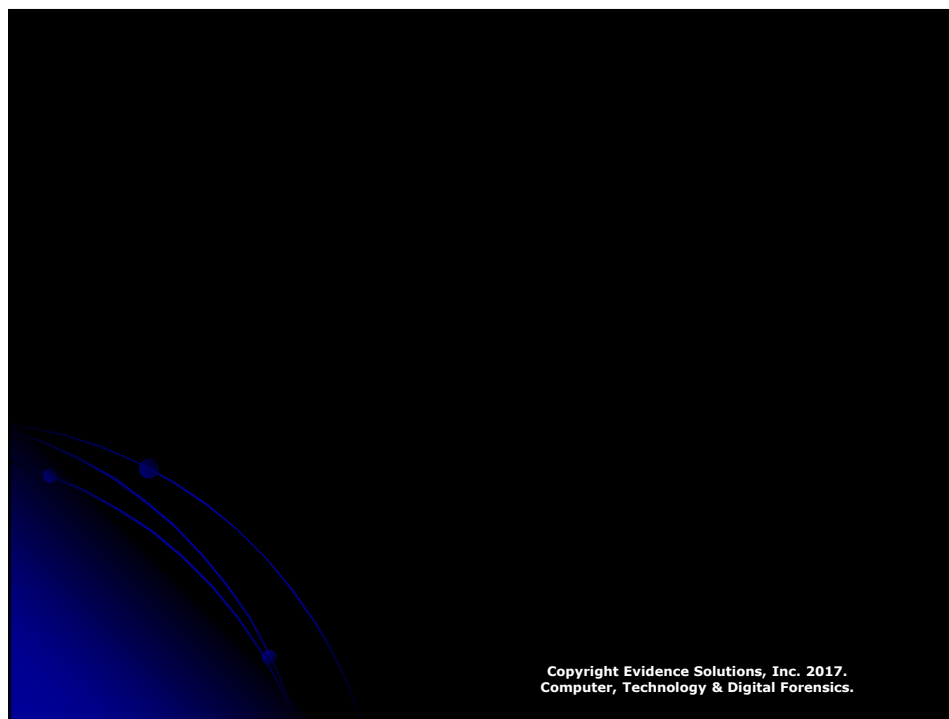
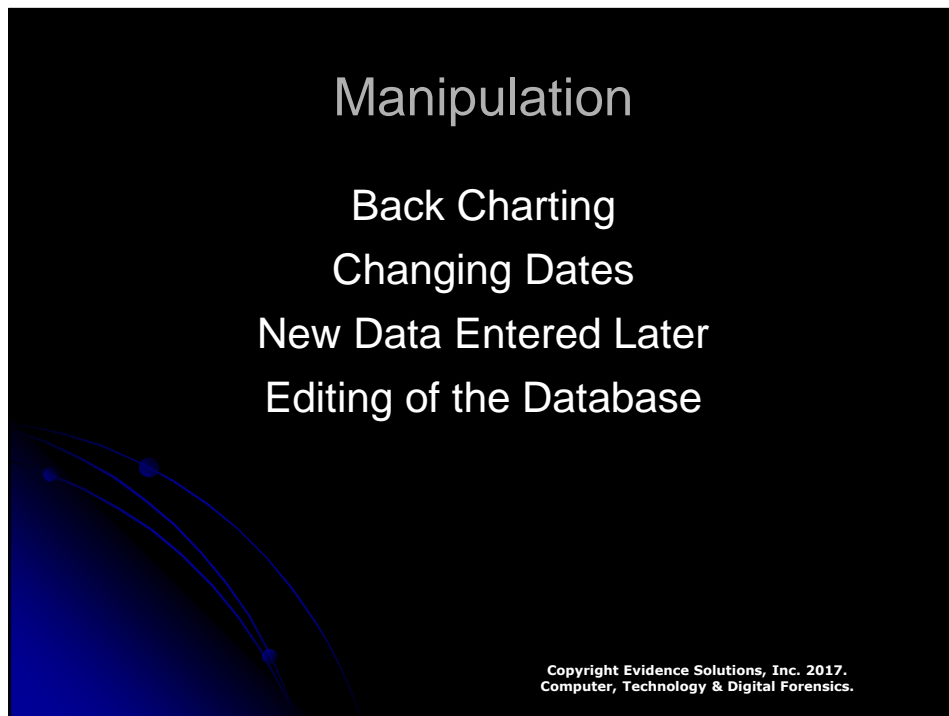
Hosted Locally  
Cloud Based

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Each System is Unique

Data Dictionaries  
Exports of Data  
Reviewing Other Relevant Data – HIPAA  
Issues  
Copy and Paste  
Templates

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.



## What to do / How to do it

- Meta Data is Everywhere
  - – it can tell a much different story than the data
- How do you know when to call for help?
  - - upfront a consultant can steer a case in the right direction
  - - data that looks suspicious

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## What to do / How to do it

- Are there things that should signal suspicion that data has been altered?
  - If it is too good to be true, it probably is.
- Can you do a quick review of data produced to advise on what deeper review is possible?
  - Yes

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## What to do / How to do it

- Do you have some practical tips for us in writing discovery requests?
  - Yes I have templates that can be used for all sorts of discovery requests

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.



Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

# AMERICAN ASSOCIATION OF LEGAL NURSE CONSULTANTS (AALNC)

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

## Contact Information

Scott Greene  
of  
Evidence Solutions, Inc.  
866-795-7166  
[Scott@EvidenceSolutions.com](mailto:Scott@EvidenceSolutions.com)

Copyright Evidence Solutions, Inc. 2017.  
Computer, Technology & Digital Forensics.

# AALNC

AMERICAN ASSOCIATION OF  
LEGAL NURSE CONSULTANTS

AALNC 20171025

## Questions

- 1) Is it possible to manipulate data in the EMR such that it is un-detectable?
  - a. Yes but it is easily detectable
  - b. Yes but it is difficult to detect**
  - c. No it can never be done
  - d. We don't know yet
- 2) When examining EMR data or audit logs what's the best time to consult an EMR forensics expert?
  - a. Before the project begins**
  - b. When something doesn't seem right
  - c. When the attorney on the case insists
  - d. Just before trial
- 3) Back dating entries in a modern EMR can be done by:
  - a. Changing the date and time on the workstation
  - b. Changing the date and time on the server
  - c. Selecting a date and time on the entry form**
  - d. Entries can never be back dated
- 4) Changes in a single audit log data format may be an indication of:
  - a. Data coming from more than one system
  - b. Data manipulation**
  - c. Poor reporting by the EMR system
  - d. Updates performed on the EMR system
- 5) Which EMR system has been identified as storing not only the final progress note but also any "pending" progress note?
  - a. Cerner
  - b. Epic**
  - c. eClinical Works
  - d. MicroMD

## Moderator open ended questions

- 6) Are all EMR systems setup to log everything all the time?
- 7) Why can't EMR systems produce the data on the screen as it looked at the time it was entered?
- 8) What are the implications of HIPAA and collecting EMR data?
- 9) What does Signing the record do in a modern EMR system?

10) Do all systems in a medical facility send data to the core EMR and is the Audit log of the core EMR complete with data from all of those systems?