NMPRO: Northwestern Medicine Patient Reported Outcomes

Integrating Patient Reported Outcomes (PRO) into the Electronic Medical Record

2017 HealthMeasures User Conference, Chicago, IL
September 27, 2017
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Introduction
Patient Reported Outcomes (PROs)

“Any report of the status of a patient’s health condition that comes directly from the patient, without interpretation of the patient’s response by a clinician or anyone else.”

PROs at Northwestern Medicine

- Computer Adaptive Assessments integrated with the EMR
- Measure quality of care through a patient-centered lens
- Enhance communication between patient and providers
- Determine efficacy of treatment and facilitate treatment decision making
Why Orthopaedic Surgery?

Significant leadership engagement at NM

• Considerable interest in the utilization of PROs by surgeons to monitor changes in symptom severity over time, support shared clinical care decisions, and assess treatment effectiveness for quality initiatives and value-based reimbursement.

• Emphasis from Centers for Medicare and Medicaid Services (CMS) to use PROs for performance measures, value-based purchasing, and meaningful use requirements.

• 2013 proposal by Northwestern University’s Medical Social Sciences department, Orthopaedic Surgery, NM Quality, and NM leadership.
Patient Reported Outcomes (PROs) in Clinical Care

- Clinicians underestimate patients' symptoms during clinical encounters
- Patients may not report new symptoms during and between clinical encounters

“Mrs. Jones, why didn't you let us know about the pain you were experiencing in your knee?”

“I thought that was normal after a knee replacement, and I didn't want to bother you.”

- Increased patient satisfaction with care provided
- Valued by clinicians to support clinical decisions, improve symptom management, patients' overall quality of life
**Timeline**


- **February 2016**
  - Pilot using MyChart

- **June 2016 – October 2016**
  - Hyperspace feature
  - Workflow observation

- **October 2016**
  - Go-Live
  - MyChart & in-clinic (Hyperspace)

- **January 2017**
  - Ad-hoc survey functionality
Team & Stakeholders

Executive Sponsor
Physician Champions
Operational Leaders
Team Members
Customers
IS/Epic team
Project Managers

NMPRO Team
# NMPRO Ortho Implementation

| Patient Population | • TKA & THA (including revision surgeries)  
|                    | • 4 surgeons |
| Triggers           | • Manual order sets  
|                    | • Pre-operative and post-operative |
| Administration     | • Completed via MyChart at home  
|                    | • Launched in clinic using hyperspace |
| Functionality      | • No disruption to regular clinic workflow  
|                    | • Real-time access to results/data in Epic |
| Ancillary support  | • Training and support  
|                    | • Oversight  
|                    | • Playbook |
EMR Data Display
Available to the Clinician Immediately Upon Completion of Assessment

Guiding Principles
- Low patient burden
- Minimal disruption to clinic workflow
- Results easy to access

Clinical Impact
- Enhanced provider-patient communication
- Patient driven care plans

Patient Spotlight
No data to display.

NM PRO TOTAL HIP ARTHROPLASTY
- PHYSICAL FUNCTION FINAL SCORE:
  - 24.1 43.5 53.1 51.3 51.3 5/2/2017
- ABILITY TO PARTICIPATE IN SOCIAL:
  - 32.4 56 62.2 67.5 67.5 5/2/2017
- PAIN INTENSITY FINAL SCORE (lower):
  - 53.7 42.6 30.7 30.7 30.7 5/2/2017
- PAIN INTERFERENCE FINAL SCORE (lower):
  - 70.3 46.4 38.7 38.7 38.7 5/2/2017

NM PRO TOTAL KNEE ARTHROPLASTY
No data to display.

Northwestern Medicine
Pre-Surgery Survey Completion
Current August Completion Rate: 60%

Month of Surgery | Completed: In Clinic | Completed: In MyChart | Not Completed
--- | --- | --- | ---
10-2016 | 2 | 3 | 12
11-2016 | 9 | 4 | 12
12-2016 | 12 | 10 | 6
01-2017 | 15 | 14 | 6
02-2017 | 26 | 9 | 9
03-2017 | 28 | 13 | 14
04-2017 | 37 | 18 | 14
05-2017 | 36 | 23 | 9
06-2017 | 38 | 23 | 9
07-2017 | 18 | 23 | 6
08-2017 | 24 | 25 | 5

Northwestern Medicine
### Post-Surgery Survey Completion

**August Completion Rate (Post Surgery Survey #1): 37%**

<table>
<thead>
<tr>
<th>Month</th>
<th>Survey Completion</th>
<th>Completed: In Clinic</th>
<th>Completed: In MyChart</th>
<th>Not Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-2016</td>
<td>37%</td>
<td>20</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>12-2016</td>
<td>46%</td>
<td>13</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>01-2017</td>
<td>52%</td>
<td>20</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>02-2017</td>
<td>36%</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>03-2017</td>
<td>40%</td>
<td>19</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>04-2017</td>
<td>41%</td>
<td>19</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>05-2017</td>
<td>52%</td>
<td>19</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>06-2017</td>
<td>39%</td>
<td>19</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>07-2017</td>
<td>30%</td>
<td>9</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>08-2017</td>
<td>44%</td>
<td>15</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>
Barriers and Challenges

Orthopaedic Surgery Pilot

• Clinic needs/communication -- No hyperspace functionality

• IS barriers (incl. Wi-Fi coverage)

• MyChart functionality for pts – cumbersome; multiple clicks

• Clinician and Staff Engagement

• Process Ownership
**NMPRO Orthopaedics Impact and Future State**

**Current Impact**
- 700+ Orthopaedics patients have completed at least one NMPRO assessment over the past year

**Future of NMPRO in Ortho**
- Administering assessment via iPad/tablet in waiting areas
- Expand NMPRO to other Ortho subspecialties
- Development outcome measurement
- Patient engagement and sharing access to results
Pre-Implementation
- Identify Process Owners
- Clinic Observations
- Current State Workflow Assessments
- Implementation Process Map/Future State

IS Build
- Questionnaire Build
- Epic Build
- Security Build
- Testing
- Workflow Demo for RHLCC Leadership
- Revisions

Implementation
- Education and Training
- Live Demos
- Go-Live
- Daily Check-Ins

Post-Implementation
- Weekly Check-Ins
- Status Reporting
- Utilization Data
Measurement and Meaningful Data Use

Outcome Measures
- Under Review with NMPRO Steering Committee

Process Measures
- Survey Order Rate
- Survey Completion Rate

Data Utilization
- Accountability Structure
- Project Manager – Clinical Quality

Clinical Relevance
• Patient friendly, interpretable display of data to patients through patient portal (MyChart)

External example of patient friendly display

• Use of PRO data to guide treatment and improve care

• Patient Family Advisory Council Involvement
Application and Planning

Candidate Request Form

NM PATIENT REPORTED OUTCOMES REQUEST FORM

PROGRAM INFORMATION
Program/Service Line Name:
Submitted By:
Contact Information:

CURRENT STATE, SCOPE, AND TOOLS
- Current state PRO surveys conducted, if any (indicate measures, population, frequency and collection method):
- Information on intended patient population (Volume, Disease Processes, etc):
- Survey tools of interest (PROMIS, computer adaptive tests, other PROs, custom measures):
- Intended survey trigger(s) (administered at appointment, after procedure, for a diagnosis):

CLINICAL NEED AND MEANINGFUL USE OF DATA
- Primary aims for use of PROs (e.g., diagnosis, screening, monitoring a symptom/outcome, to meet guidelines):
- Overview of projected clinical benefits:
- How PRO data will be used to improve the care provided to our patients:
- Intended process and outcome measures (e.g., plan for evaluation/modification of PRO collection):

OPERATIONAL WORKFLOW AND DESIGN
- Level of leadership interest/engagement:
- Level of clinician and staff interest/engagement:
- Patient feedback strategy (note any plans to incorporate patient feedback into survey design):
- Method of intended survey delivery (e-mail, MyChart, EPIC hyperspace, need for additional languages, etc):
- Anticipated changes to workflow to accommodate survey delivery and steps to minimize workflow disruption:
- Long term vision:

REGULATORY/EXTERNAL REQUIREMENTS
Please note any regulatory or external requirements that would be fulfilled by utilizing NM PRO (note any deadlines).

BRIDGE TO RESEARCH AND EXTERNAL FUNDING
Please note any bridge to research and/or external funding:

WORK TEAM FOR NM PRO IMPLEMENTATION

<table>
<thead>
<tr>
<th>Name and Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Sponsor (VP)</td>
</tr>
<tr>
<td>Physician Champion</td>
</tr>
<tr>
<td>Operational Leader</td>
</tr>
<tr>
<td>Process Owner</td>
</tr>
<tr>
<td>Key Stakeholders (team members)</td>
</tr>
<tr>
<td>Customer(s)</td>
</tr>
</tbody>
</table>

PROJECTED RESOURCE NEEDS

<table>
<thead>
<tr>
<th>Resource allocated for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS/Epic FTE</td>
</tr>
<tr>
<td>Practice FTE</td>
</tr>
<tr>
<td>Project Manager</td>
</tr>
<tr>
<td>Additional Resources (practice layout, equipment, etc)</td>
</tr>
</tbody>
</table>
# NMPRO Prioritization Criteria

<table>
<thead>
<tr>
<th>Category</th>
<th>High Effort/Low Benefit (1)</th>
<th>Moderate Effort/Benefit (5)</th>
<th>Low Effort/High Benefit (10)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Engagement (20%)</td>
<td>Leadership currently have higher priority initiatives and/or have no executive sponsor identified</td>
<td>Leadership/executive sponsor(s) have been identified and consider PROs a future priority</td>
<td>Clinical and operational leadership have prioritized the implementation of PROs in their area and are highly engaged</td>
<td>1</td>
</tr>
<tr>
<td>Technical Feasibility (20%)</td>
<td>No flexibility in current FY budget to cover potential equipment needs</td>
<td>Able to absorb potential equipment needs within current budgetary plan</td>
<td>Necessary equipment already in place/within budget to obtain prior to implementation</td>
<td>2</td>
</tr>
<tr>
<td>IS Build (15%)</td>
<td>Questions needed do not exist in current build and advanced logic requested (high customization)</td>
<td>Most questions needed exist in current build and/or large number of questions are requested (moderate customization)</td>
<td>Most or all questions needed exist in current build and/or low number of questions are requested (low customization)</td>
<td>1.5</td>
</tr>
<tr>
<td>Current Capabilities (10%)</td>
<td>PRO surveys currently being administered; results utilized for research and clinical care</td>
<td>PRO surveys currently administered; research data generated but unable to utilize clinically</td>
<td>PRO surveys being administered; unable to utilize data for research or clinical care</td>
<td>10</td>
</tr>
<tr>
<td>Operational Workflow (10%)</td>
<td>Current operational workflow would require significant redesign to successfully support NM PRO implementation</td>
<td>Implementing NM PRO would require manageable adjustments to current operational workflow</td>
<td>NM PRO can be incorporated with minimal disruption to current operational workflow</td>
<td>0.5</td>
</tr>
<tr>
<td>Meaningful Use of Data (10%)</td>
<td>No defined plan for utilization of PRO results and care impact cannot be determined</td>
<td>In the process of determining PRO data utilization in clinically meaningful way; outcome data has potential to impact care</td>
<td>Robust plan for collecting, tracking, and trending data to directly impact care</td>
<td>0.5</td>
</tr>
<tr>
<td>Reg/Ext Requirements (5%)</td>
<td>No current requirements for collecting PROs</td>
<td>Requirement for collecting PROs will go into effect soon (&lt;2 years) OR meeting requirement with current workflow</td>
<td>NM PRO needed to help meet a requirement currently in effect (not meeting requirement with current workflow)</td>
<td>0.5</td>
</tr>
<tr>
<td>Research Contribution (5%)</td>
<td>No ties to research have been explored yet</td>
<td>Plans to associate with ongoing research studies and/or has taken steps to establish funding for independent study</td>
<td>Area has existing ties to established research studies and/or has faculty champion(s) serving dual clinical and research roles</td>
<td>0.5</td>
</tr>
<tr>
<td>Vision (5%)</td>
<td>Developed recent interest in PRO data, but it is not considered clinically essential or an established standard in this specialty</td>
<td>Clinical/academic peer institutions have recognized importance of PROs; NM would like to be an early adopter</td>
<td>Robust vision and need for PROs; clinical/academic peers in this specialty collect PROs and NM should meet/exceed this standard</td>
<td>0.5</td>
</tr>
</tbody>
</table>

**Total:** 7.1
NMPRO Future State

Robert H. Lurie Comprehensive Cancer Center

- Next program to have gone live on NMPRO
- 4 practice locations and an estimated 15,143 pts per year
- Clinical, research, and accreditation aims
- Currently in post-implementation

Next Steps

- 18 programs with Identified Interest
- Refining Implementation Roadmap
- Identifying Process and Outcome Measurement for future areas
- Patient Engagement and Data Display
- Cross-utilization of data between different clinical areas
- System-wide rollout of NMPRO
Questions?
Thank You!