

Utilizing Structured Data Capture and Reporting for Disease Management

James O'Connor, MD,
 Anthony Amofah, MD,
 David Simon, MD,

Passive Surveillance of Individual Symptoms (table 5)

10/01/2003 thru 12/31/2003

Symptom	# of Patients	Freq./1000 patients	Target Diseases
Chest Pain	166	80.2	Various conditions
Dyspnea	80	38.6	Respiratory conditions
Fever	192	92.7	Various infectious diseases
Cough	273	131.8	Respiratory and infectious conditions
Wheezing	52	25.1	Asthma, other conditions
Dysmenorrhea*	209	150.7	Women's health
Anxiety	192	92.7	Behavioral health conditions
Depression	243	117.3	Behavioral health conditions

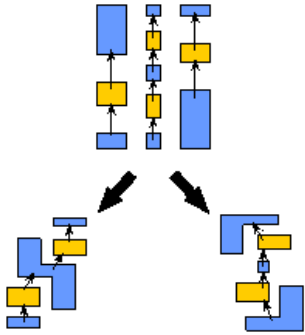
*Female population only

Introduction

- Purpose of our talk:
 - Brief Overview of Need for Innovation in Disease Management in America
 - Lessons Learned and Principles of Structured Data Capture at the Point-of-Care
 - Wading through the Data: Strategies and Approaches for Analysis and Reporting across Patient Populations.

The Speakers

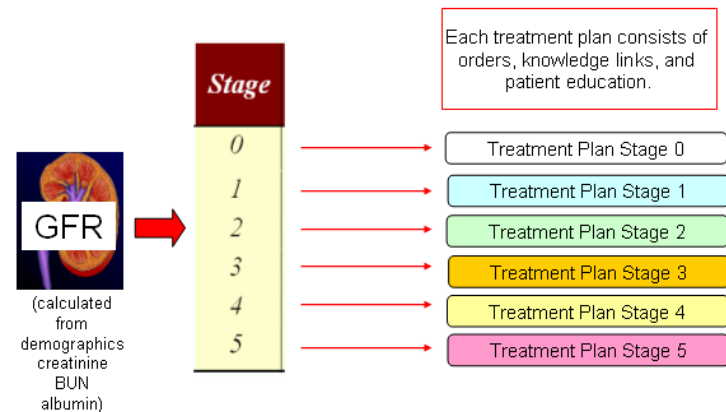
- James O'Connor, M.D.
 - Medical Director of WebMD Practice Services with a decade of EHR experience focusing on design and deployment.
- Anthony Amofah, M.D.
 - Medical Director of large community health care organization (Health Choice Network)
- David Simon, M.D.
 - Medical Director of Nephrology practice in New Haven, Connecticut



Disease Management

Critical Goal for American Healthcare

CKD Disease Management



Rising Cost of Healthcare: the Challenge of this Decade


- Healthcare spending rose 46% in inflation-adjusted dollars between 1987 and 2000.
- Healthcare consumes more of the Gross Domestic Product than ever before (15%) and is rising at least 3% per year.
- Several factors often cited for this including:
 - New Innovation in Surgical and Pharmacologic treatments.
 - Aging Baby Boomers.
 - Greater recognition and treatment of certain diseases (especially in Behavioral Health).
- Diseases are driving the costs...

Top 15 Conditions account for 50% of the Rise in Healthcare Costs

EXHIBIT 3

Decomposition Of Change In Medical Conditions, 1987-2

Condition	Total cl spending of dolla			
Heart disease	26,228.			
Pulmonary conditions	24,792.			
Mental disorders	24,503.			
Cancer	17,734.			
Hypertension	15,385.			
Trauma	14,596.			
Cerebrovascular disease	11,078.			
Arthritis	10,282.			
Diabetes	9,626.			
Back problems	9,486.			
Skin disorders	7,286.			
Pneumonia	7,203.			
Infectious disease	6,191.			
Endocrine	5,029.1	28.0	43.4	28.6
Kidney	3,231.4	8.8	55.8	35.4



Disease Mangement

If we manage these 15 diseases more effectively, then rising costs can be better controlled.

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thma

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rtension

Thorpe K.E. et al. in Health Affairs 8/25/04

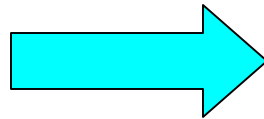
Likely to Rise because of increasing prevalence

EHR as the Key Tool for Disease Management

Current Situation in American Healthcare



Patient Care



Close Encounters Clinic
Area 51
Classified, New Mexico 23444

James O'Connor, M.D.

Office Visit

Date: 5/6/2003

Chief Complaint: abd pain

Vitals: 99/100/121 100%

H&P: 39 yr female \bar{c} 2 days abd pain: RCL
x 2 days. \ominus N&V \ominus dyspnea or frequency
 \ominus hematuria or flank pain

GYN: LMP 7/27/2003 \ominus other symptoms other than late

PHH Ectopic \ominus PID

Surg Appy - 4/10/92

SH Sexually active / ?contraception

PE \ominus thyroid
 \ominus lymph nodes breasts masses or dx
lungs cl. heart RR 15 g a m

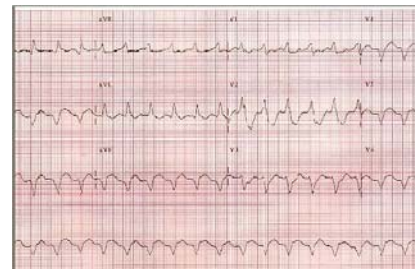
abd \oplus RLQ pain (slight) \ominus masses
Abx nil eat + veg / \ominus CRT \bar{c} \ominus adrenal tenderness
Rectal - \bar{c}

Assess Ectopic \ominus Ovaria

Plan 48 / abstain / avoid sex / probable 1sc \bar{c}



(largely unstructured data in paper form)



MEDICAL CENTER HOSPITAL
300 - 600 W 4TH STREET ODESSA TEXAS PH 333 7111

FOR Vargas Ramon AGE _____
ADDRESS 1804 W. 1st St DATE 5/21/05
120 -
20mg P.O. Q6hr
NO REFILLS Ferron sulfate 300mg # 100
REFILLS 300mg P.O. TID c meals
LABEL Humulin N
30 units SQ Q6hr
Ram / Varga

PRODUCT SELECTION PERMITTED DISPENSE AS WRITTEN
D.E.A. # _____
PREP # _____ IN 88-270

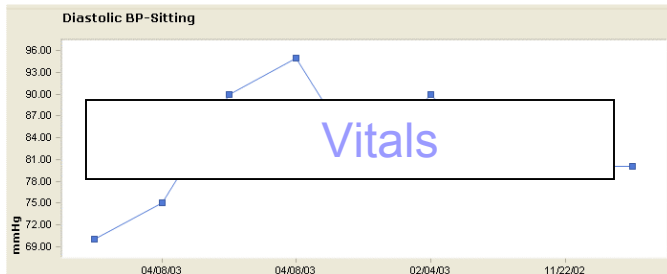
Current Data Collection Tool

1. MEDICARE <input type="checkbox"/> (Medicare #)	MEDICAID <input type="checkbox"/> (Medicaid #)	CHAMPUS <input type="checkbox"/> (Sponsor's SSN)	CHAMPVA <input type="checkbox"/> (VA File #)	GROUP HEALTH PLAN <input type="checkbox"/> (SSN or CS)	FECA B & LUNG <input type="checkbox"/> (SSN)	OTHER <input type="checkbox"/> (IC)	1a. INSURED'S I.D. NUMBER (FOR PROGRAM IN ITEM 1)												
2. PATIENT'S NAME (Last Name, First Name, Middle Initial)				3. PATIENT'S BIRTH DATE MM : DD : YY		SEX M <input type="checkbox"/> F <input type="checkbox"/>	4. INSURED'S NAME (Last Name, First Name, Middle Initial)												
5. PATIENT'S ADDRESS (No., Street) CITY STATE ZIP CODE TELEPHONE (Include Area Code)				6. PATIENT RELATIONSHIP TO INSURED Self <input type="checkbox"/> Spouse <input type="checkbox"/> Child <input type="checkbox"/> Other <input type="checkbox"/>		7. INSURED'S ADDRESS (No., Street) CITY STATE ZIP CODE TELEPHONE (INCLUDE AREA CODE)													
8. OTHER INSURED'S NAME (Last Name, First Name, Middle Initial)				9. IS PATIENT'S CONDITION RELATED TO: a. EMPLOYMENT? (CURRENT OR PREVIOUS) <input type="checkbox"/> YES <input type="checkbox"/> NO b. AUTO ACCIDENT? PLACE (State) <input type="checkbox"/> YES <input type="checkbox"/> NO c. OTHER ACCIDENT? <input type="checkbox"/> YES <input type="checkbox"/> NO		10. IS THERE ANOTHER HEALTH BENEFIT PLAN? <input type="checkbox"/> YES <input type="checkbox"/> NO # yes, return to and complete item 9 a-d.													
11. INSURED'S POLICY OR GROUP OR FECA NUMBER				12. PATIENT'S OR AUTHORIZED PERSON'S SIGNATURE: I authorize the release of any medical or other information necessary to process this claim. I also request payment of government benefits either to myself or to the party who accepts assignment below. SIGNED _____ DATE _____		13. INSURED'S OR AUTHORIZED PERSON'S SIGNATURE: I authorize payment of medical benefits to the undersigned physician or supplier for services described below. SIGNED _____ DATE _____													
14. DATE OF CURRENT ILLNESS (First symptom) OR INJURY (Accident or PREGNANCY/LMP) MM : DD : YY				15. IF PATIENT HAS HAD SAME OR SIMILAR ILLNESS, GIVE FIRST DATE: MM : DD : YY		16. DATES PATIENT UNABLE TO WORK IN CURRENT OCCUPATION FROM MM : DD : YY TO MM : DD : YY													
17. NAME OF REFERRING PHYSICIAN OR OTHER SOURCE				17a. I.D. NUMBER OF REFERRING PHYSICIAN		18. HOSPITALIZATION DATES RELATED TO CURRENT SERVICES FROM MM : DD : YY TO MM : DD : YY													
19. RESERVED FOR LOCAL USE				20. OUTSIDE LAB? \$ CHARGES <input type="checkbox"/> YES <input type="checkbox"/> NO		21. MEDICAID RESUBMISSION CODE ORIGINAL REF. NO.													
22. PRIOR AUTHORIZATION NUMBER				23. PRIOR AUTHORIZATION NUMBER		24. TABLE													
24. A. DATE(S) OF SERVICE FROM MM : DD : YY		B. PLACE OF SERVICE Service		C. TYPE OF SERVICE Type of Service		D. PROCEDURES, SERVICES, OR SUPPLIES (Specify Unusual Circumstances) CPT/HCPCS / MODIFIER		E. DIAGNOSIS CODE		F. \$ CHARGES		G. DAYS (EPSU) OR UNITS Family Plan		H. EMS		I. COR		J. RESERVED FOR LOCAL USE	
25. FEDERAL TAX I.D. NUMBER SSN EIN				26. PATIENT'S ACCOUNT NO.		27. ACCEPT ASSIGNMENT? (For gov. contracts, see back) YES <input type="checkbox"/> NO <input type="checkbox"/>		28. TOTAL CHARGE \$		29. AMOUNT PAID \$		30. BALANCE DUE \$							
31. SIGNATURE OF PHYSICIAN OR SUPPLIER INCLUDING DEGREE OR CREDENTIALS (I certify that the statements on the reverse apply to this bill and are made a part thereof.)				32. NAME AND ADDRESS OF FACILITY WHERE SERVICES WERE RENDERED (If other than home or office)				33. PHYSICIAN'S, SUPPLIER'S BILLING NAME, ADDRESS, ZIP CODE & PHONE #											

EHR: Capture of Structured Data

Active Medications	Dosage	Days Left	Issued
Hydrochlorothiazide 25 MG TABS	1 tab qd 20 days 2 refills	90 Days Left	04/08/03
Lipitor 20 MG TA			04/08/03
Metformin HCl 50			04/08/03

Medications



Vitals

Lab Tests	Description	Status
04/07/03	Cholesterol, Total	Abnormal
04/07/03	GLUCOSE PLASMA	
04/07/03	Electro	
04/07/03	THYRO	
04/07/03	RPR (MONITOR) W/ REFL TITER	
01/28/03	ELECTROLYTE PANEL	

Labs

REASON FOR VISIT

[Unspecified reason for visit hyperlipidemia.](#) [Reason for visit dizziness.](#)
[Reason for visit congestive heart failure.](#)
[Reason for visit upper respiratory infection.](#)

HISTORY OF PRESENT ILLN

Steven Carlson is a 69 year old male.
 ° [No headache.](#) ° [No worsening vision.](#)
[polydypsia](#) and [no feelings of weakness](#)

Encounter
Documentation

[Dyspnea.](#) ° [No polyphagia.](#) ° [No changes in urinary habits.](#) ° [No numbness not of the limbs.](#) ° [No sleep disturbances.](#)

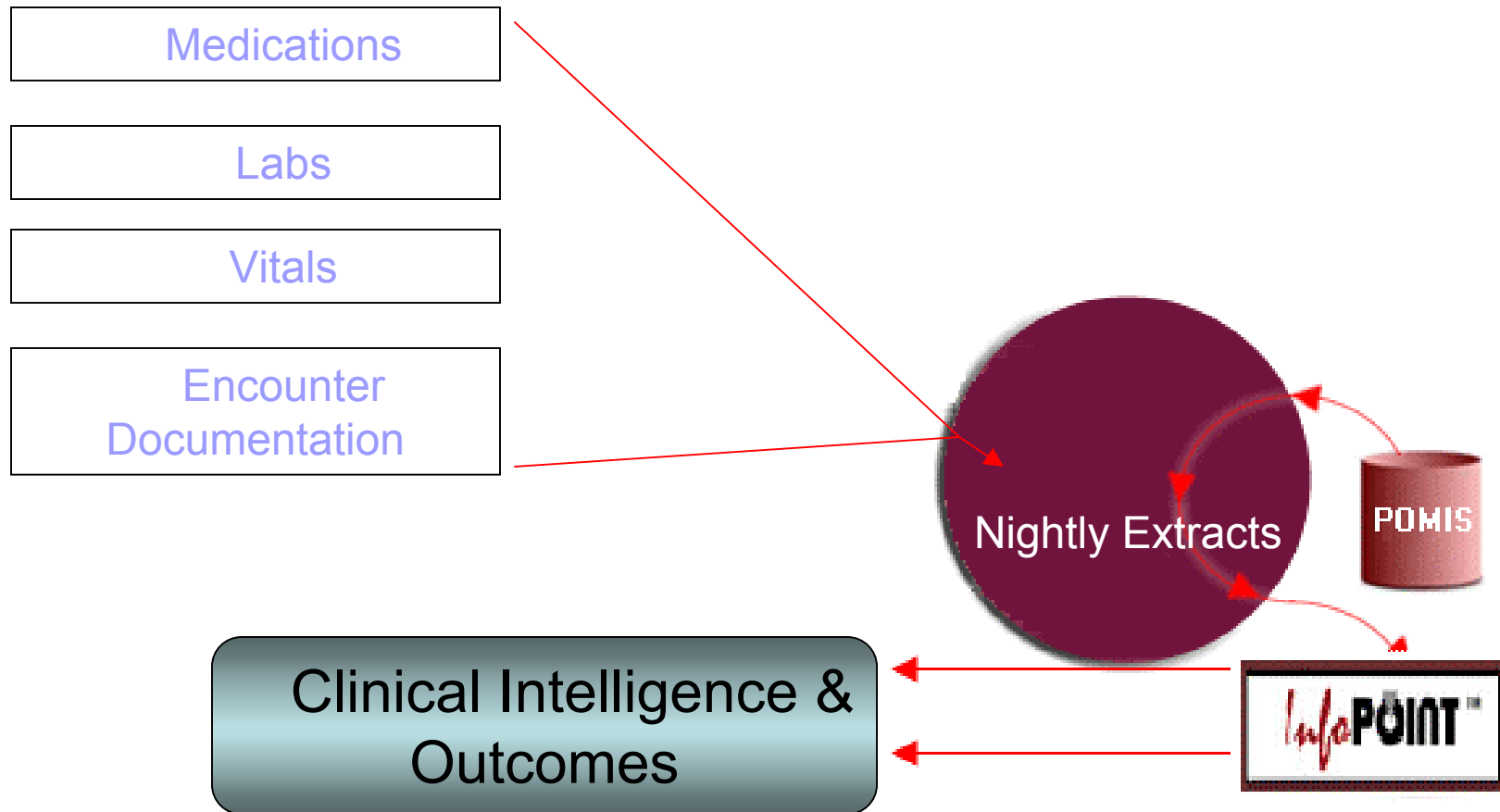
PERSONAL HISTORY

Habits: [A recent examination by an ophthalmologist](#) but [not by a podiatrist.](#)

ALLERGIES

• [Penicillins](#) [Reaction: Skin Rashes/Hives](#) [Confirmed: 04/08/2003.](#)

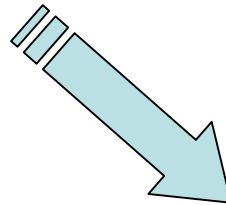
Making Sense of Clinical Data: Analysis Repository



A Case Study



Fruits of Structured Clinical Documentation



By:

James P. O'Connor, MD, Verlyn M. Peterson, MD, Terry E. Douglas, BA

Passive Surveillance of Symptom Complexes (table 6)

10/01/2003 thru 12/31/2003

Symptom Complex	# of Patients	Freq./1000 patients	Target Diseases
Fever & Headache	122	58.9	Various infectious diseases
Headache & Neck Stiffness	52	25.1	Various conditions
Fever & Headache & Neck Stiffness	12	5.8	Meningitis
Fever & Rash	1	0.5	Various infectious diseases
Fever & Rash & Headache	0	0.0	N. meningitidis Meningitis
Fever & Cough	82	39.6	Upper Respiratory Infection, Influenza
Fever & Cough & Dyspnea	7	3.4	Influenza, Inhalational Anthrax*
Vision Problems & Difficulty Swallowing	0	0.0	Botulism

EHR: Key Tool for Disease Management

- Allows structured data at the point-of-care.
 - Eliminates reliance on business data (claims) for clinical information.
 - Is challenging to implement: huge change for the physician and healthcare team.
- Allows extraction of aggregate patient data into an Analysis Repository
 - Can look at patient sub-populations by disease.
 - Rapid Retrospective Studies: daily monitoring of conditions.
 - Once queries and reports established, they can be run quickly without disruption of the EHR system.

Anthony Amofah M.D.

Medical Director of Health Choice Network

Lessons Learned and Principles
of Structured Data Capture at the
Point-of-Care

(slides and data to be
presented 10/23/04)

David Simon

Medical Director of Metabolism Associates

Wading through the Data:
Strategies and Approaches for
Analysis and Reporting across
Patient Populations.

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