Development of a
Patient Reported Measures Display
and Implementation across VA Salt Lake City HCS

Series: Using Data and Information Systems in Partnered Research

Presenters: Shardool Patel, PharmD & Jorie Butler, PhD

Thursday, June 20th, 2019

Conflict(s) of Interest

None

Why Patient Reported Measures/Outcomes?

- Enthusiasm for benefits and value in healthcare delivery[1]

- Availability of implementation guidance

[1] Lavallee D et al. Incorporating Patient-Reported Outcomes Into Health Care To Engage Patients And Enhance Care. Health Affairs 35, No. 4 (2016): 575–582. doi: 10.1377/hlthaff.2015.1362

Objectives

- Discuss plan for developing informatics tools for PRO collection/use

- Demonstrate PRO display for determining opioid response to therapy

- Discuss evaluation and measurement strategies and preliminary results for emerging reports to support the Whole Health Flagship

- Present evaluation strategies to support display development for additional Whole Health programming

Patient Reported Outcomes (PROs) at VA Salt Lake City HCS

- Planning underway for incorporation into many clinical domains

- First clinical domain: opioid and pain management

- Franklin et al.[2] PRO collection and use framework

[2] Franklin P et al. Framework To Guide The Collection And Use Of Patient-Reported Outcome Measures In The Learning Healthcare System. EGEMS (Wash DC). 2017 Sep 4;5(1):17. doi: 10.5334/egems.227.

Franklin et al. PRO collection and use framework

Six (6) key steps for implementation

1. Why PROs? Identifying value for diverse stakeholders

2. Who? Priority populations for PRO collection

3. When and Where? Timing PRO collection

4. What? PRO selection

5. How? Factors in PRO collection

6. PROs to inform practice

Step 1: Why PROs? Identifying value for diverse stakeholders

- Identify key stakeholders

- Identify common goals and value across stakeholders

Step 1: Why PROs? Identifying value for diverse stakeholders

Seven (7) key stakeholders

1. Veterans

2. Point-of-care (POC) clinical staff

3. Clinician/program leads

4. VASLC Pentad & VISN19 leadership

5. VASLC HSR&D field office

6. Primary Care clinicians

7. Informaticians

Step 1: Why PROs? Identifying value for diverse stakeholders

Common goals and value across stakeholders[2]

Goal	Abbreviation	Stakeholders
POC decision making **(Primary purpose)**	POC	Veterans + POC clinical staff + informaticians
Quality Improvement – individual clinic	QI-Clinic	POC clinical staff + clinician/program leads + informaticians
Quality Improvement – facility and/or VISN	QI-Facility	Clinician/program leads + VASLC Pentad & VISN19 leadership + informaticians
Quality Improvement – population health	QI-PH	VASLC HSR&D COIN + Primary Care clinicians + informaticians

Step 2: Who? Priority populations for PRO collection

Relationship to goals

- POC: Veterans engaging in partnering pain management programs

- QI: Veterans with evidence of opioid use

Step 3: When and where? Timing PRO collection

- Primary purpose: POC decision making

- RN-case managers (RN-CM) to capture in pre-visit workup

- Sufficient time to generate in CDW for POC decision making

Step 3: When and where? Timing PRO collection

Transitional Pain Service (TPS)

- Preoperative
- Seven (7) structured postoperative time points

Primary Care Pain Opioid and Pain Program (PCPOP)

- Structured 6-month intervals

Step 3: When and where? Timing PRO collection

Relationship to goals

- POC: RN-CM collect PROs at uniform intervals as part of pre-visit

- QI: PROs available at uniform intervals

Step 4: What? PRO selection

Pain and opioid management

PROMIS 3A – Pain Intensity

PROMIS 6B – Pain Interference

PROMIB 8B – Physical Function

Step 4: What? PRO selection

Relationship to goals

- Same measurements used for POC and QI

- Captured at POC

- QI uses measures collected at POC

Step 5: How? Factors in PRO collection

- RN-CM to collect in pre-visit workup

- PRO entry in CPRS via structured note templates

- PROs generate in CDW as healthfactors

Step 5: How? Factors in PRO collection

Notified via "cohort" display

Whole Health Dashboard
Transitional Pain Service (TPS) Follow Up Report

| Return to TPS Dashboard Home Page | Print Today's Follow-up List | Data Definitions |

Total Number of Patients: 291

Patient Name (Last 4 SSN)	Surgery Date	Discharge Date	Next Follow-up Date	Follow-up History						
				2-Day	7-Day	14-Day	21-Day	30-Day	60-Day	90-Day
Patient 706	01/01/1900	01/01/1900	01/01/1900 (90-day)	🟢	🟢	🟢	🟡	🟢	🟢	🔴
Patient 534	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟡	🟢	🟡	🟡		
Patient 580	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟢	🟢	🟡	🟡		
Patient 290	01/01/1900	01/01/1900	01/01/1900 (7-day)	🟡						
Patient 302	01/01/1900	01/01/1900	01/01/1900 (14-day)	🟢	🟢					
Patient 775	01/01/1900	01/01/1900	01/01/1900 (60-day)	🟢	🟢	🟢	🟡	🟢		
Patient 15	01/01/1900	01/01/1900	01/01/1900 (180-day)	🟢	🟢	🟡	🟢	🟢	🟢	🟡
Patient 761	01/01/1900	01/01/1900	01/01/1900 (7-day)	🟢						
Patient 815	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟢	🟢	🟢			
Patient 710	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟢	🟢	🟢			
Patient 46	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟢	🟢	🟢			
Patient 415	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟢	🟢	🟢			
Patient 863	01/01/1900	01/01/1900	01/01/1900 (60-day)	🟢	🟢	🟢	🟢	🟢		
Patient 791	01/01/1900	01/01/1900	01/01/1900 (60-day)	🟢	🟢	🟢	🟢	🟢		

Step 5: How? Factors in PRO collection

Notified via "cohort" display

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				2-Day	7-Day	14-Day	21-Day	30-Day	60-Day	90-Day
Patient 706	01/01/1900	01/01/1900	01/01/1900 (90-day)	🟢	🟢	🟢	🟡	🟢	🟢	🔴
Patient 534	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟡	🟢	🟡	🟡		
Patient 580	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟢	🟢	🟡	🟡		
Patient 290	01/01/1900	01/01/1900	01/01/1900 (7-day)	🟡						
Patient 302	01/01/1900	01/01/1900	01/01/1900 (14-day)	🟢	🟢					
Patient 775	01/01/1900	01/01/1900	01/01/1900 (60-day)	🟢	🟢	🟢	🟡	🟢		
Patient 15	01/01/1900	01/01/1900	01/01/1900 (180-day)	🟢	🟢	🟡	🟢	🟢	🟢	🟡
Patient 761	01/01/1900	01/01/1900	01/01/1900 (7-day)	🟢						
Patient 815	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟢	🟢	🟢			
Patient 710	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟢	🟢	🟢			
Patient 46	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟢	🟢	🟢			
Patient 415	01/01/1900	01/01/1900	01/01/1900 (30-day)	🟢	🟢	🟢	🟢			
Patient 863	01/01/1900	01/01/1900	01/01/1900 (60-day)	🟢	🟢	🟢	🟢	🟢		
Patient 791	01/01/1900	01/01/1900	01/01/1900 (60-day)	🟢	🟢	🟢	🟢	🟢		

Step 5: How? Factors in PRO collection

Notified via "cohort" display

Step 5: How? Factors in PRO collection

Relationship to goals

- POC: PROs available for decision making

- QI: PROs available in CDW, avoid measure burden

Step 6: PROs to inform practice

Suite of information displays and reports

Step 6: PROs to inform practice – Goal: POC
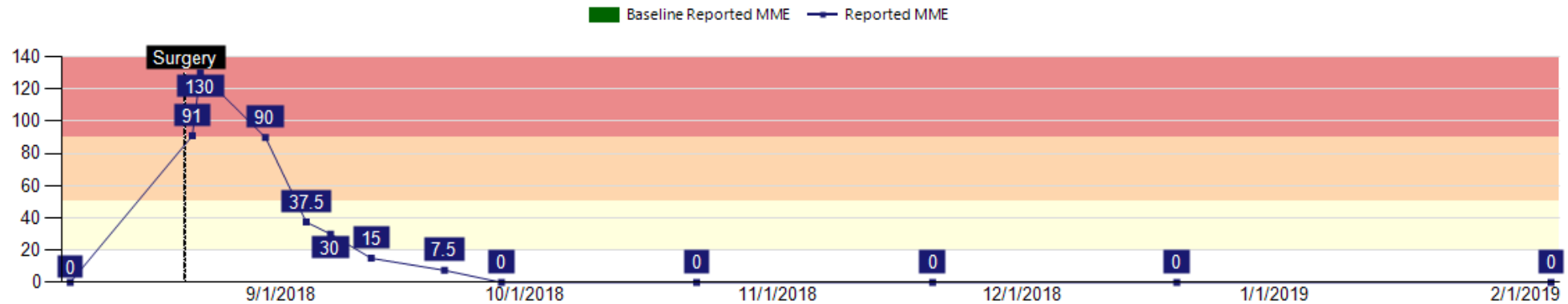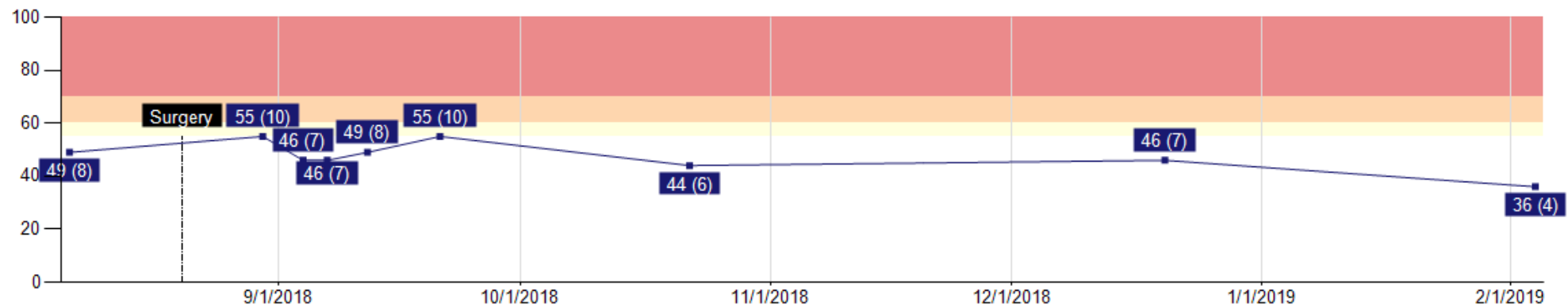
Step 6: PROs to inform practice – Goal: POC
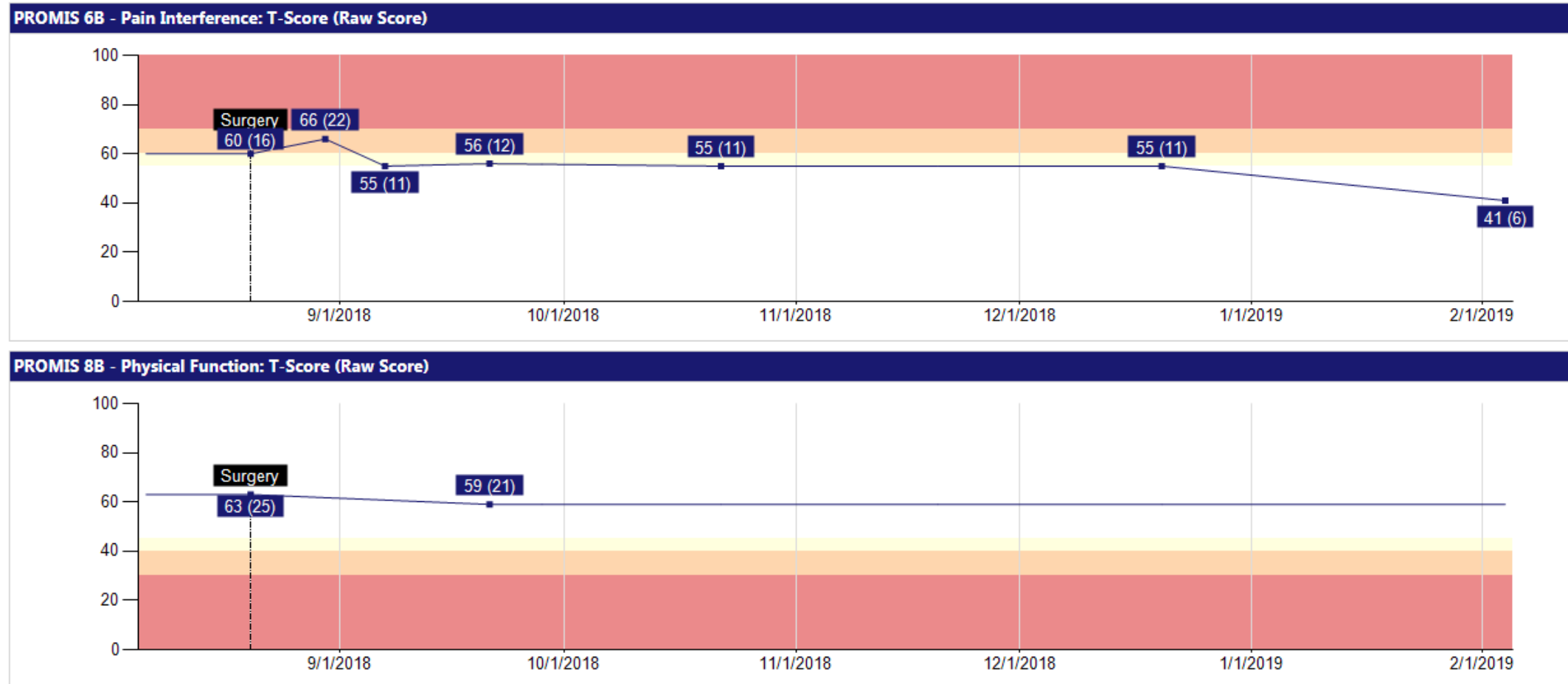
Step 6: PROs to inform practice – Goal: POC

- Chronologic display to determine response to opioid therapy

- Guidance for interpreting results

- Supports subsequent management

Step 6: PROs to inform practice – Goal: QI

Step 6: PROs to inform practice – Goal: QI

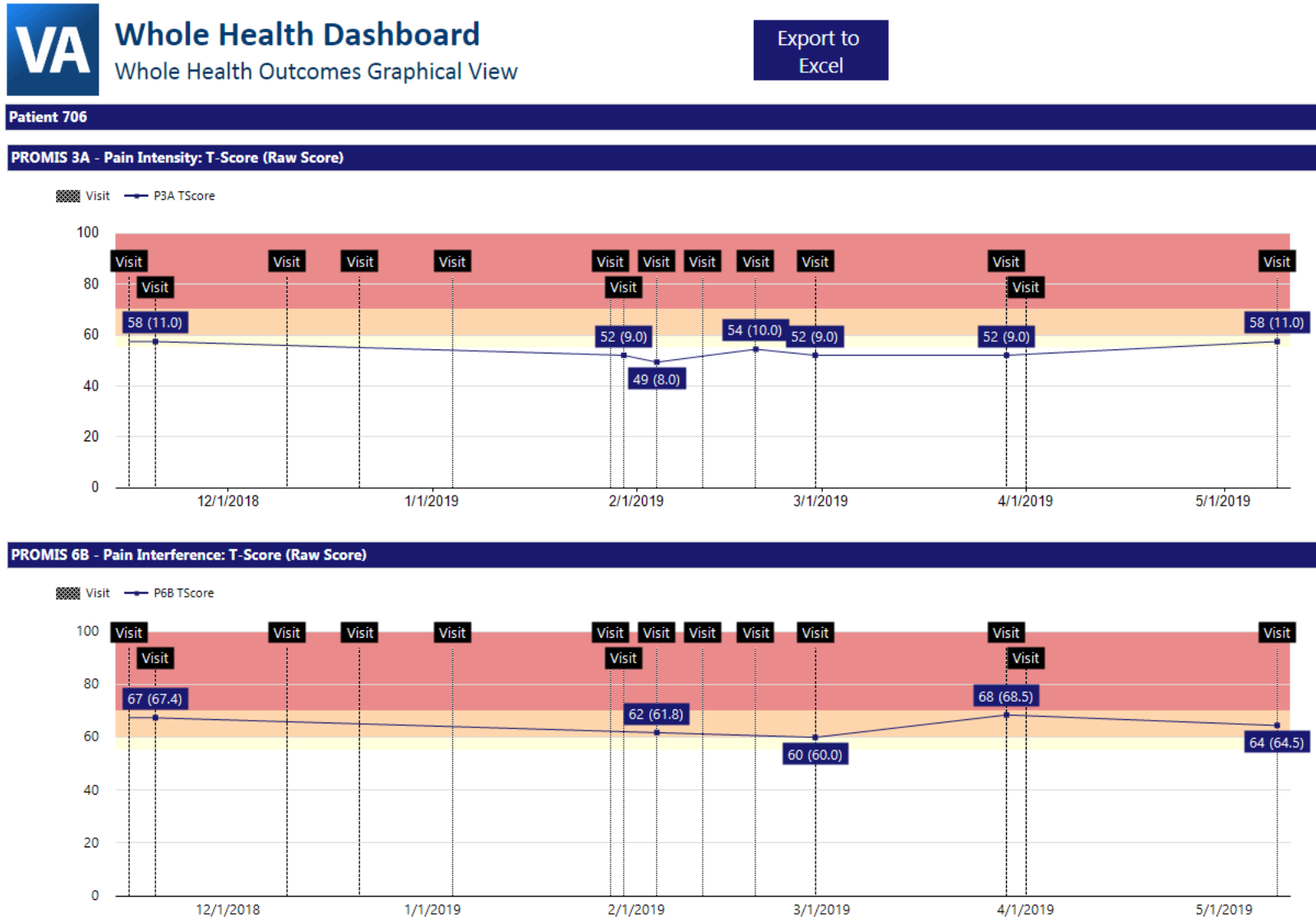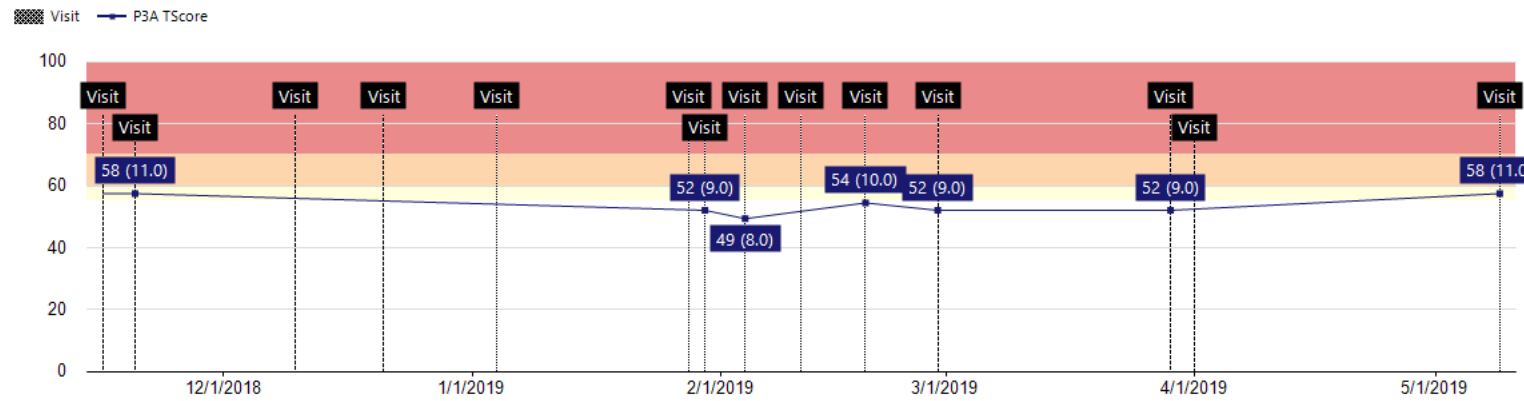# Step 6: PROs to inform practice – Goal: QI

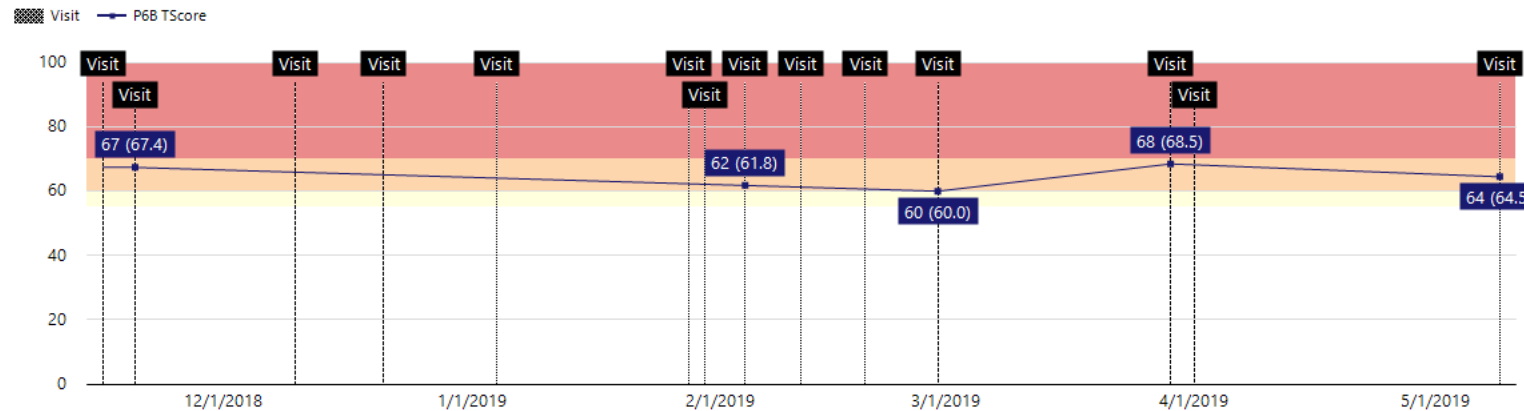

Whole Health Dashboard
Whole Health Outcomes

Patient Name	Last4SSN	Birth Date	Deceased Flag	Death Date	Event Date	P3A Total Score	P3A TScore	Visit Date	TIUDocument Definition
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900	11	57.5	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient706	0000	01/01/1900	N		01/01/1900	11	57.5	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	TRANSITIONAL PAIN SERVICE PRE-OPERATIVE ASSESSMENT
Patient706	0000	01/01/1900	N		01/01/1900	9	52.1	01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900	8	49.4	01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900	10	54.5	01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900	10	54.5	01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900	9	52.1	01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900	9	52.1	01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	TRANSITIONAL PAIN SERVICE TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900	11	57.5	01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN

Step 6: PROs to inform practice – Goal: QI

Step 6: PROs to inform practice – Goal: QI

Patient Name	Last4SSN	Birth Date	Deceased Flag	Death Date	Event Date	P6B Total Score	P6B TScore	Visit Date	TIUDocument Definition
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900	24	67.4	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient706	0000	01/01/1900	N		01/01/1900	24	67.4	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	TRANSITIONAL PAIN SERVICE PRE-OPERATIVE ASSESSMENT
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900	18	61.8	01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900	16	60	01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900	25	68.5	01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN
Patient706	0000	01/01/1900	N		01/01/1900			01/01/1900	TRANSITIONAL PAIN SERVICE TELEPHONE NOTE
Patient706	0000	01/01/1900	N		01/01/1900	21	64.5	01/01/1900	TRANSITIONAL PAIN SERVICE POST-DISCHARGE ASSESSMEN

Step 6: PROs to inform practice – Goal: QI

Select a specific cohort (based on note title)

Whole Health Dashboard
Whole Health Outcomes

Export to Excel

Promis3A	Promis6B

Patient Name	Last4SSN	Birth Date	Deceased Flag	Death Date	Event Date	P3A Total Score	P3A TScore	Visit Date	TIUDocument Definition
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 9082	0000	01/01/1900	N		01/01/1900	14.0	67.4	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900	14.0	67.4	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900	11.0	57.5	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900	11.0	57.5	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8038	0000	01/01/1900	N		01/01/1900	12.0	60.5	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900	12.0	60.5	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE

Step 6: PROs to inform practice – Goal: QI

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Whole Health Outcomes

Export to Excel

Patient Name	Last4SSN	Birth Date	Deceased Flag	Death Date	Event Date	P3A Total Score	P3A TScore	Visit Date	TIUDocument Definition
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 9082	0000	01/01/1900	N		01/01/1900	14	67.4	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900	14	67.4	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900	11	57.5	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900	11	57.5	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8038	0000	01/01/1900	N		01/01/1900	12	60.5	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900	12	60.5	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900	13	64.1	01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8929	0000	01/01/1900	N		01/01/1900	13	64.1	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900	13	64.1	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8929	0000	01/01/1900	N		01/01/1900	13	64.1	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900	13	64.1	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS CONSULT NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	INTEGRATIVE HEALTH FOLLOW UP

Step 6: PROs to inform practice – Goal: QI

Patient Name	Last4SSN	Birth Date	Deceased Flag	Death Date	Event Date	P3A Total Score	P3A TScore	Visit Date	TIUDocument Definition
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 9082	0000	01/01/1900	N		01/01/1900	14	67.4	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900	14	67.4	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
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Patient 8038	0000	01/01/1900	N		01/01/1900	11	57.5	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
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Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8038	0000	01/01/1900	N		01/01/1900	12	60.5	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900	12	60.5	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900	13	64.1	01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8929	0000	01/01/1900	N		01/01/1900	13	64.1	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900	13	64.1	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8929	0000	01/01/1900	N		01/01/1900	13	64.1	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900	13	64.1	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS CONSULT NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	INTEGRATIVE HEALTH FOLLOW UP

Step 6: PROs to inform practice – Goal: QI

Whole Health Dashboard
Whole Health Outcomes

Export to Excel

Patient Name	Last4SSN	Birth Date	Deceased Flag	Death Date	Event Date	P6B Total Score	P6B TScore	Visit Date	TIUDocument Definition
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 9082	0000	01/01/1900	N		01/01/1900	30	78.3	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900	30	78.3	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 9082	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900	27	70.9	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900	27	70.9	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8038	0000	01/01/1900	N		01/01/1900	29	74.4	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8038	0000	01/01/1900	N		01/01/1900	29	74.4	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900	30	78.3	01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8929	0000	01/01/1900	N		01/01/1900	30	78.3	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900	30	78.3	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS PC PAIN OPIOID TELEPHONE NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	STATE PRESCRIPTION DRUG MONITORING PROGRAM
Patient 8929	0000	01/01/1900	N		01/01/1900	30	78.3	01/01/1900	WHS PAIN EDUCATION OPIOID MONITORING NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900	30	78.3	01/01/1900	WHS PC PAIN DATA-BASED OPIOID RISK REVIEW NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	WHS CONSULT NOTE
Patient 8929	0000	01/01/1900	N		01/01/1900			01/01/1900	INTEGRATIVE HEALTH FOLLOW UP

Step 6: PROs to inform practice – Goal: QI

- Chronologic display of PROs and interventional visits

- Exporting data

- Cohort-analysis

Summary

- Franklin et al. framework to guide development strategy

- Infrastructure to support POC and spectrum of QI goals

- Trend graphs for POC deployed (usability studies underway)

- Reports to support QI initiatives to be deployed soon

Acknowledgements

Part II. Evaluation Strategies for Display Development and Usability Assessment

Jorie M. Butler, PhD

Tania Velasquez, MPH

Lacey Lewis, MS

Elena Nazarenko, MSTAT

Health Information Technology (HIT) is a natural bridge

- HIT[1] includes:
  - Exchange of Health Information
  - Improvements in Quality of Care
- HIT:
  - Extends Real Time Communication
  - Promotes Access to Care
- Studying HIT development includes evaluating specific solutions and is **a natural bridge to study clinical and institutional change**

[1]U.S. Department of Health and Human Services. (reviewed 2019, April 19). Health Information Technology. Retrieved from https://www.hhs.gov/hipaa/for-professionals/special-topics/health-information-technology/index.html

Whole Health in VA Salt Lake City

- Office of Patient Centered Care and Cultural Transformation (OPCC&CT) -Whole Health[2]

- VA SLC named Flagship in FY 18
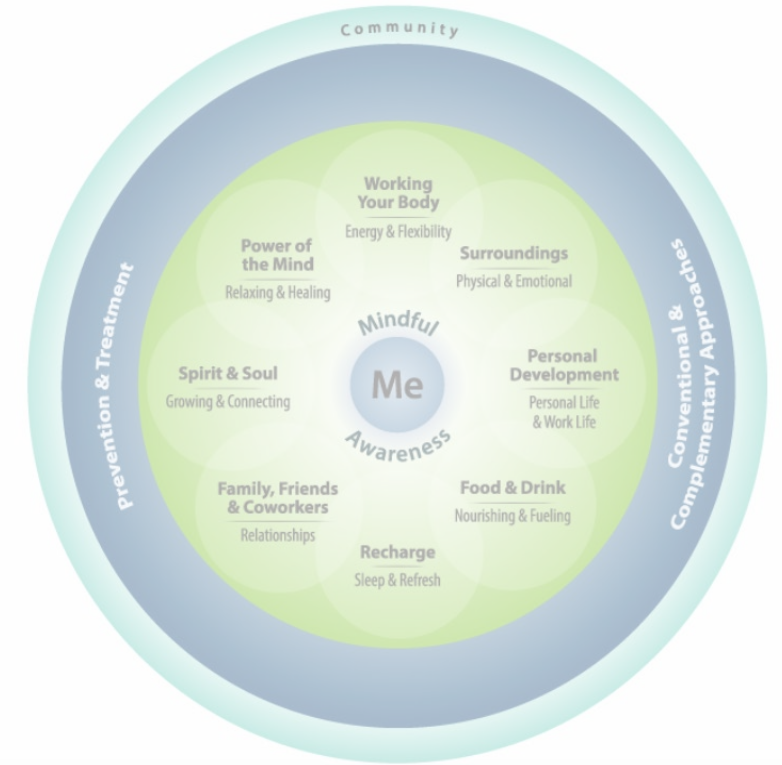
[2]U.S. Department of Veterans Affairs (updated: 2017, July 20). Whole Health For Life. Retrieved from https://www.va.gov/PATIENTCENTEREDCARE/explore/about-whole-health.asp

SLC Whole Health Flagship Includes

All VA Whole Health Flagship Programs include
- Whole Heath Coaching
- Whole Health Classes

SLC Whole Health Flagship Programs include
- Mindfulness Center
- Integrative Health
- Transitional Pain Program
- Primary Care Pain Program (PC-Pop)

Goals of SLC Local Health Evaluation Team Display Design and Usability

1. Establish Local Evaluation Team

2. Study HIT Development and Implementation

3. Understand Stakeholder and User Perspectives on HIT Solutions for Whole Health in SLC

Goal 1: Establish Local Evaluation Team

- Examine local processes
  - Pre-implementation
- Evaluate early implementation
- Evaluate process, clinician experience, and patient reported outcomes

Goal 2: Study HIT Development and Implementation

- Leverage IDEAS COIN Informatics expertise
- Leverage VISN and IDEAS COIN investment
- Study HIT development and implementation to support Whole Health at our site.

Goal 3: Understand Stakeholder and User Perspectives

- From multiple angles (clinical utility, institutional needs/impact)
- Consistent with Patient Reported Outcome Measures (PROM) capture
- Assess processes of clinical change
- Assess information exchange in development

Whole Health Display Development – Evaluation Methods

Overall Tool Box of Development and Usability Strategies

Stakeholder Views

Focus Groups
Interviews
Survey/
Questionnaire

User Centered Design

Cognitive Task Analysis
Think Alouds
Design Sessions
Vignettes/Simulations

Usability Testing

Monitored
Unmonitored
Tracking Tools
Structured Questionnaire

Whole Health Display Development – Qualitative Methods

- Design session[3]-members inform their needs in regards to
  - User Characteristics
  - Desired Functions
  - Tasks
  - Workflow
    - Clearly task focused, may not produce divergent thinking
- Interviews[4] – Semi-structured interviews with needs based questions
  - One on one
  - Frank conversation
- Focus group[3] –Group Interview
  - Group dynamics can be informative
- Vignette –Brief, realistic scenario accompanied by question prompts
  - Immerse the participant in the basic story

[3] Lucero, R., Sheehan, B., Yen, P., Velez, O., Nobile-Hernandez, D., & Tiase, V. (2014). Identifying consumer's needs of health information technology through an innovative participatory design approach among English- and Spanish-speaking urban older adults. *Applied Clinical Informatics, 5*(4), 943-57.

[4] Choe, E., Duarte, M., Suh, H., Pratt, W., & Kientz, J. (2019). Communicating Bad News: Insights for the Design of Consumer Health Technologies. *JMIR Human Factors, 6*(2), E8885.

Whole Health Display Development – Qualitative Methods *continued*

- Simulation studies[6] – Simulations of routine care
  - Controlled environment
  - Stimulates thoughts of different areas
- Think aloud[7] -Participants are audiotaped thinking aloud as they problem-solve.
  - Cognitively based
  - Task based
  - Specific HIT is "on the court" for testing

[6]Ammenwerth, E., Hackl, W., Binzer, K., Christoffersen, T., Jensen, S., Lawton, K., . . . Nohr, C. (2012). Simulation Studies for the Evaluation of Health Information Technologies: Experiences and Results. *Health Information Management Journal,41*(2), 14-21.
[7]Fonteyn, M., Kuipers, B., & Grobe, S. (1993). A Description of Think Aloud Method and Protocol Analysis. *Qualitative Health Research, 3*(4), 430-441.

Building the team

- Initial study of dashboard development
  - Expert Focus Groups (6)
  - Ethnographic Observation of Design Sessions (6)
  - Follow-up interviews with expert users
    - Nurses
    - Physicians
    - Psychologists
    - Advanced practice clinicians
    - Nursing students
  - Recorded and Quantitatively Analyzed using ATLAS.ti

Initial results—4 Themes

- Assessment of Data Sources
- Quality improvement
- Usefulness
- Team Building

[8] Butler, J., Lewis, L., Velasquez, T., Beckstead, A., Beckstrom, J., Marchand, W., Patel, S., Anderson, Z., Sauer, B., Ashwood, D., Jones, M., Brooke, B. (2018, December)*User-centered Design and Implementation of a Whole Health Dashboard.* Poster. Academy Health Dissemination and Implementation meeting, Renaissance Washington, DC

Theme—Assessment of Data Sources

"Those who have been discharged from surgery or those who are still awaiting surgery and those who are currently on opioids or who are off opioids. There is the ability to select all of these and then filter the list by whoever kind of needs to be looked at first. "—VA Clinician

Theme—Quality Improvement

"I wanted to know any substance abuse history, and I want to know how much mindfulness that he's already had without going into his chart and searching for me or anyone else that might be doing our protocol with us."– VA Clinician

Theme—Usefulness

"Oh, I want to know oh, this guy has been a recent surgical patient. I want to know if they've had any mindfulness. It would be as easy as going into that versus looking past maybe a couple of hundred CPRS notes." —VA Clinician

Theme - Team Building

"[...] I know that you kind of changed it and that you were modifying the program for primary care, and there are different ways that you are going to bring people in. So if you could kind of maybe walk us through, and that will help us as we try to help you. "-Development Team

Continuation – Development of Whole Health Facing Displays

- Design Sessions and Think Alouds
  - Sessions for Dashboard Functions for:
    - Mindfulness Center
    - Whole Health Coaching/Classes

- Transcription Qualitative Analysis Strategy
  - Based loosely in Grounded Theory
  - Multiple perspectives on analytic team
  - Follow to Consensus

Continuation Preliminary Results

- Defining Expectations
- User needs for views and functions
  - Cohort View
  - Consult View
- Establishing Common Ground
  - Common Language
- Expansion of Functions
  - Recognizing Additional Needs
- Establishing Common Ground (context for Whole Health)

Future Usability and Implementation Work

- Super User Interviews

- Cognitive Task Analysis

- Evaluation of specific Functions
  - Multiple Perspectives: Program Heads, Program Managers, Clinical Users
  - Baylor Electronic Health Record User Experience Survey Tool
    - Usefulness, Usability, End-User Support, Overall Satisfaction
  - System Usability Scale
    - Broad comparison with many tools

Display Implementation

- UTAUT Framework
  - Performance Expectancy
  - Effort Expectancy
  - Social Influence
  - Facilitation Conditions
  - Behavioral Intentions
  - Use Behavior

Natural Window

- Assessment of the social contextual conditions for HIT development and implementation
- Allows us a view the cultural transformation of Whole Health in SLC

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- VA SLC Whole Health Flagship Team