Efficient Case Management of Multidisciplinary MS Care: A Patient-Centered System

Keith Butler, PhD.
CMSC
Dallas, May 29, 2014

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“Modeling and Analysis of Clinical Care for HIT Improvement”

Outline of Today’s Talk

• Quick overview of our AHRQ project
• MS care requires teamwork
• Pain Point: information for MS case-management is fragmented
• Features of Patient-Centered MS Case Management
• Demo
• Usability test results and workflow impacts
• Other Expected Benefits
• Next steps and your comments
AHRQ Project Aims Form a Method

Discover the way clinical work is actually done

Document the findings as workflow models and information flows

Understand pain-points where care could be **measurably improved** with health IT

Build and evaluate prototypes

Learn, and improve our method and tools

Our Multidisciplinary Team

**University of Washington**
- Keith Butler, PhD
  - PI for AHRQ
- Mark Haselkorn, PhD
  - Co-I for AHRQ user research
- Mark Oberle, MD
  - AHRQ project doctor
- Amy Walker, RN, PhD
  - AHRQ project nurse
- Brian Theodore, PhD
  - Co-I for UW Pain Clinic
- GRAs Andrew Berry, Melissa Braxton, Christina Chung, & Nikki Pete

**Puget Sound VA**
- Paul Nichol, MD
  - Assoc. Dir., National Health Informatics
- Jodie Haselkorn, MD
  - Director, MS CoE

**Baylor Health System**
- Brett Stauffer, MD
  - Co-I Hospital Admissions
- Yan Xiao, PhD
  - Safety Human Factors Engineer

**Duke University**
- Eric Eisenstein, DBA
  - Health Economist

**Univ. of TX, School of Biomedical Informatics**
- Jiajie Zhang, PhD, Dean
  - Co-I for cognitive science
- GRA Craig Harrington
MS care requires teamwork

- Complications increase complexity of care
- Treatment plans unfold over weeks or months
- Collaboration across roles and specialties needs case management and situation awareness

MS clinic information

- Clinic sees ~300 patients per month
- Patients travel from as far as Alaska and Idaho
- Physicians typically place 1-6 new orders in each patient exam
- Important that doctors’ orders be completed on-time, per treatment plan
Pain point: too many different, overlapping information sources to track 300 patients

Information Needs for MS Case-Management

<table>
<thead>
<tr>
<th>Information Needs</th>
<th>Consult/Ref</th>
<th>Consult Lab</th>
<th>Consult Speech</th>
<th>Consult Med</th>
<th>Call</th>
<th>Lab</th>
<th>MRI</th>
<th>Ultrasound</th>
<th>Rx</th>
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Order Type:
- Consult
- Consult Lab
- Consult Speech
- Consult Med
- Call
- Lab
- MRI
- Ultrasound
- Rx
- Lab Test
- Doctor Assigned Task
- Clinical Reminder

Consult/Ref: scheduled, completed, reported
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Clinical Reminder: scheduled, completed, reported
How can we integrate and organize all the needed information?

1. To provide broad, constant situation awareness for all patients with active orders
2. And, quick access to appropriate detail for those needing more attention

Re-organizing the information

Layers of information for layers of questions:
- Top layer: whose orders are not progressing?
- Middle layer: which order(s) are not and why?
- Bottom layer: what is appropriate action and how to proceed?
Demo - Patient-Centered Case-Management

1. Quickly find any patient’s current orders and status
2. Answer patients’ questions or self-assign tasks with due dates to find out
3. Maintain awareness of newly arriving doctors orders with one click, and review details with one more click
4. Review patients with near appointments and the status of their orders with one click
5. Easily survey the status all patients with pending orders or self-assigned tasks with one click, and identify which are not progressing on-schedule
6. Open a summary of each patient record with aging orders to identify which orders are not progressing, understand why, and decide whether to intervene or to enter a note
7. Get the information needed to intervene with one click, or designate a future date
Feedback from NC on demo

- "that's fantastic"
- "I have to do a lot of what is really secretarial work"
- "this will really save a lot of time"

P-CMS Usability Evaluation
Reduced Overhead Tasks:
Pre-visit Preparation

Reduced Overhead Tasks:
Post-visit Order Management
Time-savings Simulation: Hours per 80 patients

Additional Expected Benefits
- Promote easier interactions between case-managers and patients
- Improve situation awareness by case-managers and patients
- Increase timely completion of doctors’ orders
- Increase quality and timeliness of information
- Allow clinicians to work at/near the top of their skill level
Next Steps for P-CMS

How generalizable is P-CMS concept?
• Would it work in other MS clinics?
• Can it be adapted to other chronic diseases?

Is it feasible to get the data feeds?
• Technical feasibility study underway
• Permission to deploy

Thank you

• All the great doctors, nurses and staff at VA’s MS Center of Excellence – West
• Teammates at
  – UTX School of Biomedical Informatics
  – Baylor Health
  – Duke University
• AHRQ, for Grant Number: 5R01HS021233-02
  “Modeling and Analysis of Clinical Care for HIT Improvement”
Back-up slides in case of demo problems

The Home screen has 4 sections
1. Search box
2. Filters
3. Date
4. Patient List
The SEARCH box
Enter a patient’s name to view the patient’s detailed record

FILTERS
View the records you are most interested in. The records are sorted according to the filter you select.
DATE
Displays the current, past or future dates

PATIENT LIST - Quickly view key patient information based on the current filter
[Scroll bar] Shows that there are more patients than fit on the screen

Search for a Patient
- Enter the name in the search box
- Press the “Search” button
Search Results
- Only patients with names that match will be found

More on Filters
Let’s look at them more closely
All Patients
All patients are listed in alphabetic order by first name

Age of Orders -
All patients are listed based on the age of the oldest order
Newly Arrived Orders
Displays only patients with new orders. A “!” indicates a patient with a new order.
(Click on the “!” to turn it off)

Last Appointment -
Displays all patients sorted by the date of their last visit
Next Appointment
Displays all patients sorted by the date of their next visit

To View Patient’s Record
Click on the record in the Patient List
**Patient Detail Record**

<table>
<thead>
<tr>
<th>Test</th>
<th>Order Date</th>
<th>Expected Date</th>
<th>Status</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC</td>
<td>2013-11-01</td>
<td>2013-11-30</td>
<td>Specimen Pending</td>
<td>Patient called requesting lab results</td>
</tr>
<tr>
<td>USR</td>
<td>2013-11-01</td>
<td>2013-11-30</td>
<td>Image Pending</td>
<td></td>
</tr>
</tbody>
</table>

**Patient ID & General Information**
- Similar for each patient
- Read-only information
Order & Consult items
- Plus, add a note with a due date, or
- Add a comment to each item

To Add A Note
- After pressing “ADD A NOTE” button,
- Type the note in the text box
- Save the note...
Add A Note (cont.)

- Click in the date box that is displayed
- A calendar widget will be displayed...

Add A Note (cont.)

- Click on a date in the widget
- (Use the arrows (↑↓) to move the month and year forwards or backwards)
- Press the “Save” button when done
The Note has been added with a due date

<table>
<thead>
<tr>
<th>Category</th>
<th>Order Date</th>
<th>Expected Date</th>
<th>Status</th>
<th>Comment</th>
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</thead>
<tbody>
<tr>
<td>Note</td>
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<tr>
<td>Reminder</td>
<td>2013-08-22</td>
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<td>Incomplete</td>
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<tr>
<td>Call pt to follow up on the new medication</td>
<td>2014-02-07</td>
<td>2014-02-08</td>
<td>Unknown</td>
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</tbody>
</table>

To Add A Comment
- Press “ADD A COMMENT” button
- Type the comment in the text box
- Press the “Save” button
The Comment has been saved

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<thead>
<tr>
<th>Name</th>
<th>Order Date</th>
<th>Expected Date</th>
<th>Status</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
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<td>CBC</td>
<td>2013-11-20</td>
<td>Specimen Pending</td>
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<td>Patient called regarding lab results.</td>
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<td>CIR</td>
<td>2013-11-20</td>
<td>Image Pending</td>
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<td>Order not progressing. Pt declined apt to consult with CT and discuss further.</td>
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<td>PREScriptions</td>
<td>Order Date</td>
<td>Expected Date</td>
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<td>Order Date</td>
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<tr>
<td>NOTE</td>
<td>Order Date</td>
<td>Due Date</td>
<td>Status</td>
<td>Comment</td>
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<tr>
<td>Reminder to call patient about wellness survey</td>
<td>2013-09-22</td>
<td>2013-10-01</td>
<td>Incomplete</td>
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<tr>
<td>Call pt to follow-up on the next medication</td>
<td>2014-02-07</td>
<td>2014-02-08</td>
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