2014 Quality Improvement Grantees Learning Congress

September 26, 2014

Latent Tuberculosis Treatment Evaluation & Improvement

Clark County

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Project Team

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Clark County

• Total population: 442,800 (OFM)
• ~47.5% in unincorporated areas

Clark County Public Health (CCPH):
  – 78.15 FTEs
  – $10,131,149 annual budget (2013)
  – Currently working towards PH Accreditation
Problem Identified

LTBI Treatment Completion Rates by Year
CCPH 2008-2012

Treatment Outcomes of LTBI Patients Managed by CCPH, 2008-2012
Background

• Change in Department direction and resources in 2008
  • Transferred nearly all clinical services, including TB clinic, to community
  • Lost institutional knowledge of data systems - TB Data!
  • Department staff reduced by 52.9 FTE
  • Continued to operate with efficiency as high priority
Context

1) New LTBI Treatment Regimen Available
   • ~2012, 2 drugs for 3 months
   • Short course, excellent complement to eDOT

2) CCPH Changed Approach to LTBI Treatment
   • Prioritized and selectively treated LTBI patients

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Reasonable* Estimate of Increased Risk</th>
<th>Documented Range of Risk Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tumor necrosis factor (TNF) inhibitor use</td>
<td>20+</td>
<td>1.6 - 90.1</td>
</tr>
<tr>
<td>HIV positive not on antivirals</td>
<td>10+</td>
<td>4.1 - 24.0</td>
</tr>
<tr>
<td>Malnourishment</td>
<td>10+</td>
<td>2.2 - 37.5</td>
</tr>
<tr>
<td>Children &lt; 5 years of age</td>
<td>6</td>
<td>5.5 - 7.9</td>
</tr>
<tr>
<td>Contacts to active cases/Recent Converters</td>
<td>3</td>
<td>1.7 - 3.4</td>
</tr>
</tbody>
</table>

* Reasonable estimates are this analyst’s subjective estimate of increased risk based upon estimates in the scientific literature, study size and design, and CDC estimates

3) Culture Change on the CD Team
   • Grassroots effort by frontline staff to use eDOT
AIM Statement

• To decrease the number of people who develop active Tuberculosis through the timely and efficient treatment of latent Tuberculosis infection (LTBI).
Project Activities

- Assemble Team
- Gathering the Data
  - Identify Source
  - Abstract Information
- Identify Root Causes
- Analyze Baseline Data
  - Bar graphs with summary statistics
- Explore Solutions
  - Examine Costs and
  - Developed Solutions
- Implementation
  - New Process developed
  - Formalized processes
Quality Tools - Fishbone (Cause/Effect) Diagram

CLIENT MOTIVATION
- Long Treatment
- Parental Discouragement

MEDICAL CONCERNS
- Indifference
- Lifestyle Interference
- Medication Side-effects
- Denial (lack of S & S)

CLIENT SKILLS
- Unreliable High Risk Patients
- Lack of Understanding

HEALTH DEPARTMENT RESOURCES
- Limited follow-up
- Cost

CULTURAL BARRIERS
- Social Stigma
- Easy to avoid DOT appointments

CONSEQUENCES
- No perceived penalty for skipping DOT (No Penalty for not completing treatment)

OUT OF JURISDICTION
- Formal change of residence to new jurisdiction

INCOMPLETE LTBI TREATMENT
- Lack of Stability
- Death

Project Intervention

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Quality Tools - Process Map

- Confirmed LTBI Patient
  - LTBI Regimen
    - 3 months INH-RPT by DOT
      - DOT Mode
        - In-Person DOT
          - RN Intake Visit:
            - Forms
            - Education
            - First med dose
            - Drop-off first month meds
        - Electronic DOT
          - RN Intake Visit:
            - Forms
            - Education
            - First med dose
            - Drop-off first month meds
            - Skype Training (phone/tablet/PC)
  - 9 months INH Self-admin
    - Self-Admin LTBI
      - RN Intake Visit:
        - Forms
        - Education
        - Drop-off first month meds
  - RN Visits x8
    - Travel
    - Assessment
    - Med refills

- LTBI Treatment Completed
  - RN Visits x2
    - Travel
    - Assessment
    - Med refills
  - DOT Visits x9
    - Travel
Quality Tools - Improvement

Identify Potential Solutions:

• Provide patient-centered DOT experience
  - Recommended by CDC and WHO
• Encourage new 12-week regimen
• Lend hardware, such as tablets, to improve DOT adherence
Quality Tools - Improvement

Develop an Improvement Theory:

IF we:

• Provide an eDOT option
• Encourage the 12-week regimen
• Provide select clients with eDOT hardware

THEN:

• LTBI treatment completion rates will improve
• Costs for the department will decrease
• Resources will be liberated for other TB control objectives
Results - Treatment Outcomes

LTBI Treatment Completion Rates by Year
CCPH 2008-2014 YTD

- 2008: 56%
- 2009: 61%
- 2010: 70%
- 2011: 71%
- 2012: 89%
- 2013: 100%
- 2014 YTD: 100%

CDC LTBI 2015 Target

Treatment Outcomes of LTBI Patients Managed by CCPH, 2008-2014 YTD

- 2008: 20 (Incomplete: 15, Complete: 5)
- 2009: 19 (Incomplete: 15, Complete: 4)
- 2010: 25 (Incomplete: 10, Complete: 15)
- 2011: 13 (Incomplete: 5, Complete: 8)
- 2012: 10 (Incomplete: 3, Complete: 7)
- 2013: 14 (Incomplete: 3, Complete: 11)
- 2014 YTD: 11 (Incomplete: 4, Complete: 7)
Results - Cost Savings

Average Cost of LTBI Treatment Per Fully Treated Case
CCPH 2008-2014YTD

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Cost ($)</th>
</tr>
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<tbody>
<tr>
<td>2007</td>
<td>1700.34</td>
</tr>
<tr>
<td>2008</td>
<td>1727.58</td>
</tr>
<tr>
<td>2009</td>
<td>1666.19</td>
</tr>
<tr>
<td>2010</td>
<td>1874.16</td>
</tr>
<tr>
<td>2011</td>
<td>1670.62</td>
</tr>
<tr>
<td>2012</td>
<td>1110.31</td>
</tr>
<tr>
<td>2013</td>
<td>769.273</td>
</tr>
<tr>
<td>2014</td>
<td>636.951</td>
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</tbody>
</table>
Next Steps

• Consider expanding eDOT and LTBI treatment to other lower-risk patients as resources permit
• Create database for tracking all LTBI cases with QI information that cannot be captured by other programs
• Continue to improve data collection
• Promote eDOT as a patient-centered approach that improves treatment completion rates with inherent cost savings
• Robust Program assessment
  • Patient surveys
  • Analysis of missed doses, treatment interruption, side-effects, cost, patient perception
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Public Health Performance Management Centers for Excellence
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