



Electronic Medical/Health Records - Common Data Elements for Substance Use Disorders


Betty Tai, PhD
Director, NIDA CTN

Robert Gore-Langton, PhD
Principal Investigator, The Emmes Corporation




CTN WEB SEMINAR SERIES:
A FORUM TO EXCHANGE RESEARCH KNOWLEDGE
Produced by: CTN Training

This training has been funded in whole or in part with Federal funds from the National Institute on Drug Abuse, National Institutes of Health, Department of Health and Human Services, under Contract No. HHSN271201000002C.

NIDA CTN Web Seminar Series 
November 2015

Electronic Medical/Health Records - Common Data Elements for Substance Use Disorders

Robert Gore-Langton, PhD
Principal Investigator
The Emmes Corporation, Rockville, MD

Many Perspectives for EHRs 

- **Practitioners and Patients**
 - CEO/CIO (administration, cost savings)
 - Medical Director and Clinicians (quality improvement)
 - Various Healthcare Personnel (quality care, efficiency)
 - Vendors and Technical Personnel (product maintenance)
 - Patients (better health decisions, better health, security)
- **My perspective (full disclosure ☺)**
 - PI in a Clinical Research Organization (better research)
 - Consultant to NIDA on EMR/EHR (better SUD research)

3

NIDA CTN's interest in EHRs and CDEs



2010 -

- Realization that data elements for Substance Use Disorders (SUDs) are not generally being included in EHRs and there is no process in place to standardize these data elements
- Failure to standardize data collection will limit the value for data exchange in clinical care and for EHR-based clinical research on SUDs

4

Urgency for SUD data collection



- **1983-2004: 32-fold increase** in fatal medication errors at home related to alcohol and/or street drugs (Phillips DP et al. *Arch Intern Med* 208;168(14):1561-1566)
- **1991-2009: 3-fold increase** in opioid analgesic Rx's
- **2005-2009: 2-fold increase** in ER visits due to non-medical use of Rx opioids
 - Rx opioid overdose now 2nd leading cause of unintentional death in U.S. (CDC: "national epidemic")
 - 2009: 5.25 million people in U.S. reported non-medical use of Rx painkillers
- **2013: Drug overdose** leading cause of injury death

Webinar learning objectives



- Define differences between EMRs and EHRs
- Explain use of CDEs in clinical care and clinical research
- Outline the role of CDEs for Substance Use Disorders in an integrated vision of clinical care and research

6

Brief History of Clinical Information Systems



- **Computers** – clinical data management (late 1950s)
- **Hospital systems** – HIS, ADT, LIS, billing/accounting, pharmacy, radiology and pictures, nursing, practice management, chart/medical records management, ...
- **1991 (25 years ago) – IOM landmark report:**
“The Computer-Based Patient Record: An Essential Technology for Health Care”

7

Evolving electronic records



- **Computer-based patient record (CPR):** “electronic patient record that resides in a system designed to support users through availability of complete and accurate data, practitioner reminders and alert, clinical decision support systems, links to bodies of medical knowledge, and other aids.” (i.e., IOM concept)
- **Ambulatory Medical Record**
- **Electronic Medical Record (EMR)**
- **Electronic Health Record (EHR)**
- **Individual/Personal Health Record (IHR/PHR) –** virtualized record for individuals to access/manage/share information

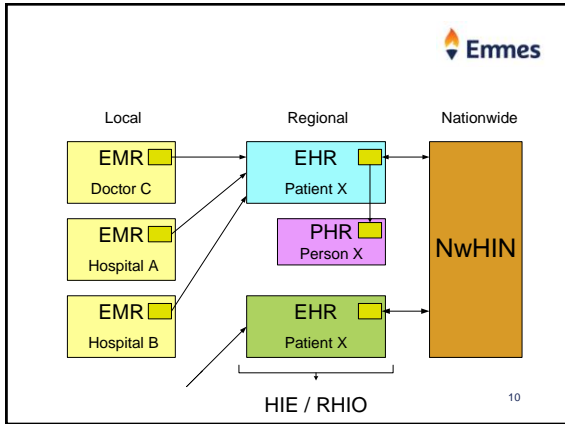
8

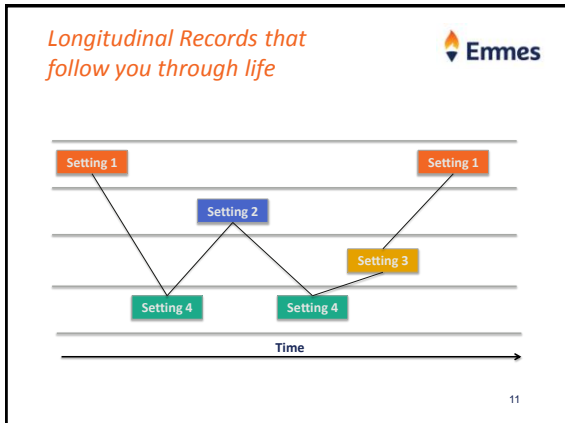
What is different about an EHR?




- **CPR – a “concept” with unique coding of individually searchable data items**
- **EMR/EPR – only requires data in electronic form; hospital or practice-based**
- **EHR – “Key Capabilities of EHR Systems” defined by IOM in 2003:**
 - Longitudinal collection of electronic health information
 - Immediate electronic access (patient or population level)
 - Knowledge and decision-support (quality, safety, efficiency)
 - Share patient’s complete health records (the ideal)
 - Efficiency for health care delivery

9





Anticipated Benefits of HIT-EHR 

Improved health care – quality, safety, cost

- For the Patient
 - Increased overall quality/ accuracy / fewer medical errors
 - Fewer redundant medical tests (reduced utilization)
 - Improved emergency care (fast access to records)
 - More accessible (increased delivery)/better transparency
 - Some say better privacy and security
- For the Population / Country / State
 - More efficient processing (system-wide **cost savings; billions**)
 - Public health monitoring & management
 - Accelerate clinical research - "continuously learning health care system" (IOM)
 - For SUD, EHR could replace PDMPs (although no evidence it will)¹²

Barriers to EHR Implementation



- High implementation costs – Ultimate beneficiaries uncertain. Poor integration with cost models.
- Liabilities related to privacy and security (HIPAA, 42 CFR part 2)
- Choosing appropriate software, and vendor lock-in
- Usability, training, high failure rates

Offsets to barriers:

- CMS Meaningful use incentives – financial support through ARRA 2009 (HITECH Act) - \$13 billion by Q1 2013; Medicaid/Medicare incentives per eligible provider
- Health Information Exchange (HIE) funding
- Regional Extension Centers (REC) – technical support

16

Federal Leadership for EHRs

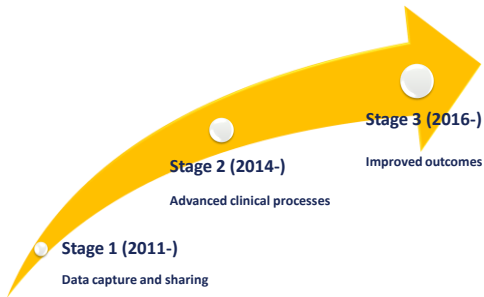


Some examples:

- ONC HIT-EHR Strategic Plan (2008-2012)
- ONC Nationwide Health Information Network (NwHIN, a set of specifications) and NwHIN Exchange (public-private partnership data exchange)
- VA's VistA HIS architecture – public domain
- CCHIT – certification for HIT-EHR; 1 of 6 entities
- CMS Meaningful Use Program

17

CMS Meaningful Use Program



18

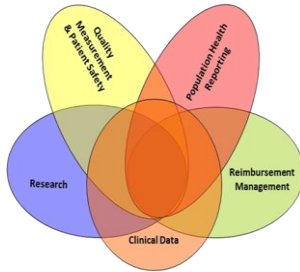
Standards for Interoperability



- **Semantic** (meaning of data is the same for system A and system B)
- **Syndactic/Technical** (electronic data exchange from system A to system B; ONC leadership)
- **Process** (business processes at A and B are compatible)

22

Collect Once, Use Many Times¹



1. R.L. Richesson, C. Kalleem, D. DuLong et al., 2011. Project White Paper – Common Data Elements for Clinical Documentation and Secondary Use: Diabe-DS Proof-9of-Concept for “Collect Once, Use Many Times”

23


Where does the data come from?



- **Clinical research (databases, notes)**
- **Clinical trials (electronic data capture systems)**
- **Healthcare (paper records, EMRs, EHRs)**

PROBLEM is integrating data across multiple systems and standards


24

General objectives of CDEs 

Harmonize, standardize, simplify data collection -


- Identify discrete, defined items for data collection (ISO/IEC 11179 metadata registry standard)
- Promote consistent data collection in the field
- Eliminate unneeded/redundant data collection
- Promote consistent reporting and analysis
- Reduce possibility of error due to data translation and transmission
- Facilitate data sharing (semantic interoperability)


From: NCI Wiki – CTEP Common Data Elements
<https://wiki.nci.nih.gov/display/cdSR/CTEP+Common+Data+Elements> 25

Clinical and research objectives for SUD CDEs 


- Use of standardized data collection for SUD in clinical trials, registries, EHRs, and clinical decision support
- Use of standardized data in quality measures
- Facilitate the integration of SUD clinical research with data collection in general medical care (e.g., better support pragmatic trials, CER, registries, etc.)
- Interoperability for the exchange of data for data science initiatives

26

CDEs at the NIH 



27



Workshops/Symposia

- NIDA-sponsored 'Electronic Medical Records Workshop', Sept. 24, 2010
- NIH/OBSSR- and SBM-sponsored workshop 'Identifying Core Behavioral and Psychosocial Data Elements for the Electronic Health Record', May 2-3, 2011
- Other venues :
 - AAAP, 2010
 - ASAM, 2011
 - APA, 2011
 - INEBRIA, 2011; CPDD, 2011
 - ONC/SAMHSA Behavioral Health CQM TEP – Drug Use, 2012


31



Expert Key Recommendations

- Keep it brief for primary care
- Combine screening of tobacco, alcohol and substance use in primary care
- Use validated screening questions above all other considerations
- Develop longitudinal questions with a standardized timeframe
- Use standardized questions or instruments for additional assessments
- Incorporate clinical decisions and evidence-based brief interventions
- Consider ASAM dimensions and The Joint Commission (TJC) standards


32



Feedback from Primary Care Providers

- **Need single question screener**
- **Brief assessment (3 questions better than 10)**
- **Actual question does not matter as much as making a decision and moving forward**
- **For EHR development – questions and assessments be validated**

33



Clinical Research
Electronic Health Records

Obtain a simple report of the CDEs assigned to this instrument that would be added to clinical trial forms or data capture for EHRs.

- AUDIT Interview version
- AUDIT Self Report version
- AUDIT-C Questionnaire
- Clinical Decision Support (CDS) for Substance Abuse
- Demographics
- Drug Abuse Screening Test (DAST-10)
- Fagerstrom Test for Nicotine Dependence (FTND)
- Patient Health Questionnaire-2 (PHQ-2)
- Patient Health Questionnaire-9 (PHQ-9)
- Single-Question Screening Test - Health Professional Administered
- Single-Question Screening Test - Self-Administered
- Timeline Followback Method Assessment
- PROMIS Pain Interensity - Short Form 3a v1.0
- PROMIS Pain Interference - Short Form 6b v1.0
- PROMIS Pain Interference - Short Form 8a v1.0
- PROMIS Parent Proxy Pain Interference - Short Form 8a v1.0
- PROMIS Pediatric Pain Interference - Short Form 8a v1.0

37



NIDA CTN Common Data Elements

Home | Instruments | Questionnaires

Home > Instruments > Single-Question Screening Test - Self-Administered Single-Question Screening Test For Drug Use - How Many Times In The Past Year Have You Used An Illegal Drug Or Used A Prescription Medication For Non-Medical Reasons (For Example, Because Of The Experience Or Feeling It Caused)?

Question: How Many Times In The Past Year Have You Used An Illegal Drug Or Used A Prescription Medication For Non-Medical Reasons (For Example, Because Of The Experience Or Feeling It Caused)?

Question Text: How many times in the past year have you used an illegal drug or used prescription medication for non-medical reasons (for example, because of the experience or feeling it caused)?

Module: Single-Question Screening Test For Drug Use

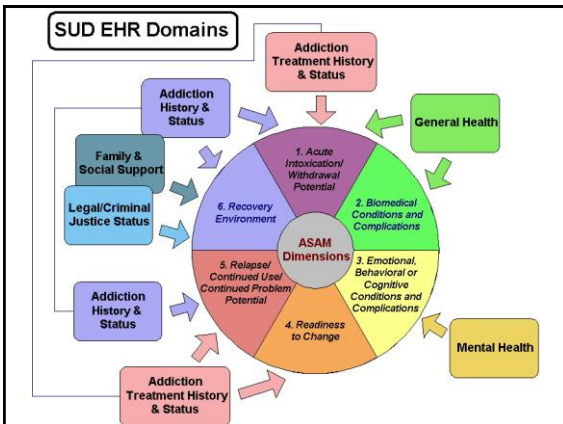
Instrument: Single-Question Screening Test - Self-Administered


Common Data Elements

SDS Mapping | **Professional Endpoints** | **CDM 3.0**

SDS Mapping The screeners should apply to the use of 302 days of the criterion of individual use of prescription drug. Screeners administered by the user of digital mobile or traditional digital drug screens are allowed. (See Substance Abuse Questionnaire) **Professional Endpoints** Screeners are not usually subject to high reliability, derived as well as administration, that may be used in clinical research. **CDM 3.0** Screeners are not usually subject to high reliability, derived as well as administration, that may be used in clinical research.


38

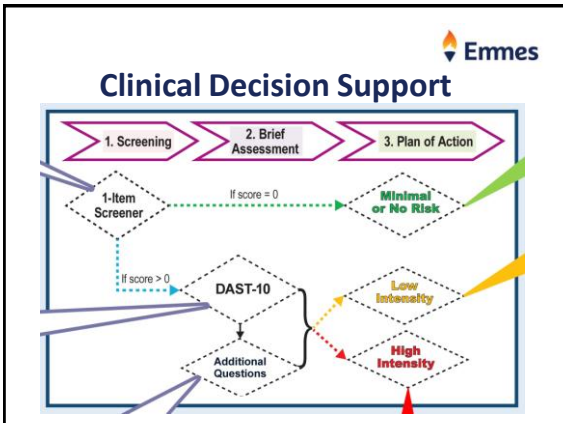





Clinical Decision Support

- NIDA Clinical Decision Support Expert Consensus Meeting, July 13, 2011 organized by Dr. Geetha Subramanian (NIDA CTN)
- Feedback on CDS also sought at:
 - INEBRIA, 2011
 - CPDD, 2012



40





High Intensity Intervention (Level Red)	
Screening Criteria	DAST-10 only DAST-10 scores > 3 (equal to or greater than 3) OR DAST-10 Score 0-2 AND Additional Criteria <ul style="list-style-type: none"> • Daily use of any substance • Weekly use of opioids, cocaine, or stimulants • Injection drug use in the past three months • Currently in drug abuse treatment
Actions to Consider	<ul style="list-style-type: none"> • Recommend cessation • Assess readiness to change • Facilitate referral to an addiction specialist/program for further assessment/treatment • Encourage mutual help group meeting attendance • Additional issues to consider: <ul style="list-style-type: none"> ○ Review current medications ○ Obtain drug abuse treatment history ○ Order urine drug screen ○ Obtain tobacco and alcohol use history ○ Screen for common mental health conditions ○ Provide preventive health screening (e.g., HIV) ○ Refer for immediate crisis interventions, if needed ○ Schedule 1 month follow-up visit For patients with opioid dependence: <ul style="list-style-type: none"> • Initiate on-site/integrated medication-assisted treatment for opioid dependence or • Refer to an outside provider/organization for medication-assisted treatment

42







NIDA/ASAM Composite eClinical Quality Measure


- Recommendation of the **ONC-SAMHSA Behavioral health CQM** Technical Expert Panel, August 9, 2012

“Percentage of patients aged 18 years and older who were screened at least once within the last 24 months for tobacco use, unhealthy alcohol use, nonmedical prescription drug use, and illicit drug use AND who received an intervention for all positive screening results”

- Incorporates NQF-endorsed **AMA/PCPI component measures for alcohol and tobacco**


+

+

+


43




Behavioral health integration under the ACA

- **Definition¹:**

“whole person care that focuses on overall health; creates partnerships across all aspects of health; and is facilitated by a variety of clinical, structural, and financial arrangements and community supports that remove barriers between physical and behavioral healthcare”

1. Croze, C. for the Association for Behavioral Health and Wellness (ABWH), 2015. Healthcare Integration in the Era of the Affordable Care Act.

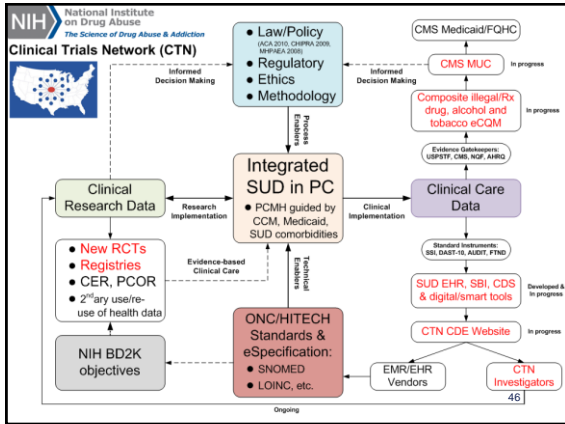
44




Role of EHRs and CDEs in behavioral health care integration

- **EHRs that cross boundaries** of individual organizations working to provided integrated care and eventually of multiple health networks leading to a Nationwide network
- Within this **integrated clinical care environment**, further integration of clinical care and clinical research will foster the IOM’s vision
- **CDEs provide the semantic interoperability** that is one part of the ability to broadly share meaningful data for clinical research


45



Selected References on EHRs 

- Carter, J.H. *Electronic Health Records, second edition. A Guide for Clinicians and Administrators.* American College of Physicians (ACP), 2008.
- Academy of Managed Care Pharmacy (AMCP). *Health Information Technology (HIT) Primer,* 2011.
- Wulsin, L and Dougherty, A. *Health Information Technology – Electronic Health Records: A Primer.* California Research Bureau (CRB 08-013), 2008.
- Levine, BA and Goldschlag, D. 2013. *An EHR primer. Contemporary OB/GYN.*
- Levine, BA and Goldschlag, D. 2013. *EHR benefits and costs.*

47

NIDA References on CDEs 

- Tai, B. Sparenborg, S et al. Expanding the National Drug Abuse Treatment Clinical Trials network to address the management of substance use disorders in general medical settings. *Journal of Substance Abuse Treatment* 2014 5:75-80. doi: 10.2147/SAR.S66538
- Ghitza, U.E. and Tai, B. Challenges and opportunities for integrating preventive substance-use-care services in primary care through the Affordable Care Act. *Journal of Health Care for the Poor and Underserved* 2014 25(1):36-45. doi: 10.1353/hpu.2014.0067.
- Tai, B. and Volkow, N.D. Treatment for substance use disorder: opportunities and challenges under the affordable care act. *Social Work in Public Health* 2013 28(3-4): 165-74. doi: 10.1080/19371918.2013.758975.
- Ghitza, U. E., R. E. Gore-Langton, et al. Common data elements for substance use disorders in electronic health records: the NIDA Clinical Trials Network experience. *Addiction* 2013 108(1): 3-8. doi: 10.1111/j.1360-0443.2012.03876.x.

48

NIDA References on CDEs

- Tai, B., R. E. Gore-Langton, et al. Response to commentaries. *Addiction* 2013 108(1): 12-3. doi: 10.1111/j.1360-0443.2012.03979.x.
- Tai, B., M. Boyle, et al. Meaningful use of electronic behavioral health data in primary health care. *Science Translational Medicine* 2012 4(119): 119mr3. doi: 10.1126/scitranslmed.3003324
- Tai, B. and A. T. McLellan Integrating information on substance use disorders into electronic health record systems. *Journal of Substance Abuse Treatment* 2012 43(1): 12-9. doi: 10.1016/j.jsat.2011.10.010

