New Horizons in Alcohol Research: Using Electronic Health Records

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National Advisory Council
National Institute on Alcohol Abuse and Alcoholism

Rockville, MD
September 11, 2014
Overview: Integration with mainstream health care

1) Huge opportunities for studying alcohol problems in health care
   - Health Reform (Affordable Care Act - ACA)
   - Integration a longstanding goal of NIAAA

2) Affordable Care Act makes health plans critical research organizations
   - Use of Electronic Health Records (EHRs) for research
     - Population based, medical records, process of care
     - Many types of studies: epidemiology, treatment, prevention,
       comparative effectiveness research, pragmatic trials, clinical trials,
       genetics
   - Alcohol comes to this late – lots of catching up to do

3) Examples of studies of integration of alcohol with health care
   - Primary care as a medical/health home
Health Reform creates opportunities for research in “learning health care systems”: a policy event that fits well with NIAAA’s mission

- Will increase services for alcohol problems
  - One of 10 “Essential Health Benefits”
- Many formerly uninsured receiving insurance
  - Alcohol problems over-represented in the newly insured population
- Sea-change in many facets of service delivery
  - Spectrum of problems: risk behaviors and primary disorders
  - Range of settings: emphasis on primary care
- Accountability: Performance measures
Health plans as valuable research sites

- Incredible laboratories to answer questions
  - Data
  - Strong researchers

- ACA moving health technology out of the Dark Ages
  - Required to adopt and incentivized to use EHRs
  - By 2016 required to have reporting of clinical quality measures, electronic transmission of patient care summaries, clinical decision support; patient portals

- Patient portals used by patients and by providers
Total Health: An Integrated Approach to Diseases and Risk Factors

**Support Individuals**
- Proactive clinical prevention
- Reliable and effective: screening, advice, assistance, referral
- Link to on-line, community supports

**Encourage Groups**
- Students, employees, parents & families working together for health
- Build/support social networks
  - Every Body Walk! as signature program

**Change Communities**
- Champion healthier practices, policies and environments where people live, work, play and study
- Walk the talk in our own workplace

**Track Outcomes**
- Clarify KP’s level of responsibility/influence
  - Set goals
- Measure performance

*Aligns with World Health Organization’s framework for monitoring noncommunicable diseases*
Integration of Alcohol Care with Primary Care as the Anchor (Health Home)

Screen and treat in PC
(if moderate problem, continue monitoring)

Specialty care if needed

Back to Primary Care for monitoring


Integrated health care delivery system (medical, psychiatry & AOD services)

3.6 + million members (45% of market share, diversity increasing with ACA)

Longitudinal data & long membership enrollment

Harmonized data with 18 health plans
**Division of Research, Kaiser Permanente Transforms Healthcare Data Into Usable Information**

**Research Database**  
Data Span: 1960 – Current

<table>
<thead>
<tr>
<th>Database Type</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oracle 11G 14TB</strong></td>
<td>Utilization, Diagnosis, Procedures, Pharmacy, Lab Results, Lab Notes, Enrollment, Demographics, EKG, Providers, Rehabilitation, Vitals, Enrollment, Mortality, CA Death, Tumor, Cause of death, Diabetes, IP Clinical Warehouse, Back Pain, SSA Death, Cancer Registry, RPGEH</td>
</tr>
<tr>
<td><strong>Virtual Data Warehouse (VDW)</strong></td>
<td>CESR Virtual Data Warehouse, Mini-Sentinel Common Data Model</td>
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<td><strong>TRRS (Radiology)</strong></td>
<td></td>
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<td><strong>FRSS (Providers)</strong></td>
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<td><strong>PARRS (KP Appointments)</strong></td>
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<tr>
<td><strong>CAMMOLOT/COPS (Legacy Chemo)</strong></td>
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<tr>
<td><strong>TraceMaster (ECG’s)</strong></td>
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<td><strong>CoPath (Pathology)</strong></td>
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<td><strong>KP.Org</strong></td>
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<tr>
<td><strong>CPM (Facilities)</strong></td>
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<tr>
<td><strong>Ad-hoc SAS Data Sets</strong></td>
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</table>
The HMORN is comprised of 18 well established, public-domain research centers based in large not-for-profit health care systems.
Projects of the HMO Research Network
(NIH, AHRQ, FDA, CDC, CMS, or PCORI funded)

- PCORnet (PCORI)
- NIH Collaboratory (NIH Common Fund)
- Mental Health Research Network (NIMH)
- Cardiovascular Research Network (NHLBI)
- Cancer Research Network (NCI)
- SUPREME-DM (NIDDK)
- Older Americans Independent Center – OAIC (NIA)
- Mini-Sentinel (FDA)
- SPAN for CER (AHRQ)
- Vaccine Safety Datalink (CDC)
- ACTION (AHRQ)
New Innovations with Health Reform
New Innovations with Patient Portals
Examples of using Patient Portal

- Graphing blood pressure/lab tests
- Planning prevention tests
- Preparing for doctor visit/making appointments
- Emailing doctor
- Changing doctors
- Sleep/weight-loss/nutrition/anger management/mindfulness meditation/CBT, etc. programs
TPMG Video Visits

Welcome to the TPMG Video Visits Implementation Infosite. Here you will find general information about Video Visits, as well as useful tools to help you implement Video Visits.

What’s New?

Show My Desktop feature is now available

New implementation tools can help prepare a department for go-live: Implementation Planning Worksheet and Implementation Checklist are now available.

Helpful Links

To access Video Visits, use these links:
Clinicians: tig-apps.kp.org/videovisit
Patients: kp.org/mydoctor/videovisit

Contacts

Questions about Video Visits? Please contact your local Video Visits Implementation Lead or your APIC for Technology.

Feedback or suggestions regarding this infosite? Please send a Lotus Notes email to our regional Video Visits team at NCAL Video.KPMC.
Integration of Alcohol and Drug Care with Primary Care as the Anchor (Health Home)

Screen and treat in PC (if moderate problem, continue monitoring)

Specialty care if needed

Back to Primary Care for monitoring


Adult Screening, Brief Intervention and Referral to Treatment (SBIRT)

R01 AA018660

ADVISE
Alcohol Drinking as a Vital Sign
Study Design

54 Adult Primary Care Clinics

1/3 of clinics randomized to
Physician Arm (PCP)
- Physicians trained to conduct SBIRT

1/3 of clinics randomized to
Non-Physician Arm (NPP)
- Medical Assistants trained to Screen
  - Nurses, Clinical Health Educators, or Behavioral Medicine Specialists, trained to conduct BI & RT

1/3 of clinics randomized to
Control Arm
- Informational Session on How to Use Screener
Methods

Sample

- 54 Primary Care clinics (with 500+ clinicians)
  - Screener in Electronic Health Record: studying patients via EHR in health care visits – population based
  - 600,000+ patients

Outcomes

- Implementation (rates of screening, BI, and RT)
- Rates of hazardous drinking over time
- Utilization and cost
- Secondary outcomes: hypertension, depression, medication adherence
- Patient characteristics
### Patient Information

**Patient ID:** 110012963053  
**Age:** 45 Y  
**Sex:** F  
**PCP:**  
**Allergies:** Vancomycin, Amino Acid Supplement, Formaldehyde, Tetanus Antitoxin, Hepatitis A Virus Vaccine

### Visit Details

**Date:** 7/26/2010  
**Visit with:** AX CEMD MD

### Chief Complaint

- **None**

### Vitals

- **New Set of Vitals**
  - **Other Vitals:** OB
  - **OB/GYN Status:** OB
  - **Tobacco Status:** Not Asked
  - **Verified:** Never verified

### BestPractice Alerts

- **Please complete the Alcohol Screening for this patient.**
  - **Jump to Alcohol Screening**

### Visit Notes

- **None**
### Alcohol Screen

<table>
<thead>
<tr>
<th>ALCOHOL SCREEN</th>
<th>07/19/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Limits:</td>
<td>1:00</td>
</tr>
<tr>
<td>Weekly Limits:</td>
<td></td>
</tr>
<tr>
<td>(Male 18-65) How many times in the past year have you had 5 or more drinks a day?</td>
<td>2</td>
</tr>
<tr>
<td>Female 18+ and Male 66+ How many times in the past year have you had 4 or more drinks a day?</td>
<td>3</td>
</tr>
<tr>
<td>Dependence Risk:</td>
<td></td>
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<tr>
<td>On a typical drinking day, how many drinks do you have?</td>
<td></td>
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<tr>
<td>On average, how many days a week do you have an alcoholic drink?</td>
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<tr>
<td>In the past year, have you sometimes been under the influence of alcohol in situations where you could have caused an accident or gotten hurt?</td>
<td></td>
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<tr>
<td>Have there been times when you had a lot more to drink than you intended to have?</td>
<td></td>
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<tr>
<td>In the past year, have you sometimes been under the influence of alcohol in situations where you could have caused an accident or gotten hurt?</td>
<td></td>
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<tr>
<td>Was an intervention performed?</td>
<td></td>
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<tr>
<td>Was patient referred to CD Services?</td>
<td></td>
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<tr>
<td>--------------</td>
<td>-----------</td>
</tr>
<tr>
<td>SYSTOLIC</td>
<td>106</td>
</tr>
<tr>
<td>DIASTOLIC</td>
<td>68</td>
</tr>
<tr>
<td>PULSE</td>
<td>76</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>134</td>
</tr>
<tr>
<td>HEIGHT</td>
<td>5' 4&quot;</td>
</tr>
<tr>
<td>BMI</td>
<td>22.99</td>
</tr>
<tr>
<td>EXERCISE MIN/AWK</td>
<td>250</td>
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<tr>
<td># TIMES DRANK 4/5+</td>
<td></td>
</tr>
<tr>
<td># DRINKS/WEEK</td>
<td></td>
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</tbody>
</table>
Adolescent SBIRT

NIAAA R01 AA016204
20. During the past year did you drink any alcohol?

21a. During the past year did you use marijuana?

21b. During the past year have you used any other drug to get high (such as prescription drugs, meth, ecstasy, glue or cocaine)?

22. During the past few weeks, have you OFTEN felt sad, down or hopeless?

23. Have you seriously thought about killing yourself, made a plan, or tried to kill yourself?

24a. Have you ever had sex (including oral, vaginal, or anal sex)?

24b. If yes, do you or your partner always use a condom when you have sex?

25. Are you attracted to guys, girls, or both?
### Full CRAFFT Questionnaire added to EMR – Assessment and 1-year Outcomes

<table>
<thead>
<tr>
<th>Adv</th>
<th>Question</th>
<th>Answer</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In the past 30 days, how many days have you used any of those substances?</td>
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<tr>
<td></td>
<td>Have you ever ridden in a CAR driven by someone (including yourself) who was &quot;high&quot; or had been using alcohol or drugs?</td>
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<tr>
<td></td>
<td>Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?</td>
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<td></td>
<td>Do you ever use alcohol or drugs while you are by yourself, ALONE?</td>
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<td></td>
<td>Do you ever FORGET things you did while using alcohol or drugs?</td>
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<tr>
<td></td>
<td>Do your family or FRIENDS ever tell you that you should cut down on your drinking or drug use?</td>
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<tr>
<td></td>
<td>Have you gotten into TROUBLE while you were using alcohol or drugs?</td>
<td></td>
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<tr>
<td></td>
<td>If two or more YES answers to the CRAFFT questions above, please complete remaining questions.</td>
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</tbody>
</table>
### Patient Baseline and Outcomes Questions in EMR (flowchart shows over time)

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<th>Question</th>
<th>Answer</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In the past 6 months, how many times have you used ALCOHOL (beer, wine, liquor)?</td>
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<tr>
<td></td>
<td>In the past 6 months, how many times did you have 3 OR MORE drinks a day?</td>
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<tr>
<td></td>
<td>In the past 6 months, how many times did you have 5 OR MORE drinks a day?</td>
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<tr>
<td></td>
<td>In the past 6 months, how many times have you used MARIJUANA (cannabis, grass, hash, THC, pot)?</td>
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<td></td>
<td>In the past 6 months, how many times have you used OPIATES or PAINKILLERS (Codeine, Oxycontin/Oxycodone, Darvon, Demerol, Dilaudid, Morphine, Percodanm Vicodin)?</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Was it prescribed?</td>
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<td></td>
<td>Did you always take it as prescribed?</td>
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<td></td>
<td>In the past 6 months, have you smoked CIGARETTES, even once?</td>
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<tr>
<td></td>
<td>In the past 6 months, how often did you smoke?</td>
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</tbody>
</table>

Options:

- Yes
- No

Search:

*Answer*:

- Yes
- No

2 items loaded.
Additional Opportunities

- Innovative programs in OB/GYN and FASD outcomes

- Longitudinal Data

- Comprehensive Clinical Research Unit (CCRU)
  - Rapid ascertainment for clinical trials
Division of Research, Kaiser Permanente Transforms Healthcare Data Into Usable Information

Research Database
Data Span: 1960 – Current

Oracle 11G
14TB

Utilization  Diagnosis  Procedures
Pharmacy  Lab Results  Lab Notes
Enrollment  Demographics  ECG
Providers  Rehabilitation  Vitals
Enrollment  Mortality  CA Death
Cancer/SEER  Cause of death  Census
Diabetes Mellitus  IP Clinical Warehouse  Kidney Disease
SSA Death  Cancer Registry  RPGEH

KP Virtual Data Warehouse (VDW)

KP CESR Virtual Data Warehouse
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CAMMOLOT/COPS (Legacy Chemotherapy)
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CoPath (Pathology)
KP.Org
CPM (Facilities)
Ad-hoc SAS Data Sets

KP HealthConnect (Clarity)
REG+ (Legacy ED & Clinic encounters)
OSCR (Legacy ED & Clinic Diagnoses & Procs)
AOIMS (Referrals for Contracted Non-KP Care)
CATS (Non-KP Emergency Claims)
eConsult (Referrals within KP)
ADT (Legacy Hospital Diagnoses & Procedures)
KITS (Immunization)
LURS (Inpatient & Outpatient Labs)
PATDEM (Patient Demographic Features)
TRRRS (Radiology Reports)

Web Application
VDW Query
Teradata 14

Kaiser Permanente
Additional Opportunities

- Innovative programs in OB/GYN and FASD outcomes
- Longitudinal Data
- Comprehensive Clinical Research Unit (CCRU)
  - Rapid ascertainment for clinical trials
- Research Program on Genes, Environment and Health (RPGEH)
  - 400,000+
  - All health plan data
  - Neighborhood level (geocoded) data
- Identifying families
Family Utilization Study: AOD Family Members and Controls

Family members of treatment patients in Kaiser AOD treatment studies (N = 3,221)
- Children (N = 1,125)
- Spouses (N = 1,096)

Matched Kaiser members and families (N = 17,839)
- Children (N = 8,771)
- Spouses (N = 9,068)


Summary and Challenges in Moving Forward

- New opportunities for all types of research in health systems
  - Comparative effectiveness, pragmatic trials, clinical trials, risk prediction, rapid queries, combining genetics with available health information, etc.

- Affordable Care Act — Integration with health care: “Learning Health Care Systems” (Institute of Medicine, DHHS, Federal Health IT Policy Committee, etc.
  - Use of patient data in research on improving delivery of health care
  - Steep learning curve for study sections – misconceptions
  - Improving quality of care for patients through research
AOD Research at Division of Research

Principal Investigators
Cynthia Campbell, PhD
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Jennifer Mertens, PhD
Derek Satre, PhD
Stacy Sterling, MSW, MPH
Kelly Young-Wolff, PhD
Connie Weisner, DrPH, LCSW

Interview Supervisor
Gina Smith Anderson

Project Coordinators
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Sabrina Wood, BA

Research Clinicians
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Clinical Partners
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Charles Wibbelsman, MD
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Charles Moore, MD, MBA
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Wendy Lu, MPH
Tom Ray, MBA
Jessica Allison, PhD

Research Associates
Georgina Berrios
Virginia Browning
Melanie Jackson
Diane Lott-Garcia
Irene Kane

KPNC Members
KPNC Primary Care
KPNC Chemical Dependency Quality Improvement Committee
KPNC Adolescent Medicine Specialists Committee
KPNC Adolescent Chemical Dependency Coordinating Committee
KPNC Oakland Pediatrics Department
KPNC Regional Mental Health and Chemical Dependency

KPNC Members

University of California
San Francisco

Kaiser Permanente. thrive
Thank you!

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Conniew@LLPI.UCSF.edu
An Integrated Approach to Diseases and Risk Factors

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*Aligns with World Health Organization’s framework for monitoring noncommunicable diseases*
Communicated to all Kaiser Permanente members

- “Research: Kaiser Permanente engages in extensive and important research. Some of our research may involve medical procedures and some is limited to collection and analysis of health data. Research of all kinds may involve the use or disclosure of your PHI. Your PHI can generally be used or disclosed for research without your permission if an Institutional Review Board (IRB) approves such use or disclosure. An IRB is a committee that is responsible, under federal law, for reviewing and approving human subjects research to protect the safety of the participants and the confidentiality of PHI.”

- Federal agencies, including the National Center for Research Resources, the federal Health IT Policy Committee and Department of Health and Human Services recommend not requiring patient consent for the use of electronic health record data in research on improving the delivery of healthcare services: “This exemption should apply even if the results are intended to, or end up being publicized or more widely shared (i.e., contribute to generalizable knowledge). We expect provider entities to maintain proper oversight over, and be accountable for the conduct of, these activities, including when these activities are conducted by a business associate on their behalf. How provider entities govern the conduct of these activities within their practices or institutions should be left to their best judgment. Consent should not be required to access EHR data for these purposes, even if the data does not qualify as either a limited data set or de-identified data; however, provider entities should always use the minimum necessary amount of data to accomplish these activities (including removing patient identifiers prior to analysis for quality, safety or effectiveness when it is not necessary to identify individual patients).”

- McGraw D, Egerman P. Health IT Policy Privacy and Security Committee Transmittal Letter