Framing Your System-Level Evaluation Strategies
Second International Conference on Research Methods for Standard Terminologies

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Disclosure

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Objectives

At the end of this session, the learner will be better able to...

- Identify system-level evaluation framework components
- Analyze data to show system-level intervention outcomes
- Apply a system-level evaluation framework to system-level work
Today’s Road Map

• Define system-level practice
• 8 Easy Steps to System-Level Practice and Evaluation
• System-Level Framework - Obesity Example
• System-Level Framework - DVT Example
• System-Level Framework Application
Definition:
System – Level Practice

• Changes organizations, policies, laws, and power structures.
• The focus is not directly on individuals and communities but on the systems that impact health.
• Changing systems is often a more effective and long-lasting way to impact population health than requiring change from every single individual in a community.

1. Does your practice include system-level interventions?

2. Have you ever used the Omaha System to document system-level interventions?

3. Have you ever used the Omaha System to evaluate system-level interventions?
Eight Easy Steps to System-Level Practice and Evaluation Using the Omaha System

1. Use population health data to identify the health issue
2. Determine the organizational system(s) or other system(s) that impact the identified health issue
3. Select a system and an evidence-based system-level intervention
4. Utilize system-level data to determine the gap in the selected system in relation to the evidence-based intervention
5. Map the gap to Omaha System signs and symptoms
6. Determine to which Omaha System problem(s) these signs and symptoms belong
7. Develop an evidence-based Omaha System Care Plan
8. Develop Omaha System Knowledge, Behavior, and Status (KBS) scales to reflect the continuum from gap to no-gap
Eight Easy Steps to System-Level Practice and Evaluation Using the Omaha System: Obesity Example

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Step One:
Use population health data to identify a health issue

• Data: Community Health Needs Assessment*
  – Community surveys:
    • electronic survey available to community stakeholders and members
    • low-literacy 2-page survey in public health waiting rooms
  – Focus groups
  – Community Health Needs Assessment Community Conversations
  – Centers for Disease Control and Prevention
  – National Center for Chronic Disease Prevention and Health Promotion
  – Behavioral Risk Factor Surveillance System, etc.

• Issue Identified:
  – Obesity

Step Two:
Determine the system(s) that impact this health issue

- Institutional Systems:
  - Schools
  - Communities
  - Worksites
  - Daycare
  - Healthcare, etc.

- Other Systems:
  - Food System
  - Transportation System
  - Legal System
  - Housing System
  - Educational System, etc.
Step Three:
Select a system and an evidence-based system-level intervention

- **System: Healthcare Setting**

- **System-level Intervention:**
  
  Implementation of the Institute of Clinical Systems (ICSI) Adult Obesity Guideline
Step Four: Obtain system-level data related to the selected system to identify any gap in relation to the selected evidence-based intervention

– Healthcare Setting Data
  • Literature review
  • Chart audit
  • Clinician surveys
  • Administrator surveys

– Identified Gap: Inadequate implementation of evidence-based clinical obesity guidelines
Step Five:
Map to Omaha System signs and symptoms

Which signs and symptoms reflect the identified gap?

• Signs/Symptoms:
  • inadequate treatment plan (does not offer evidence-based clinical obesity treatment plan)
  • inadequate source of health care (is not a source of evidence-based clinical obesity care)
Step Six:
Determine to which Omaha System problem(s) these signs and symptoms belong

• Health Care Supervision (Martin, pp. 346-350)
  – Definition: Management of the health care treatment plan by health care providers

Step Seven:
Develop an evidence-based Omaha System Careplan

- Health Care Setting Obesity Care Plan
  - Omaha System Problem
  - Omaha System Signs and Symptoms
    - Omaha System Interventions
      » Omaha System Targets
  - Omaha System Client Specific Information

Step Eight:
Develop Knowledge, Behavior, and Status (KBS) scales to reflect the continuum from gap to no-gap.

No evidence-based care

Evidence-based care
### Obesity Careplan KBS Rating Guidance

<table>
<thead>
<tr>
<th>Health Care Supervision</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong> (What health care setting knows in regards to evidence-based guideline)</td>
<td>No knowledge</td>
<td>Minimal knowledge</td>
<td>Basic knowledge</td>
<td>Adequate knowledge</td>
<td>Superior knowledge</td>
</tr>
<tr>
<td><strong>Behavior</strong> (What health care setting does regarding implementation of evidence-based guideline)</td>
<td>Not appropriate behavior: does not implement guideline</td>
<td>Rarely appropriate behavior: 1-2 clinicians implement guideline</td>
<td>Inconsistently appropriate behavior: multiple clinicians or 1-2 departments implement guideline</td>
<td>Usually appropriate behavior: several departments implement guideline</td>
<td>Consistently appropriate behavior: entire system implements guideline</td>
</tr>
<tr>
<td><strong>Status</strong> (How health care setting is in regards to support and adoption of evidence-based guideline)</td>
<td>Extreme S/S: ▪ no supports ▪ precontemplation</td>
<td>Severe S/S: ▪ minimal supports ▪ contemplation</td>
<td>Moderate S/S: ▪ moderate supports ▪ preparation</td>
<td>Minimal S/S: ▪ adequate supports ▪ action</td>
<td>No S/S: ▪ numerous supports ▪ adoption/maintenance</td>
</tr>
</tbody>
</table>
System-Level Evaluation in a Nutshell

• Obtain Pre-intervention KBS Ratings
• Proceed with System-Level Intervention
• Obtain Post-intervention KBS Ratings
• Analyze Pre- and Post-Intervention KBS Results
Eight Easy Steps to System-Level Practice and Evaluation Using the Omaha System: DVT Example

Evaluation Strategies for Projects in Practice

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Adjunct Instructor, Bethel University
Step One:
Use population health data to identify a health issue

- Data: [http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html](http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html)

- Issue:
  Deep Vein Thrombosis in Pregnant Patients on Prolonged Bedrest
Step Two:
Determine the system(s) that impact this health issue

• Determine the organizational system(s) or other system(s) that impact this issue
  – Organizational Systems:
    • Hospital
    • Hospital Departments
    • Clinic
    • Other Healthcare setting, etc.
  – Other Systems:
    • EMR System
    • QI System
    • Orientation System, etc.
Step Three:
Select a system and an evidence-based system-level intervention

• System:
  Mother-Baby Units in the Hospital

• System-level Intervention:
  Implementation of Clinical DVT Guidelines
Step Four:
Obtain system-level data related to the selected system to identify any gap in relation to the selected evidence-based intervention

• Data:
  – chart audit
  – nurse surveys
  – organizational surveys
  – evidence from literature e.g. Kane et al., 2013 compared to facility ICD-9 code data

• Identified Gap:
  – Inadequate implementation of evidence-based clinical guidelines
Chart Audit

Review of ICD-9 data revealed the equivalent of 33.3 DVT cases per 10,000 over a two year period (July 1, 2011 to June 30, 2013)

<table>
<thead>
<tr>
<th>ICD Codes</th>
<th>Labels</th>
</tr>
</thead>
<tbody>
<tr>
<td>V23.89</td>
<td>Supervision of other high-risk pregnancy</td>
</tr>
<tr>
<td>V23.9</td>
<td>Supervision of unspecified high-risk pregnancy</td>
</tr>
<tr>
<td>V72.84</td>
<td>Pre-operative examination unspecified</td>
</tr>
<tr>
<td>V57.1</td>
<td>Care involving other physical therapy</td>
</tr>
<tr>
<td>V58.83</td>
<td>Encounter for therapeutic drug monitoring</td>
</tr>
<tr>
<td>785.1</td>
<td>Palpitations</td>
</tr>
<tr>
<td>786.59</td>
<td>Other chest pain</td>
</tr>
<tr>
<td>745.5</td>
<td>Ostium secundum type atrial septal defect</td>
</tr>
<tr>
<td>649.33</td>
<td>Coagulation defects complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication</td>
</tr>
<tr>
<td>671.33</td>
<td>Deep phlebothrombosis antepartum</td>
</tr>
<tr>
<td>648.23</td>
<td>Antepartum anemia</td>
</tr>
<tr>
<td>674.54</td>
<td>Peripartum cardiomyopathy with postpartum condition or complication</td>
</tr>
<tr>
<td>451.83</td>
<td>Phlebitis and thrombophlebitis of deep veins of upper extremities</td>
</tr>
<tr>
<td>415.19</td>
<td>Other pulmonary embolism and infarction</td>
</tr>
<tr>
<td>453.4</td>
<td>Acute venous embolism and thrombosis of unspecified deep vessels of lower extremity</td>
</tr>
<tr>
<td>459.2</td>
<td>Compression of vein</td>
</tr>
<tr>
<td>289.81</td>
<td>Primary hypercoagulable state</td>
</tr>
</tbody>
</table>
Nurse Survey

1. Knowledge of compression for pregnant women on prolonged bedrest before education:
   () No knowledge   () Minimal knowledge () Basic knowledge () Adequate knowledge () Superior knowledge

2. Knowledge of compression for pregnant women on prolonged bedrest after education:
   () No knowledge   () Minimal knowledge () Basic knowledge () Adequate knowledge () Superior knowledge

3. How often do you assess pregnant mothers on bedrest beyond three days for DVT risks factors?
   () Never                 () Rarely () Sometimes           () Usually () Always

4. How often do you apply compression boots on pregnant mothers on bedrest beyond three days?
   () Never () Rarely () Sometimes () Usually () Always

5. Which of the following problem have you encountered with DVT prevention practice? Select all that apply.
   () Compression equipment not available
   () Compression sleeves not available
   () Patients decline the use of compression boots
   () Discomfort with the procedure
   () Discomfort with patient education on compression use

Survey Findings: Nurses have knowledge, but they do not practice what they know.
Step Five:
Map to Omaha System signs and symptoms

• Signs/Symptoms:
  – inadequate treatment plan (does not offer evidence-based clinical DVT treatment plan)
  – inadequate source of health care (is not a source of evidence-based clinical DVT care)
Step Six:
Determine to which Omaha System problem(s) these signs and symptoms belong

• Health Care Supervision (Martin, pp. 346-350)
  – Definition: Management of the health care treatment plan by health care providers

Step Seven:
Develop an evidence-based Omaha System Careplan

• Health Care Setting DVT Careplan
Step Eight:
Develop Knowledge, Behavior, and Status (KBS) scales to reflect the continuum from gap to no-gap

- Continuum: from lack of evidence-based care to presence of evidence-based care
# DVT Careplan KBS Rating Guidance

<table>
<thead>
<tr>
<th>Component</th>
<th>Definition</th>
<th>Rating Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
<td>Nurses' knowledge of evidence-based DVT prevention</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No knowledge of compression for pregnant women on prolonged bedrest</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Minimal knowledge of compression for pregnant women on prolonged bedrest</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Basic knowledge of compression for pregnant women on prolonged bedrest</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Adequate knowledge of compression for pregnant women on prolonged bedrest</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Superior knowledge of compression for pregnant women on prolonged bedrest</td>
<td>1</td>
</tr>
<tr>
<td><strong>Behavior</strong></td>
<td>Nurses' assessment of DVT risk and use of compression boots</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Nurses never assess for DVT risks or apply boots</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Nurses rarely assess for DVT risks and do not apply boots</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Nurses inconsistently assess risk and may apply boots as indicated by assessment</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Nurses usually assess and apply boots as indicated by assessment</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Nurses always assess and apply boots as indicated by assessment</td>
<td>1</td>
</tr>
<tr>
<td><strong>Status</strong></td>
<td>Policy existence and implementation of prevention of deep vein thrombosis in mother-baby units</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No policy in place applicable to mother-baby units</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Policy under development</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Implementation of policy in a single hospital's mother-baby unit</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Implementation of policy in multiple hospitals’ mother-baby units throughout the health system</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Policy in place in mother-baby units throughout the health system</td>
<td>1</td>
</tr>
</tbody>
</table>
# System-level Changes in DVT Prevention after Intervention

<table>
<thead>
<tr>
<th>System Changes</th>
<th>Before Intervention</th>
<th>After Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician leadership: Order mechanical prophylaxis</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>DVT prevention protocol built into order sets</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Leadership support for DVT prevention practice</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Provide patient education about DVT on educational channel</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Stock compression boots in every room</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Use compression boots during fetal monitoring (20 minutes twice a day)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Compression/anti-embolism stockings policy change (pregnant women may be at less risk for pressure ulcers; compression stockings more acceptable to patients)</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
System-Level Evaluation in a Nutshell

- Obtain Pre-intervention KBS Ratings
- Proceed with System-Level Intervention
- Obtain Post-intervention KBS Ratings
- Analyze Pre- and Post-Intervention Results
References

Questions?
Your Turn

Apply the eight step framework to your practice!
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THANK YOU!