



NMPRO: Northwestern Medicine Patient Reported Outcomes

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

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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

Orthopaedic Surgery (2016 – 2017)

February 2016

- Pilot using MyChart

October 2016

- Go-Live
- MyChart & in-clinic (Hyperspace)

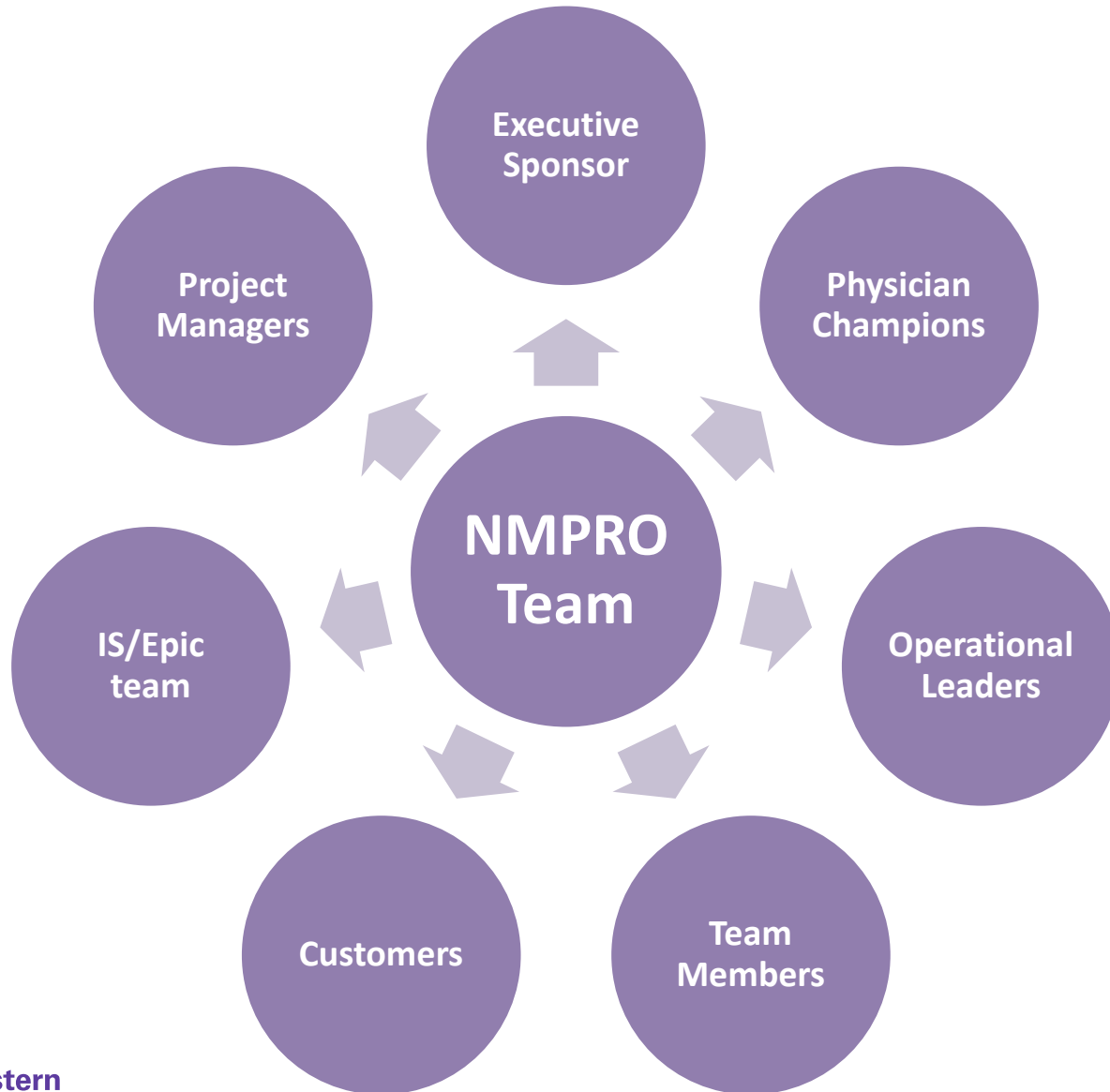
June 2016 – October 2016

- Hyperspace feature
- Workflow observation

January 2017

- Ad-hoc survey functionality

Team & Stakeholders



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

Patient Spotlight Add

No data to display.

NMPRO TOTAL HIP ARTHROPLASTY

<input checked="" type="checkbox"/> PHYSICAL FUNCTION FINAL SCORE ...	24.1	43.5	53.1	51.3	51.3	5/2/2017
<input checked="" type="checkbox"/> ABILITY TO PARTICIPATE IN SOCIAL ...	32.4	56	62.2	67.5	67.5	5/2/2017
<input checked="" type="checkbox"/> PAIN INTENSITY FINAL SCORE (lower ...)	53.7	42.6	30.7	30.7	30.7	5/2/2017
<input checked="" type="checkbox"/> PAIN INTERFERENCE FINAL SCORE ...	70.3	46.4	38.7	38.7	38.7	5/2/2017

NMPRO TOTAL KNEE ARTHROPLASTY

No data to display.

Clinical Impact

- Enhanced provider-patient communication
- Patient driven care plans

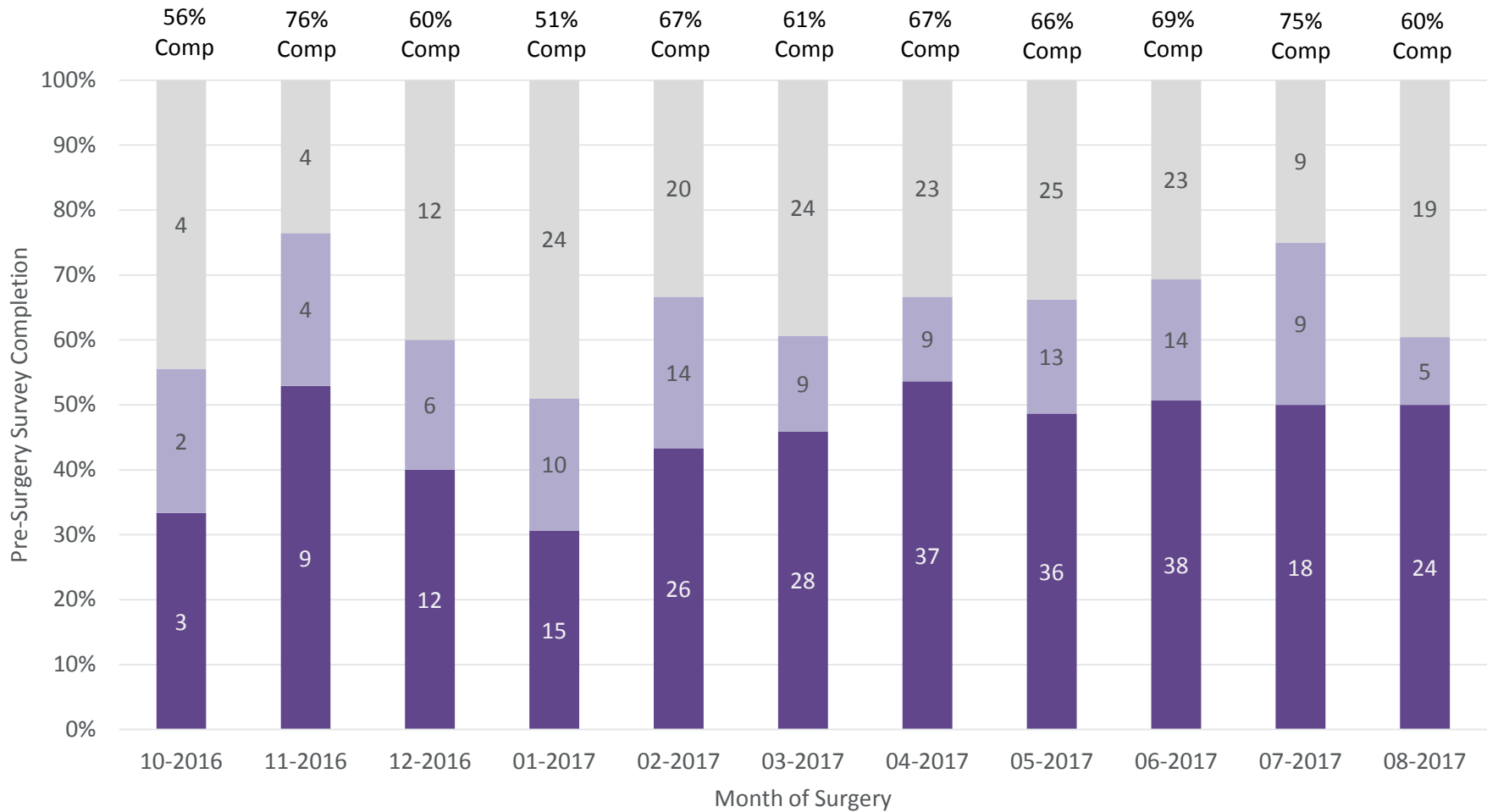
Guiding Principles

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



Pre-Surgery Survey Completion

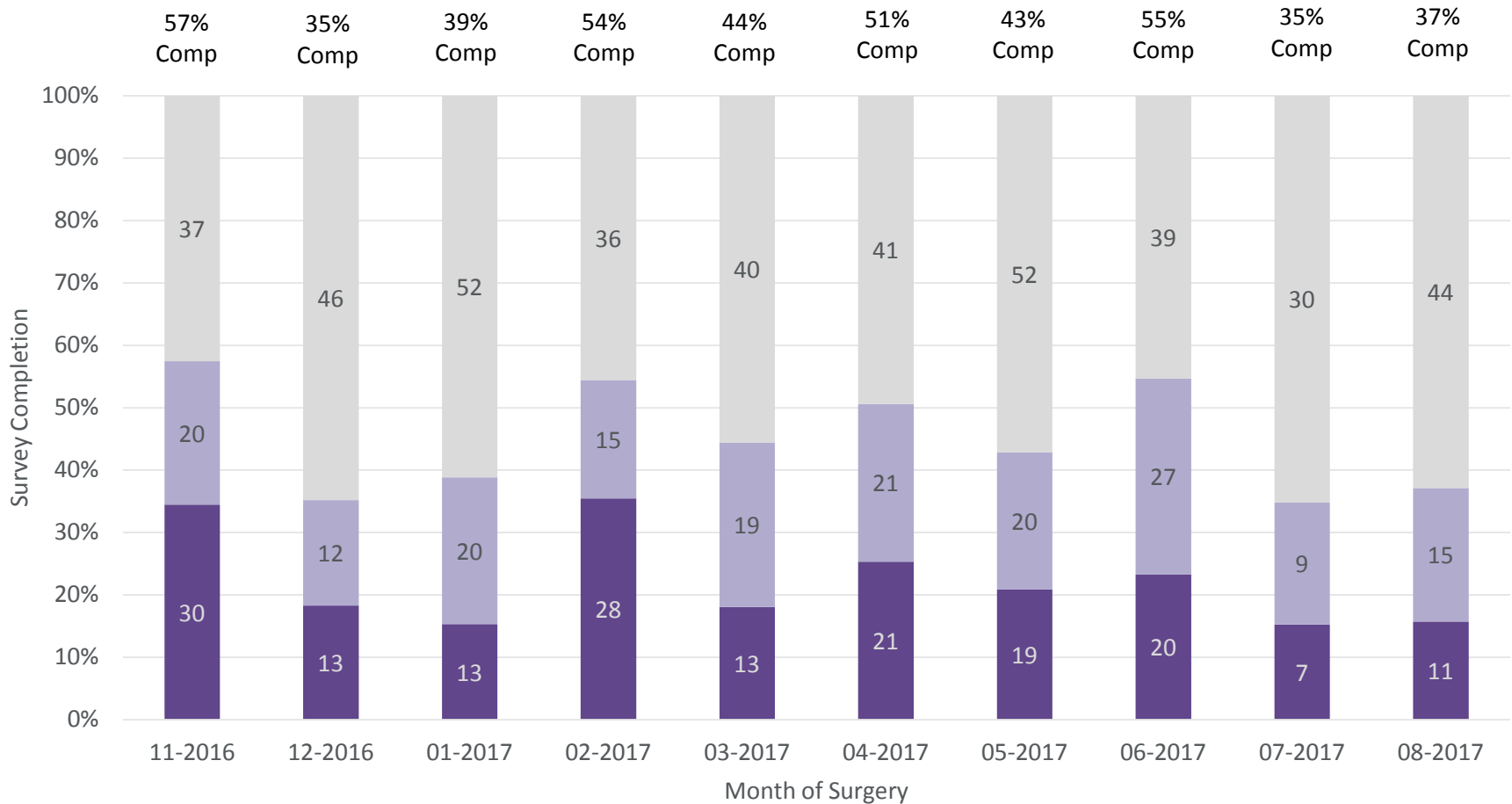
Current August Completion Rate: 60%



■ Completed: In Clinic
 ■ Completed: In MyChart
 ■ Not Completed

Post-Surgery Survey Completion

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



■ Completed: In Clinic
 ■ Completed: In MyChart
 ■ Not Completed

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

NMPRO Implementation Guide

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

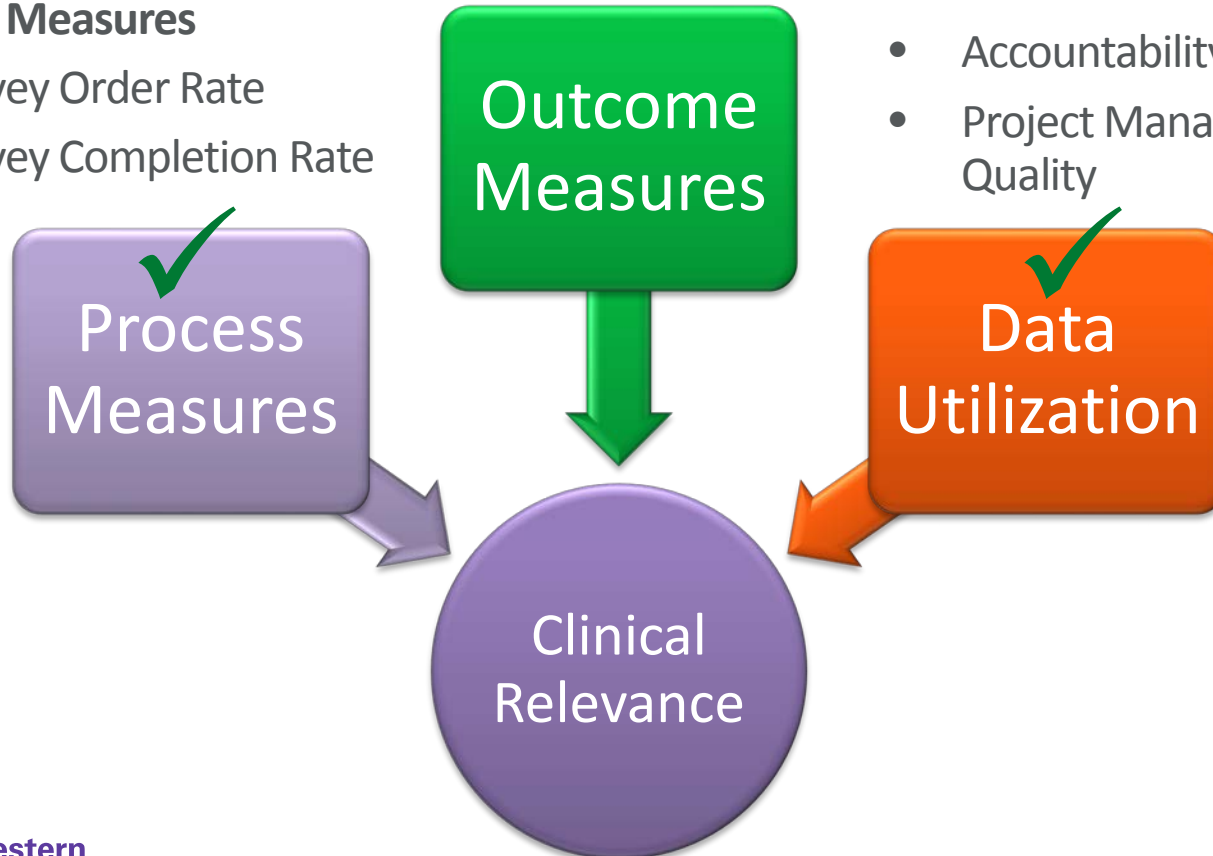
- Under Review with NMPRO Steering Committee

Data Utilization

- Accountability Structure
- Project Manager – Clinical Quality

Process Measures

- Survey Order Rate
- Survey Completion Rate



Patient Engagement

Your Test Results

PATIENT: Cora Peterson

GENDER: Female AGE: 41 DOB: August 12, 1969 ORDERED BY: Dr. Pico Duval

COLLECTED: November 13, 2010, 8:40 a.m. RECEIVED: November 13, 2010, 8:12 p.m.

RESULTS:

Comprehensive Metabolic Panel

Glucose (fasting): 125 mg/dL

NORMAL < 100 PREDIABETES 100 to 125 MAY INDICATE DIABETES > 125

YOU: 125

Vitamin D

Total vitamin D: 22 ng/mL

DEFICIENCY < 20 INSUFFICIENCY 20 to 30 SUFFICIENCY 31 to 100

YOU: 22

Complete Blood Cell Count (CBC) Normal for all 20 values, including white blood cell count (a high count can indicate infection).

Urinalysis Normal for all 20 values, including color, appearance, and protein.

Endocrinology Normal for TSH, which is an indicator of thyroid function, and for microalbumin and creatinine, measures of kidney function.

Chemistry Normal for iron, transferrin saturation, and ferritin. (Abnormal levels could indicate anemia, hepatitis, or other problems.)

WHAT DO YOUR RESULTS MEAN?

ELEVATED GLUCOSE: The relatively high amount of sugar in your blood is typical of a patient with prediabetes, which can double your risk for heart disease, depending on other risk factors. See diabetes.org for more information.

ELEVATED CHOLESTEROL: Your relatively high cholesterol (a waxy substance produced in the liver) may also increase your risk of heart disease, depending on other risk factors. See heart.org for more information.

LOWER LEVELS OF VITAMIN D: Your results suggest insufficient vitamin D, which promotes bone density and immune-system function. Women who fit your profile can become deficient within five months if no action is taken. Vitamin D deficiency may increase your risk for osteoporosis, high blood pressure, and certain cancers.

Your results at a glance:

- YOUR GLUCOSE LEVELS ARE TOO HIGH, WHICH INDICATES PREDIABETES.
- YOUR VITAMIN D LEVEL IS TOO LOW.
- YOUR CHOLESTEROL LEVELS ARE BORDERLINE HIGH.
- YOUR KIDNEY, LIVER, AND THYROID FUNCTION ARE ALL NORMAL.

Questions?

Contact the physician who ordered this test for further interpretation of the results:
DR. PICO DUVAL
(212) 555-5253

Lipid Profile

Total cholesterol: 211 mg/dL

DESIRABLE < 200 BORDERLINE 200 to 240 HIGH > 240

YOU: 211

HDL ("good" cholesterol): 46 mg/dL

LOW < 50 NORMAL > 50

YOU: 46

LDL ("bad" cholesterol): 165 mg/dL

OPTIMAL < 100 NEAR-OPTIMAL 100 to 129 BORDERLINE 130 to 159 HIGH 160 to 199 VERY HIGH > 199

YOU: 165

Triglycerides: 160 mg/dL

OPTIMAL < 150 BORDERLINE 150 to 199 HIGH 200 to 500 VERY HIGH > 500

YOU: 160

WHAT CAN YOU DO?

CONSIDER YOUR LIFESTYLE. If you are inactive, overweight, and/or a smoker, your risk for diabetes and heart disease rises. Exercising regularly (30 minutes/day) and reducing your weight by 5 to 10 percent lowers your risk of diabetes by 58 percent.

ADDRESS OTHER RISK FACTORS FOR DIABETES AND HEART DISEASE. Dietary changes, like reducing alcohol consumption and increasing fruit and vegetable intake, can decrease your cholesterol and triglyceride levels.

ASK YOUR DOCTOR ABOUT REDUCING YOUR HEART DISEASE RISK. Medications like statins can lower cholesterol and delay the onset of heart disease. Calculate your risk at <http://2010.nhlbi.nih.gov/atpi/calculator.asp>.

CONSIDER LIFESTYLE CHANGES TO CORRECT VITAMIN D INSUFFICIENCY. These include diet, vitamin D supplements, and more exposure to sunlight.

- 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

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

	Name and Department
Executive Sponsor (VP)	
Physician Champion	
Operational Leader	
Process Owner	
Key Stakeholders (team members)	
Customer(s)	

PROJECTED RESOURCE NEEDS

	Resource allocated for implementation
IS/Epic FTE	Covered by NM IS department
Practice FTE	
Project Manager	Covered by NMG Quality Department
Additional Resources (practice layout, equipment, etc)	

NMPRO Prioritization Criteria

	High Effort/Low Benefit (1)	Moderate Effort/Benefit (5)	Low Effort/High Benefit (10)	Score
Leadership Engagement (20%)	Leadership currently have higher priority initiatives and/or have no executive sponsor identified	Leadership/executive sponsor(s) have been identified and consider PROs a future priority	Clinical and operational leadership have prioritized the implementation of PROs in their area and are highly engaged	1
		5		
Technical Feasibility (20%)	No flexibility in current FY budget to cover potential equipment needs	Able to absorb potential equipment needs within current budgetary plan	Necessary equipment already in place/within budget to obtain prior to implementation	2
			10	
IS Build (15%)	<i>Questions needed do not exist in current build and advanced logic requested (high customization)</i>	<i>Most questions needed exist in current build and/or large number of questions are requested (moderate customization)</i>	<i>Most or all questions needed exist in current build and/or low number of questions are requested (low customization)</i>	1.5
			10	
Current Capabilities (10%)	PRO surveys currently being administered; results utilized for research and clinical care	PRO surveys currently administered; research data generated but unable to utilize clinically	PRO surveys being administered; unable to utilize data for research or clinical care	0.1
	1			
Operational Workflow (10%)	Current operational workflow would require significant redesign to successfully support NM PRO implementation	Implementing NM PRO would require manageable adjustments to current operational workflow	NM PRO can be incorporated with minimal disruption to current operational workflow	0.5
		5		
Meaningful Use of Data (10%)	No defined plan for utilization of PRO results and care impact cannot be determined	In the process of determining PRO data utilization in clinically meaningful way; outcome data has potential to impact care	Robust plan for collecting, tracking, and trending data to directly impact care	0.5
		5		
Reg/Ext Requirements (5%)	No current requirements for collecting PROs	Requirement for collecting PROs will go into effect soon (<2 years) OR meeting requirement with current workflow	NM PRO needed to help meet a requirement currently in effect (not meeting requirement with current workflow)	0.5
			10	
Research Contribution (5%)	No ties to research have been explored yet	Plans to associate with ongoing research studies and/or has taken steps to establish funding for independent study	Area has existing ties to established research studies and/or has faculty champion(s) serving dual clinical and research roles	0.5
			10	
Vision (5%)	Developed recent interest in PRO data, but it is not considered clinically essential or an established standard in this specialty	Clinical/academic peer institutions have recognized importance of PROs; NM would like to be an early adopter	Robust vision and need for PROs; clinical/academic peers in this specialty collect PROs and NM should meet/exceed this standard	0.5
			10	
			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!