Right Study, Right Patient, Right Time: Reducing inappropriate imaging for Low Back Pain

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The State of Diagnostic Imaging in 2015

Radiology is a $100 Billion Market...

and $40 Billion is wasted annually in US alone

Source: 1 Avram Goldstein, Bloomberg
Los Angeles County Department of Health Services (DHS)

Second largest public health system in nation

Provides services to over 1 million LA county residents each year

Network of 4 hospitals and 19 community health centers including multispecialty ambulatory care

Annual operating budget of $4 billion: post ACA revenue stream increasingly full risk capitation
The Problem

- Imaging is one of the top 3 cost drivers at DHS
- Imaging costs and demand continue to grow
- Revenue stream shift to capitation with ACA
- No systematic approach to ensuring appropriate and evidence based use of imaging resources
Right Study, Right Patient, Right Time
DHS Approach to High Value Imaging

Reduce inappropriate imaging with enterprise wide clinical decision support (CDS) tool embedded in DHS EHR

“Right Study, Right Patient, Right Time”
The Case for CDS

• Literature has shown CDS can reduce inappropriate imaging from 5-25% in a variety of practice settings\(^1\)

• Tool can be integrated to EHR and deliver real time recommendations that match DHS clinical practice guidelines and resources*

• Radiologist FTE can be shifted from vetting studies to reading studies (4 DHS radiologist FTE vetting per day)

• CMS will require CDS for imaging for payment in 2017

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*CDS implemented for MRI, CT, Nuclear Medicine, US, Mammography
Project Goal and Objectives

**Goal:** Reduce inappropriate diagnostic imaging performed in DHS system of care

**Objective #1:**
- Implement CDS integrated with DHS EHR at two pilot facilities by June 30, 2015

**Objective #2:**
- Demonstrate 10% reduction of inappropriate diagnostic imaging orders at two pilot facilities 6 months post implementation (Feb – June 2015)
Low Back Pain
Which of the Following are Present?

-- Select --

- Focal Neuro Deficit & Progressive/Disabling Symptoms
- Duration of Pain > 6 Weeks
- Surgery or Intervention Candidate
- Previous Lumbar Surgery
- Cauda Equina Syndrome
- None of the Above
<table>
<thead>
<tr>
<th>Procedure</th>
<th>Score</th>
<th>Radiation</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRI Spine Lumbar w/o Contrast</td>
<td>2</td>
<td>0</td>
<td>Uncomplicated acute LBP or radiculopathy is a benign, self-limited condition that does not warrant any imaging.</td>
</tr>
<tr>
<td>MRI Spine Lumbar w/ + w/o Contrast</td>
<td>2</td>
<td>0</td>
<td>Uncomplicated acute LBP or radiculopathy is a benign, self-limited condition that does not warrant any imaging.</td>
</tr>
<tr>
<td>CT Spine Lumbar w/ Contrast</td>
<td>2</td>
<td>3</td>
<td>Uncomplicated acute LBP or radiculopathy is a benign, self-limited condition that does not warrant any imaging.</td>
</tr>
<tr>
<td>NM Bone Imaging Spect</td>
<td>2</td>
<td>3</td>
<td>Uncomplicated acute LBP or radiculopathy is a benign, self-limited condition that does not warrant any imaging.</td>
</tr>
</tbody>
</table>
Results: Implementation of CDS at Pilot Sites

• 33,965 diagnostic imaging orders performed at pilot facilities Feb – June 2015

• 1/3 of imaging orders received CDS
Results: Impact of CDS on Ordering Appropriate Study

Order Changed to Appropriate: Original order was inappropriate and order changed after receiving CDS

Order Unchanged: Original order was appropriate and no change was made before submitting

N = 10,192 Appropriate Orders

17% of ‘Appropriate Orders’ were the result of feedback from CDS
Case Study: Imaging for Low Back Pain (LBP)

- Canceled 1%
- No CDS For Order 33%
- Appropriate LBP Order 40%
- Inappropriate LBP Order 14% (MRI)
- LBP Order Change to Appropriate 12% (no MRI)

N = 417 Total orders for LBP
Case Study:
Imaging for Low Back Pain (LBP)

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- Canceled 1%
- No CDS For Order 33%
- Inappropriate LBP Order 14% (MRI)
- Appropriate LBP Order 40%

LBP Order Change to Appropriate 12% (no MRI)
Case Study LBP: Opportunity for Cost Savings

- 12% reduction in inappropriate L-spine MRI in 6 months at pilot sites
- Estimated savings of approximately $52,000 to date, assuming $1000 estimated cost/MRI study*
- In 2014 there were a total of 7516 L-Spine MRIs across DHS, **cost = $7,516,000**
- If we estimate 12% reduction in L-Spine MRI due to CDS, **savings = $902,000** for LBP alone in first year

*Professional + technical components
Lessons Learned

Start Early:
to optimize CDS, customize it to system and best practices w/ provider input

Educate:
Electronic CDS alone is not enough – need provider understanding of best practice and patient education
Next Steps

• Dashboard with provider and facility level performance on appropriate imaging ordering
• Provider education on CDS, DHS Expected Practices, and individualized feedback
• PI project in primary care clinic for reducing imagine for LBP / Choosing Wisely Grant
• Patient survey on expectations in order to develop culturally appropriate patient education materials

“Right Study, Right Patient, Right Time”
Questions???
Output: Implementation of CDS at Pilot DHS Sites

N = 33,965 Total Orders

1/3 of imaging orders received CDS at pilot facilities Feb-July 2015

Appropriate Order: Study ordered meets guidelines/evidence base for evaluating condition

Inappropriate Order: No evidence that study ordered is of value in evaluating condition

No CDS: Clinical condition entered into CDS tool not recognized / no recommendation