powering readiness through partnerships

Optimizing EHR for Emergency Management and Response

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Objectives

- Identify the need for continual planning and development of emergency management and response tools in EHR
- Demonstrate Kaiser Permanente (KP) Northern California's emergency management tools in EHR
- Demonstrate KP Northern California's emergency management EHR training environment for use in exercises and drills

Agenda

1. Need for EM/EHR planning
2. Emergency Management in HealthConnect (EMHC) – workgroup
3. EHR tools
4. EHR Disaster Sandbox
5. Education/Support
Why EM/EHR Planning?

- Background
- The San Bruno Explosion
- The Richmond Experience
- Other considerations

Background

- KP’s history of EHR and legacy systems
- Epic — early adopters, modifications
EHR in Patient Care Delivery

EHRs are the primary tool for patient care delivery in daily operations …

Assumption: Disaster = Paper

The San Bruno Explosion

- Sept. 9, 2010, 6:11 p.m.
- Impact — MCI trauma/burns
- 23 patients presenting to SSF
- HCC open for 1 day
- All patients were triaged in the ED
- Care given in ED, normal clinics and cafeteria
- No shift to paper
- Patient tracking was a significant challenge
The Richmond Experience

- Chevron Refinery Fire — Aug. 6, 2012
- Shelter-in-place issued by Contra Costa County
- 9000+ patients presenting to Richmond ED
- HCC open for 17 days
- Immediate shift to paper
- Recovery — 16 months

America’s Cup/Asiana

How do we rapidly register multiple patients not previously seen within our system?
Other Surge Events …

A recurring theme among hospitals that receive multiple victims in a short period of time is that it is impossible to get the patients registered quickly enough and get information updated in the EHR to be useful, so patients are often lost in the system for hours.

(Goralnick et al., 2015; Hick et al., 2008)

What Did We Learn?

Our EHR is our primary response tool in emergency management events

Limited emergency management tools exist for effectively managing patient surges and other emergency management needs
### EHR Gaps in Patient Care Delivery in Disaster or Surge

- Limited expansion of inpatient/outpatient capacity during surge
- Cannot assign disaster triage categories
- Cannot distinguish which patients related to disaster — tracking and reimbursement

### EHR Gaps in Patient Care Delivery in Disaster or Surge (cont.)

- Cannot use in unlicensed space
- Difficult to expedite registration and throughput
- Evacuation considerations
- EHR & patient safety
EMHC

- Emergency Management in HealthConnect (EMHC)
- Formed to address gaps in EHR
- Continuous planning

EMHC

- Workgroup formed — June 2011
- Meet monthly
- Stakeholders
  - Emergency Department
  - Emergency management
  - HealthConnect/IT
  - Revenue cycle, front office operations improvement (FOOI), registration, admitting
  - Training
  - Hospital operations
EMHC (cont.)

- Immediate needs
  - Patient surge
  - MCI considerations
  - Inpatient capacity
  - Patient tracking
  - Medical record number (MRN) generation
  - Evacuation report

EMHC (cont.)

- Ongoing planning
  - HealthConnect training updates
  - HealthConnect in Regional Command Center
  - Drilling with HealthConnect Sandbox
  - Technology Outage Workgroup
  - Cybersecurity
  - Outpatient disaster clinics (OCDs)/Using generic provider
  - “New Patient” button/Disaster MRNs update
  - Expedited admitting processes
  - Winter surge planning
  - Disaster guarantor account
EMHC (cont.)

- Accomplishments
  - **Live environment** — Evacuation report, disaster flag, disaster status, MCI categories, Z beds, ODCs, etc.
  - **Sandbox** — Cloned EDs, provider logins, drill patients, inpatient departments
  - **Workflows** — Disaster registration
  - **Training and support** — KP Learn, Regional Training Summits, KPHC and Site Support

EHR Tools — Live Environment

- Emergency Department
- Inpatient
- Outpatient
- Hospital Command Center
- Regional Command Center
EHR Tools: Emergency Dept.

- Disaster status
  - Mass casualty triage categories
  - Patient disaster flag
- Virtual beds
- Evacuation reports
EHR Tools: Emergency Dept. (cont.)

- Disaster status
  - Emergency Severity Index (ESI) triage column is cleared
  - Allows for re-triage of all patients
  - Allows for MCI triage categories/colors
    - KP Mass Casualty Advanced Triage and Treatment Algorithm (KPNC MassCATT)

EHR Tools: Re-Triage
EHR Tools: Adding MCI Categories

EHR Tools: Adding MCI Categories (cont.)
EHR Tools: Adding MCI Categories (cont.)

• Disaster patient (Y/N) flag
  – Function added to ED Navigator
  – Patient tracking: Identifies which patients are related to disaster
  – Guarantor accounts: Identifies disaster patients for billing
EHR Tools: Disaster Patient

EHR Tools: Disaster Patient (cont.)
EHR Tools: Virtual Beds

- ED virtual A and B beds
  - Often used in normal operations
- Recommended use during disaster:
  - Increase ED capacity — hall beds, chairs, etc.
  - Discharge beds — care complete, but additional needs

EHR Tools: Virtual Beds (cont.)
### EHR Tools: Virtual Beds (cont.)

#### Inpatient

- **Units** — Z-beds
- **Evacuation Reports**
### EHR Tools: Zombie Beds (Z-Beds)

- During a disaster, demand for beds may exceed licensed hospital space
- Created in KPHC for use when regular licensed hospital beds are full
- 10 Z-beds available for each inpatient unit to increase capacity
- Patients doubled up in rooms, hallways, observation and discharge lounges, etc.
- These beds are already mapped to existing printers, label makers, Pyxis machines, etc.

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**During a disaster, your command center may decide to exceed your facility's licensed capacity. Ten Z-beds are available in each inpatient unit in KP HealthConnect for use in this situation. These beds are already mapped to existing printers, label makers, Pyxis machines, and so on.**

Although they are always available in the system, Z-beds are only used in a disaster and are otherwise hidden from view.
EHR Tools: Evacuation Report

Evacuation Report
• Concise ‘sign-out’ level of detail (vs. patient summary report)
• Available in inpatient and ED setting
• One patient at a time
• Under ‘Patient Reports’

EHR Tools: Evacuation Report (cont.)

The Evacuation Report includes the following critical information:
• Allergies and patient demographics
• Medical problems (hospital and non-hospital problem lists)
• Current inpatient and outpatient medications
• Most recent vital signs
EHR Tools: Evacuation Report (cont.)

Evacuation Report

The Evacuation Report includes the following critical information:

- Allergies and patient demographics
- Medical problems (hospital and non-hospital problem lists)
- Current inpatient and outpatient medications
- Most recent vital signs

To print, right-click anywhere on the report and then select Print from the menu.
EHR Tools: Outpatient

- Outpatient disaster clinics (ODCs)
- Disaster visit/encounter
- Disaster registration workflows

EHR Tools: Outpatient (cont.)

Green category patients may be triaged to outpatient care unit — aka Green Treatment Area

Existing medical office building clinics — primary care/specialty

- Advantages: infrastructure, familiarity, equipment
- Regular registration process used
- Regular clinic schedules are used
- Non-clinic MDs may use another physician’s schedule
EHR Tools: ODCs

If existing clinics are unavailable or insufficient, may need additional alternate care sites

- Outpatient disaster clinic (ODC) created to handle these patients in KP HealthConnect
- No regular schedules
- Attach generic disaster docs to each department

EHR Tools: ODCs (cont.)

Change the department if needed. For example, to access a schedule in an ODC, type the facility’s code followed by -ODC.

In this demonstration, we will not change the department.
EHR Tools: Disaster Visit/Encounter

Disaster encounter visit type:

• Bypasses all the health maintenance hard stops
• Helps identify which patients are related to the disaster
• Important for billing and data collection purposes
• Registration not required to collect copay or complete Medical Secondary Payor Questionnaire (MSPQ)
EHR Tools: Disaster Visit/Encounter (cont.)

Many tools available to increase situational awareness and census data during disaster:

- ED Trackboard
- ED Dashboard
- Hospital Dashboard
- Enterprise at a Glance
- OR Status Board
EHR Tools: Hospital and Regional Command Centers (cont.)

The ED Dashboard provides a snapshot of the number and acuity of patients in the ED as well as a snapshot of your hospital census. There are links to your facility's other dashboards and to the ED Dashboards of other facilities in your KP HealthConnect instance (such as Golden Gate, East Bay, and so on).

EHR Tools: Hospital and Regional Command Centers (cont.)

The Hospital Dashboard shows the current census. You can run reports within the dashboard for additional information. There are also links to other dashboards in your facility and to the Hospital Dashboard of other facilities in your KP HealthConnect instance.
EHR Tools: Hospital and Regional Command Centers (cont.)

Enterprise at a Glance provides bed status summaries by facility. Click your facility's name to view more detailed information and gain a better understanding of actual bed status.

This view provides the bed summaries by department within your facility, so that you can see how many beds may be available in each unit. You can drill down to the bed level from this screen.
EHR Tools: Hospital and Regional Command Centers (cont.)

- Virtual KPHC environment for use in exercises and drills
- Mimics your own facility and user functionality

Disaster Drill Toolkit
- Includes instructions for how to reserve and access the sandbox
- Includes facility-specific information available to download in Excel/PDF

EHR Disaster Sandbox

Looking at the OR Status Board can be helpful to prioritize operative cases. For example, elective procedures may be canceled to accommodate glitches.
EHR Disaster Sandbox

Disaster Drill: ED

Hospitals must be prepared to respond to public health or disaster emergencies that may create a sudden demand on services. Disaster drills exercises allow hospitals to test response capabilities, identify their most important strengths and weaknesses in their response system. The results can be applied to future training, exercises and emergency response planning. Hospitals are required to conduct (1) drill per year.

Using KP HealthConnect for your drill, enables you to document and track patients in real time.

To use KP HealthConnect, and to ensure sufficient logs and patient names are available for your drill, it is important to follow the steps outlined in the KP HealthConnect Toolkit. (Click on the link to open.

Job Aids and Instructions
- KP HealthConnect Toolkit
- Disaster Drill Sandbox Access Instructions

Facilities

- Deer Valley
- Fremont
- Fresno
- Manteca
- Modesto
- Oakland
- Richmond
- Roseville
- Sacramento
- San Francisco
- San Jose
- San Leandro
- Santa Clara
- Santa Rosa
- South Sacramento
- South San Francisco
- Vacaville
- Vallejo

EHR Disaster Sandbox (cont.)

Disaster drill rooms:

- Emergency Department
- Perioperative services (HPS)
- Intensive Care Unit (ICU)
- Medical-Surgical Unit (MS)
- Pediatrics (PED)
- Outpatient Disaster Clinic (ODC)

Assists admitting clerks in moving patients into inpatient units
EHR Disaster Sandbox (cont.)

Set up the KP HealthConnect sandbox

Drill rooms

The list of rooms available for a disaster drill in your facility are listed in an Excel file that you can download. Having these rooms available in the sandbox allows admitting clerks to move patients from the Emergency Department to an inpatient department as needed.

The following inpatient departments have been created in the KP HealthConnect sandbox for each facility:
- Hospital perioperative services (HPS)
- Intensive Care Unit (ICU)
- Medical-surgical unit (MS)
- Pediatrics (PEDI)

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Logon IDs

Logon IDs are available for a variety of users, including doctors, nurses, and other personnel. They allow you to create realistic scenarios to use during your drill.

This table lists the number of logon IDs that are available for each role.

**Note:** During scheduled drills only, charge nurses, directors, nurse managers, nurse supervisors, and assistant department managers/administrators must use a nurse manager logon ID to access disaster functionality in KP HealthConnect.

<table>
<thead>
<tr>
<th>Role</th>
<th>Number of IDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical care</td>
<td>1</td>
</tr>
<tr>
<td>Emergency</td>
<td>10</td>
</tr>
<tr>
<td>HBS</td>
<td>1</td>
</tr>
<tr>
<td>Orthopedics</td>
<td>1</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>1</td>
</tr>
<tr>
<td>Surgery</td>
<td>1</td>
</tr>
<tr>
<td>Outpatient MD</td>
<td>10</td>
</tr>
</tbody>
</table>

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<th>Number of IDs</th>
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<td>1</td>
</tr>
<tr>
<td>Emergency</td>
<td>10</td>
</tr>
<tr>
<td>Med-Surg</td>
<td>1</td>
</tr>
<tr>
<td>Orthopedics</td>
<td>1</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>1</td>
</tr>
<tr>
<td>Surgery</td>
<td>1</td>
</tr>
<tr>
<td>Outpatient clinic</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Role</th>
<th>Number of IDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitting clerks</td>
<td>1</td>
</tr>
<tr>
<td>ED registration clerks</td>
<td>10</td>
</tr>
<tr>
<td>House supervisors</td>
<td>1</td>
</tr>
<tr>
<td>Nurse managers</td>
<td>1</td>
</tr>
</tbody>
</table>
EHR Disaster Sandbox (cont.)

Set up the KP HealthConnect sandbox

Drill patients

There are 98 drill patients with different genders and ages to work with. Review this list to be sure it will work for your facility’s drill. If needed, email the scheduling center to request changes to the patient demographics at least one month before your scheduled drill date. You can request that the changes be temporary (for one drill) or permanent (for all future drills). A job aid is included at the end of this course to assist you with the process of requesting these changes if they are needed.

Note: Even though the drill patients are all fictitious, the patient information included in this Excel file should be treated as protected health information (PHI) and emailed securely when sharing.

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>Date of Birth</th>
<th>Social Security</th>
<th>Current Address</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>John</td>
<td>Male</td>
<td>1990-01-01</td>
<td>123456789</td>
<td>123 Main St.</td>
<td>123456</td>
<td><a href="mailto:john@email.com">john@email.com</a></td>
</tr>
<tr>
<td>Jane</td>
<td>Female</td>
<td>1991-02-02</td>
<td>987654321</td>
<td>456 Oak Rd.</td>
<td>654321</td>
<td><a href="mailto:jane@email.com">jane@email.com</a></td>
</tr>
<tr>
<td>Mike</td>
<td>Male</td>
<td>1992-03-03</td>
<td>876543210</td>
<td>789 Pine Ave.</td>
<td>210987</td>
<td><a href="mailto:mike@email.com">mike@email.com</a></td>
</tr>
</tbody>
</table>

Training and Support

Situation:
- Medical centers had difficulty using KPHC disaster/disaster drill functions despite training and support materials

Background:
- Functionality developed and made available in response to identified need. Education/training provided to med centers by WebEx/other methods

Assessment:
- Direct training required to facilitate use of disaster/disaster drill functionality

Recommendation:
- Develop and hold KPHC in Disasters Toolkit Summit
Training and Support (cont.)

Support the drill

Tips for a successful drill

When you are conducting your drill, keep the following things in mind:

- Work with your local drill design team to set up the rest of the drill, outside of the KP HealthConnect sandbox.
- Be sure Site Support is available to assist participants with logging on, sandbox functionality, and general troubleshooting.
- Be sure that drill participants have had an opportunity to take the Using KP HealthConnect Disaster Tools training module in KP Learn.
- Follow your facility’s usual disaster and drill workflows.
- Although the sandbox is a replica of your facility’s ED functionality, outside the ED may not be available; for example, the sandbox does not include an OR, individual system lists (MyLists), and so on.

See KP Learn Modules for more information:

- Disaster drilling in KP HealthConnect
- Using KP HealthConnect tools
- Sharepoint site
Recap

- EHR is a primary emergency management response tool — not paper!
- Continual planning needed to address gaps in EHR and care delivery
- Build EHR tools to address emergency management needs
- EHR training environment useful for drills, exercises and training

Thank you!

Emergency Management in HealthConnect Committee
Regional Emergency Management Committee
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Tom Hanenburg
Hernando Garzon, MD
Suzy Fitzgerald, MD
Vivian Reyes, MD
Greg Antone
Rick Doctolero
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