Occupational Medicine and the EHR

Some lessons from 5 years of EHR use at “Kaiser on the Job”

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Background

- Kaiser Permanente implemented EPIC 2005
- Limited functionality for Occupational Medicine practice
  - No module for work restrictions or disability documentation
  - No ability to produce legally mandated work comp reports or other forms
  - No secure messaging capability for outside stakeholders (employers, insurers, case managers)
  - No ability to segregate previous clinical information, for patients needing “new hire” exams
Background

- Modifications to EPIC since 2005, within Kaiser Permanente
- **Better** functionality for Occupational Medicine practice
  - NEW module for work restrictions or disability documentation
  - STILL no ability to produce legally mandated work comp reports or other forms
  - STILL no secure messaging capability for outside stakeholders (employers, insurers, case managers, public health agencies)
  - NEW limited ability to segregate previous clinical information, for patients needing “new hire” exams
EHRs and Occupational Medicine - *our opportunity*

- The HITECH section of ARRA allows extra pay to physicians caring for Medicare / Medicaid patients, if their practices meet EHR criteria for “meaningful use.”

- **MEANINGFUL USE**, defined by CMS, is in 3 stages; we may be able to influence Stage 3 regulations.

- In what areas of clinical practice does Occupational Medicine lead the nation? Which areas of OEM expertise should be exported to all of Medicine?

*Example* - Cardiology exported **blood pressure monitoring** to all of Medicine.
Where Occupational Medicine leads the nation

- Disability management: specifying functional capacity, particularly for the workplace, and preventing needless costly disability.
- Attention to workplace exposures, as a key explanatory variable in understanding the epidemiology of many chronic conditions, as well as certain episodic illnesses.
- Targeted communication with stakeholders outside the medical team.
Proposed new “Meaningful Use” Criteria for Occupational Medicine and the EHR

• # 1 - The EHR records and transmits functional status, including “work notes”

• # 2 - The EHR can do secure messaging with other stakeholders

• # 3 - The EHR records Job Code for the patient (searchable function)

• # 4 - The EHR can exchange relevant Occupational Health data with the PHR

• # 5 - The EHR has adjustable firewalls for certain Occupational Health encounters
Proposed new Meaningful Use criterion:

**#1 - Functional, or work, status**

- **Proposal:** Any accredited EHR system should be able to record and transmit the patient’s functional status, or a “work note” including need for Total Temporary Disability (TTD) if any, or requirement for activity / work restrictions, and duration.

**The Work Note**
Proposed new Meaningful Use criterion: (cont.)

#1 - Functional, or work, status

- Proposal: Any accredited EHR system should be able to record and transmit the patient’s functional status, including need for Total Temporary Disability (TTD) if any, or requirement for activity / work restrictions, and duration.

- Use:
  - During an encounter with a patient, provider learns that patient needs a “work note”
  - Provider determines:
    - Is TTD needed, rather than restrictions? Documents the reason for TTD; or
    - Are activity restrictions needed? Documents likely duration; and
    - Other comments, such as suggestions for transitional work, or are the restrictions compatible with the usual and customary job?
  - Provider or staff determines whether other stakeholders are to receive the “work note” and the communication method.
  - Provider or staff transmits the work note as a message to those stakeholders.
  - At a future time, a user of the EHR may choose to retrieve, by date, a previously written “work note” and any message recipients.
# 1 - Functional status (cont.)

- **Justification**
  - Work-related illnesses and injuries account for roughly 5% of payroll
  - Other illnesses and injuries account for up to 20% of payroll, rivaling the total cost of health care premiums
  - The unexplained variance in these costs is enormous: American Medicine can do better. Potential savings may be as high as 10% of payroll.
  - The clinical burden of needless disability is great

Cost of US Worker Disability *

Disability in US = $7,267 / person-yr  
(Fed BLS, 2000)

- Medical costs 37%
- Wage / sick time direct pay 13%
- Indirect costs (lost productivity, replacement, retraining, etc) 50%

* Includes workers’ comp and other disability among US workers
Of these disability costs, how much is preventable through disability management?

• “For the 1999/2000 study sample of 43 employers, annual costs were $9992 per employee for their core HPM programs that included group health benefits, absence, non-occupational disability, workers' compensation, and turnover. We also calculated that approximately $2562, or 26% of those costs, might be saved if these organizations were able to achieve best-practice levels of performance.”

(Goetzel et al, JOEM 2001)
Kaiser first computerized its work note forms in approximately 2000, prior to EPIC.

Some learning lessons:

- Rates of TTD varied widely by Department for the same diagnoses. For example, for ankle sprains and low back pain, primary care departments and Orthopedics would give TTD 50% to 80% of the time. Occupational Medicine Departments gave TTD 10% to 20% of the time.
- After education to reduce “unexplained variance,” most Primary Care departments gave TTD 10% to 30% less often.
It’s important to record and track disability determinations

You cannot improve what you do not measure.

Potential cost savings
Up to 25% of disability costs,
= $1,800 / employee per year

(Mostly NON-work related disability)
The EPIC work note
- Kaiser Permanente proprietary -
When giving TTD, the provider must say WHY - Kaiser Permanente proprietary

Anecdotally, requiring these categories appears to have decreased TTD rates by 5% to 20%.
Proposed new Meaningful Use criterion: (cont.)

#1 Functional status

- **Proposed Criterion:**
  - For at least 80% of the visits where the provider is requested to provide a “work slip” or other note related to the patient’s functional status, the health record will record:
    - Nature of the functional impairment (total disability or restrictions)
    - Prescribed duration of the functional impairment
    - If total temporary disability (TTD), the reason for TTD rather than functional restrictions
  - The health record will document how the “work slip” was transmitted as a message to recipients.
Proposed new Meaningful Use criterion:

# 2 Secure messaging with other stakeholders

- **Proposal**: Any accredited EHR system should be able to send context-specific messages securely to outside stakeholders, including legally mandated forms.

Send the paperwork electronically
Proposed new Meaningful Use criterion: (cont)

# 2 Secure messaging with other stakeholders

- **Proposal:** Any accredited EHR system should be able to send context-specific messages securely to outside stakeholders, including legally mandated forms. (We believe that this functionality would require upgrading from the currently proposed HL7 V2.x messaging standard, to the V3 standard.)

- **Use:**
  - The provider determines that an outside stakeholder requires certain information, which may include protected health information (PHI), and determines the method of transmission of this information, as a message.
  - The provider assembles the required set of information into a form or report.
  - The provider assures the necessary patient permissions, or other legal basis, to release the form or report.
  - The provider sends the form or report as a message, and documents the transmission.
Proposed new Meaningful Use criterion: (cont.)

# 2 Secure Messaging with other stakeholders

- **Justification:** There are many legally mandated forms, often with PHI content, that are likely to persist:
  - **Examples:**
    - State workers’ compensation reports, including federally mandated forms (CA-17, CA-20)
    - Family Medical Leave Act forms
    - Commercial driver’s license certifications
    - Public health reporting, as for infectious diseases or seizure disorders
  - Communication with other stakeholders must be secure, and would probably require the functionality specified in the HL7 V3 standard, rather than the V2.x standard, including:
    - A confidentiality code system, so that message recipients would be qualified to receive messages with PHI
    - A requirement for “message transmission wrappers” to assure a completed communication.
Proposed new Meaningful Use criterion: (cont)

# 2 Secure messaging with other stakeholders

- Proposed CRITERION:
  The accredited EHR system will demonstrate the capability to transmit secure closed loop messages to enrolled stakeholders.

NOTE: It may be that the current specifications for HL7 V2.xx messaging will already fulfill the structural criteria for messaging to stakeholders. What is new here is the capability to enroll certain stakeholders as capable of receiving closed loop messages.
Proposed new Meaningful Use criterion:

# 3 Job Code recorded for each patient

- **Proposal:** Any accredited EHR system should record a standard job classification for the patient, along with the date that this data element was recorded.

Record the job code
- SOC -
Proposed new Meaningful Use criterion: (cont.)

# 3 Job Code recorded for each patient

- **Proposal:** Any accredited EHR system should record a standard job classification for the patient, along with the date that this data element was recorded.

- **Use:**
  - At the initial visit, or at other visits when the provider thinks it appropriate, the provider records a code for the patient’s current job, if any, and the date that this information was gathered.
  - When needed for epidemiologic studies or other purposes, a health care researcher retrieves the records of all patients with specific job classifications during a particular time interval.
Proposed new Meaningful Use criterion: (cont.)

# 3  Job Code recorded for the patient

- **Justification:**
  - For purposes of epidemiology, the burden of preventable morbidity and mortality in the United States from occupational illnesses and injury is large, perhaps as high as 5% of all deaths, and a large but poorly characterized percent of chronic morbidity.
  - Other data systems, including Work Comp systems, capture only a portion of the true burden of occupationally related illnesses and injuries.
  - Prevention will depend on a better understanding of causation.
  - Other countries have already demonstrated the value of occupationally-based chronic disease epidemiology, in the areas of cancer, cardiovascular disease, osteoarthritis, neurodegenerative diseases, pulmonary disease, and others.

- **Limitations:** misclassification errors are likely to be large if the job classification is reported by the patient, but such errors will not be crucial for clinical practice.
Proposed new Meaningful Use criterion: (cont.)

# 3 Job Code recorded for each patient

- **Proposed Criterion:** in 80% of patients more than 18 years old, the provider will demonstrate that the SOC code, or NONE, has been recorded, and the date of said recording.

- **Implementation issues:**
  - For employer sponsored health plans (PP-ACA, Section 1201), CMS could request that HHS request that the employer provide the Standard Occupational Code (SOC) to the employee on any insurance eligibility card, and if requested onto the employee’s PHR.
  - The provider or the provider’s agent would enter that code, or download it from the PHR, into the EHR, along with the date.
  - If unavailable from other sources, the provider would record the SOC based on the patient’s own description of the job, or would record NONE.
Proposed new Meaningful Use criterion:

# 4 - Exchange HRA, and other information from workplace preventive services, with the PHR

- **Proposal:** Any accredited EHR system should be capable of exchanging information about workplace preventive services, including Health Risk Appraisals, with the PHR (Personal Health Record).

**OccHealth data exchange**

Between EHR and PHR
Proposed new Meaningful Use criterion: (cont.)

# 4 - Exchange HRA, and other information from workplace preventive services, with the PHR

- **Proposal:** Any accredited EHR system should be capable of exchanging information about workplace preventive services, including Health Risk Appraisals, with the PHR (Personal Health Record).

- **Use:**
  - A provider, who may or may not be part of the patient’s extended care network, arranges for the administration of a Health Risk Appraisal at the workplace, or delivers other medical services at the workplace, and records these in an electronic Occupational Health record.
  - The provider arranges for this information to be uploaded to the patient’s PHR.
  - With the patient’s permission, a provider at the workplace, downloads relevant information from the PHR to the Occupational Health record.
Proposed new Meaningful Use criterion: (cont.)

# 4 - Exchange HRA, and other information from workplace preventive services, with the PHR

- **Background:**
  - PP-ACA provides incentives for workplace preventive programs in Section 1201, and directs the HHS Secretary to provide guidance about employer based wellness programs (Section 4303). Furthermore, the Secretary is directed to develop a model Health Risk Assessment document (Section 4103).
  - ACOEM expects that the delivery of workplace preventive services, as part of Health and Productivity Management (HPM) will continue to increase. (See extensive bibliography at: [http://www.acoem.org/HealthJOEMArticles.aspx](http://www.acoem.org/HealthJOEMArticles.aspx))
  - NEJM predicts that at least 60% of the workforce will continue to obtain health coverage through Employer Sponsored Plans (covered under PP-ACA 1201).
CDC Guidelines for HRA Use

Healthier Worksite Initiative

Ethics Guidelines for Development and Use of Health Assessments

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Introduction

Dedicated to advancing the development, utilization, and evaluation of prospective medicine strategies, The Society of Prospective Medicine (SPM) advocates the following ethics guidelines to assist developers and administrators of a wide variety of health assessments (HAs) in making appropriate decisions in construction and use of HA instruments. Health assessments include instruments known as health risk appraisals or health risk assessments (HRAs). Health status assessments (HSAs), various lifestylespecific (e.g., nutrition, stress and physical activity) assessments instruments, wellness, and behavioral/habit inventories. In the last 40 years, health assessments technology has proliferated and diversified. Today, health assessment tools are an essential component in the planning and delivery of health care and promotion programs in health care, business, industrial, and educational settings. Although the purpose of health assessment instruments may differ, the ethical considerations for their use are remarkably similar. The Society of Prospective Medicine establishes these general guidelines to both minimize the potential harm from misuse and to enhance the potential benefits of health assessments:

- Maintenance or improvements of personal health and quality of life, and
- Ability to establish disease and health risk tracking for improved care.
After averaging across the health risks and chronic conditions included in the study, it is revealed that the modifiable health risks are nearly five times more costly than the chronic conditions ($212,577 per modifiable health risk vs. $42,695 per chronic condition).**

** per 1,000 employees per year
How Many Workers Will Be Covered by Employers vs Exchanges?

Effect of the Affordable Care Act on Workers’ Health Insurance Options.

Proposed new Meaningful Use criterion: (cont.)

# 4 - Exchange HRA, and other information from workplace preventive services, with the PHR

- Examples of clinical services often now delivered through Occupational Health Programs at the workplace include:
  - Immunizations, including influenza shots
  - PPD screening
  - Serologic screening for vaccine preventable diseases (MMRV, hepatitis A & B, travel vaccines)
  - Chest x-rays, as part of OSHA-mandated surveillance
  - Blood pressure monitoring
  - Screening for healthy behaviors, such as smoking, exercise, and nutritional awareness.

- Occupational Health records at smaller worksites may not have an EHR connection.

- Nonetheless, the above data elements should eventually be incorporated into the EHR at the Medical Home, probably through the mediation of the PHR.
# 4 - Exchange HRA, and other information from workplace preventive services, with the PHR

• **Proposed Criterion:** Any accredited EHR will have the capability to exchange a minimum collection of Occupational Health data with the Personal Health Record.

• **Note:** Proposed Stage 3 criteria already include:
  • EHRs should connect to at least 30% of external providers in primary referral network or establish an ongoing bidirectional connection to at least one health information exchange.
  • EHRs should have capability to exchange data with PHRs using standards-based health data exchange.
The PHR can be the interface between the workplace and the EHR

- Occupational Health Record
- Proposed new MU Criterion
- Electronic Health Record

(Maybe someday . . . )
Proposed new Meaningful Use criterion:

# 5 - Adjustable firewalls within the EHR

- **Proposal:** Any accredited EHR system should have the ability to label certain data as belonging to the Occupational Health Record, and for certain users to limit EHR access to only the elements in the Occupational Health Record.

That is, the EHR should have internal information firewalls, for certain data elements and for certain users.
The New Hire Exam - Need for firewalls within the EHR

- One-way firewall
- Occupational Health Record

Network Physician / sees all, including Occupational Health Record

Occupational Physician / sees ONLY Occupational Health Record, for certain encounters
LATER - Firewalls down -
Occupational Medicine part of Medical Home team

Firewall removed

Entire EHR

Occupational Health Record

Occupational Physician / AFTER new hire exam completed, as part of the Medical Home team
# 5 - Adjustable firewalls within the EHR

- **Proposal:** Any accredited EHR system should have the ability to label certain data as belonging to the Occupational Health Record, and to limit EHR access for certain users to only the elements in the Occupational Health Record.

- **Use:**
  - An Occupational Medicine provider, who is part of the network of EHR users, conducts a new hire examination, or other targeted occupational medicine examination, on a patient whose medical record may be included in the EHR system.
  - The provider accesses certain required data elements in the EHR, such as previous PPDs, MMRV serostatus.
  - The provider creates an outpatient encounter note, and orders certain laboratory studies, and may order medications for the patient.
  - The provider later reviews the results of these studies.
  - The provider documents whether the patient is fit for duty, with or without certain conditions, and creates a report.
  - The provider transmits this report to outside stakeholders, as a secure message.
  - Later, under other circumstances, the same Occupational Medicine provider can use the full functionality of the EHR for that patient and other patients.
# 5 - Adjustable firewalls within the EHR

**Background:**
- For NEW HIRE (pre-placement) exams, Federal and state rules limit the history and physical exam to elements related to essential job functions, and forbid the gathering of “genetic” information. (ADA, GINA)
- These rules may also apply to other exam, such as commercial driver’s license exams and fitness-for-duty exams.
- Often, patients do not want the Occupational Physician to know details of their personal health history.
- However, after these targeted exams are completed, the Occupational Physician may become a full member of the Medical Home team.
# 5 - Adjustable firewalls within the EHR

- **Experience within “Kaiser on the Job”:**
  - For NEW HIRES of a Kaiser Permanente employee - the Occupational Health provider is denied access to most of the medical record, including lab and x-ray results. *(This is cumbersome; NOT recommended.)*
  - For NEW HIRE or DOT exams on other than KP employees, KP requires patients to sign a release permitting the physician to view the entire EHR medical record. If they refuse, we refuse to do the exam.
  - We anticipate that under PP-ACA certain premium or co-pay adjustments might be conditioned on compliance with healthy behaviors; the physician will become a Benefits Administrator.
# 5 - Adjustable firewalls within the EHR

- **Justification:**
  - **FIREWALLS UP:** Americans with Disabilities Act, ADA - limits the scope of NEW HIRE exams.
    
    *(Does ADA also limit the scope of physician KNOWLEDGE?)*
  
  - **FIREWALLS UP:** Genetic Information and Non-discrimination Act, GINA, forbids the gathering of genetic information, prior to insurance underwriting, interpreted to include NEW HIRE exams.
  
  - **FIREWALLS DOWN:** PP-ACA, Section 1201 envisions that Occupational Medicine physicians will have broad access to the patient’s health record, for purposes of health promotion.
  
  - **FIREWALLS DOWN:** Medical care for work-related injuries and illnesses requires comprehensive knowledge of the medical record.
  
  - **FIREWALLS ??:** See ACOEM policy, and recent ACOEM letter to EEOC.
Proposed new Meaningful Use criterion: (cont.)

# 5 - Adjustable firewalls within the EHR

- **Proposed Criterion**
  - The accredited EHR shall have the capability of labeling certain data elements as belonging to the Occupational Health Record.
  - The Accredited EHR shall have the capability of restricting EHR access for certain users under certain circumstances to ONLY the elements of the Occupational Health Record.
  - This access restriction can be removed if needed, as for example, by a “break-the-glass” mechanism.

- **Suggested elements for the Employee Health record**
  - Occupational questionnaire results
  - Vaccine and PPD history
  - Serostatus for vaccine preventable infections
  - Chest x-ray and EKG results
  - Previous “work notes”
  - Others?
Summary: Proposed new “Meaningful Use” Criteria for Occupational Medicine and the EHR

1. The EHR records and transmits functional status, including “work notes”
2. The EHR can do secure messaging with other stakeholders
3. The EHR records Job Code for the patient (searchable function)
4. The EHR can exchange relevant Occupational Health data with the PHR
5. The EHR has adjustable firewalls for certain Occupational Health encounters
### Rough estimates - cost/benefit

<table>
<thead>
<tr>
<th>Proposed MU Criterion</th>
<th>Operational Expense?</th>
<th>Dollar benefit (estimated)</th>
<th>Benefit Horizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 – Record and transmit functional status, including “work notes”</td>
<td>None extra compared to paper</td>
<td>$500 / patient / year; employer benefits</td>
<td>Immediate</td>
</tr>
<tr>
<td>#2 – Secure messaging with other stakeholders</td>
<td>None extra compared to paper</td>
<td>At least $1 / patient / year (health plan benefits)</td>
<td>Immediate</td>
</tr>
<tr>
<td>#3 – Record Job Code (searchable function)</td>
<td>Yes – est. up to $10 per patient-yr</td>
<td>Up to $300 / patient / year (public health benefit)</td>
<td>Long term: 10 to 30 years</td>
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<tr>
<td>#4 – Exchange Occupational Health data with the PHR</td>
<td>Yes – est. up to $20 per patient-yr</td>
<td>Up to $500 / patient / year (employer and health plan benefit)</td>
<td>Medium term: 5 to 20 years</td>
</tr>
<tr>
<td>#5 – Adjustable firewalls for certain Occupational Health encounters</td>
<td>None extra compared to paper</td>
<td>Up to $500 / patient / year (employer and health plan benefit)</td>
<td>Medium term: 5 to 20 years</td>
</tr>
</tbody>
</table>


