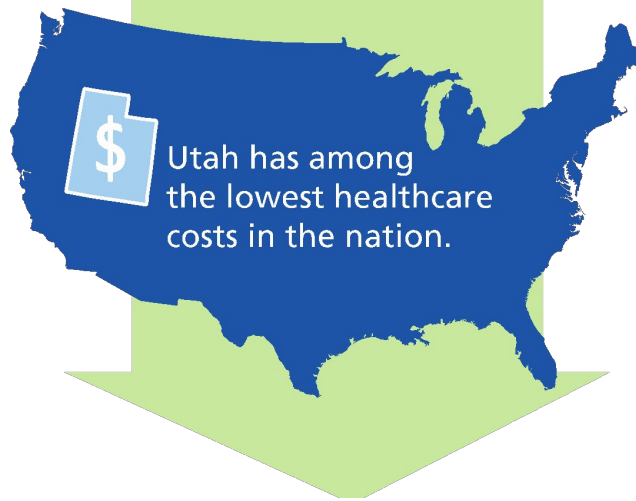




The Synergy of Improvement Science and Implementation Science.

The Science of Process Management

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Intermountain Healthcare

Not-for-Profit System

Based in Salt Lake City, Utah



PREVENTION & WELLNESS

- 88,000** Healthy Plates sold in hospital cafes
- 12,000** Utah students participating in LiVe Well assemblies
- 58** Schools in Step Express program
- 57,000** Healthy Living participants



HOSPITALS & CLINICS

- 22** Hospitals
(Including childrens & orthopedics)
- 2,700** Beds
- 180** Intermountain Clinics



selecthealth.

INSURANCE

800,000 Members



OUR TEAM

- 5,000** Affiliated physicians
- 1,400** Medical Group doctors & advanced practice clinicians
- 35,000** Employees
- 3,000** Volunteers
- 470** Volunteer Trustees

Implementation Science: A New Frontier for Rehab

This emerging scientific discipline provides opportunities for both researchers and clinical leaders *to develop strategies to improve the quality and effectiveness of rehabilitative care.*

- Understand how to use principles of implementation science to drive evidence-based practices into the community.

My purpose is to demonstrate the synergy of “implementation and improvement sciences” using a specific example of our work at Intermountain Healthcare.

Two Complementary Fields

Quality Improvement Science:

- Refers to systems-level work to improve the quality, safety, and value of health care service
- Pragmatic approach to reduce poor performance.
- Measures performance to achieve improvement.

Implementation Science:

- Refers to work to promote the systematic uptake of EBP interventions into practice and policy.
- Focuses on timely and appropriate uptake of evidence.

Implementation

- The means by which an intervention is assimilated into an organization.
- The **critical “gateway”** represents the organization’s decision to adopt an intervention and the routine use of the intervention.
- The ***transition period*** is the time during which the stakeholders become increasingly skillful, consistent, and committed in their use of an intervention.

Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science

Laura J Damschroder*¹, David C Aron², Rosalind E Keith¹, Susan R Kirsh²,
Jeffery A Alexander³ and Julie C Lowery¹

Implementation Science 2009, **4**:50

How good is U.S. healthcare?

- Americans receive **about half** of recommended (evidence-based) medical care processes.
- The gap between what we know works and what is actually done is substantial and warrants attention.



McGlynn et al, The Quality of Healthcare Delivered to Adults in the United States. *New England Journal of Medicine*, 2003.

How to bridge this gap between what we know works and the care we deliver

No simple solution...

- Healthcare system is complex and diverse.

The key to any solution is the routine availability of information on performance at all levels.

Need to focus on automating the entry and retrieval of key data for:

- Clinical decision making
- Measurement and reporting of quality

So . . . are you planning a change?

Need to evaluate implementation outcomes to assess:

- Extent of effectiveness of the effort in a specific setting
- The sustainability of the effort
- Does it promote dissemination to other settings

Stetler CB, Legro MW, Wallace CM, Bowman C, Guihan M, Hagedorn H, Kimmel B, Sharp ND, Smith JL: The role of formative on research and the QUERI experience. J Gen Intern Med 2006, 21(Suppl 2):S1-8.

There is a need to measure performance to achieve improvement

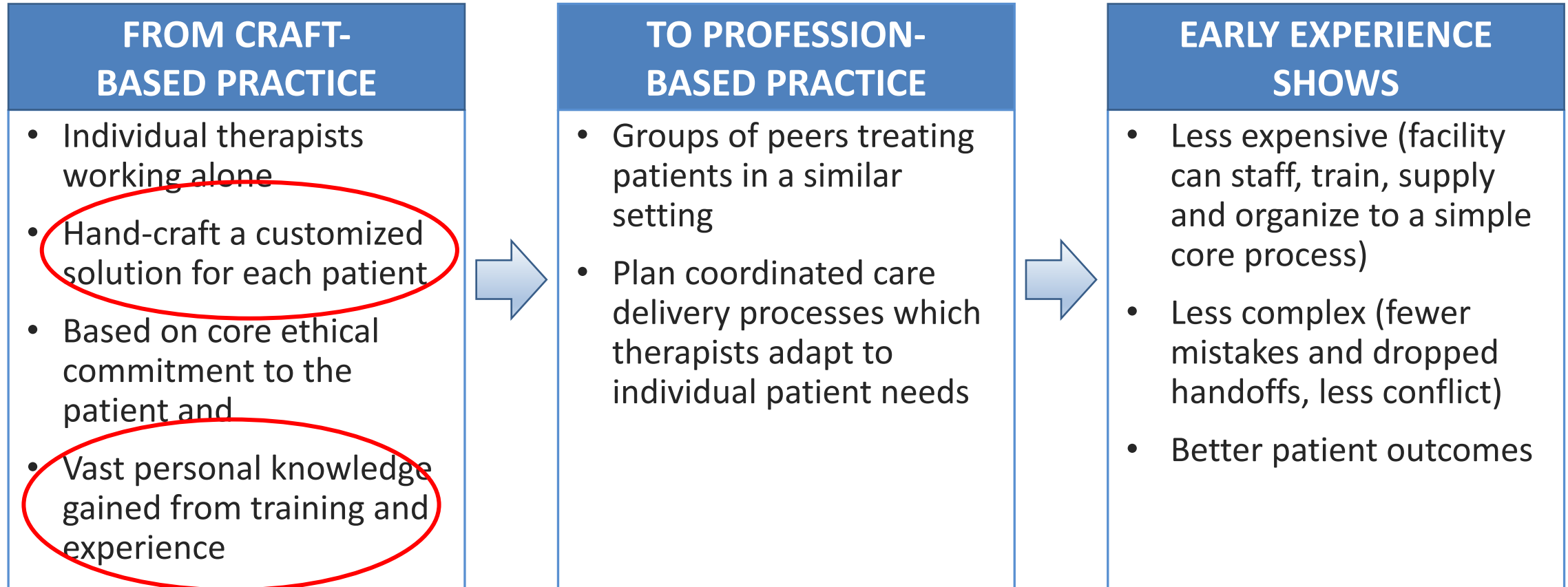
Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science

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Implementation Science

Why is implementation science important now?

The healing professions are changing

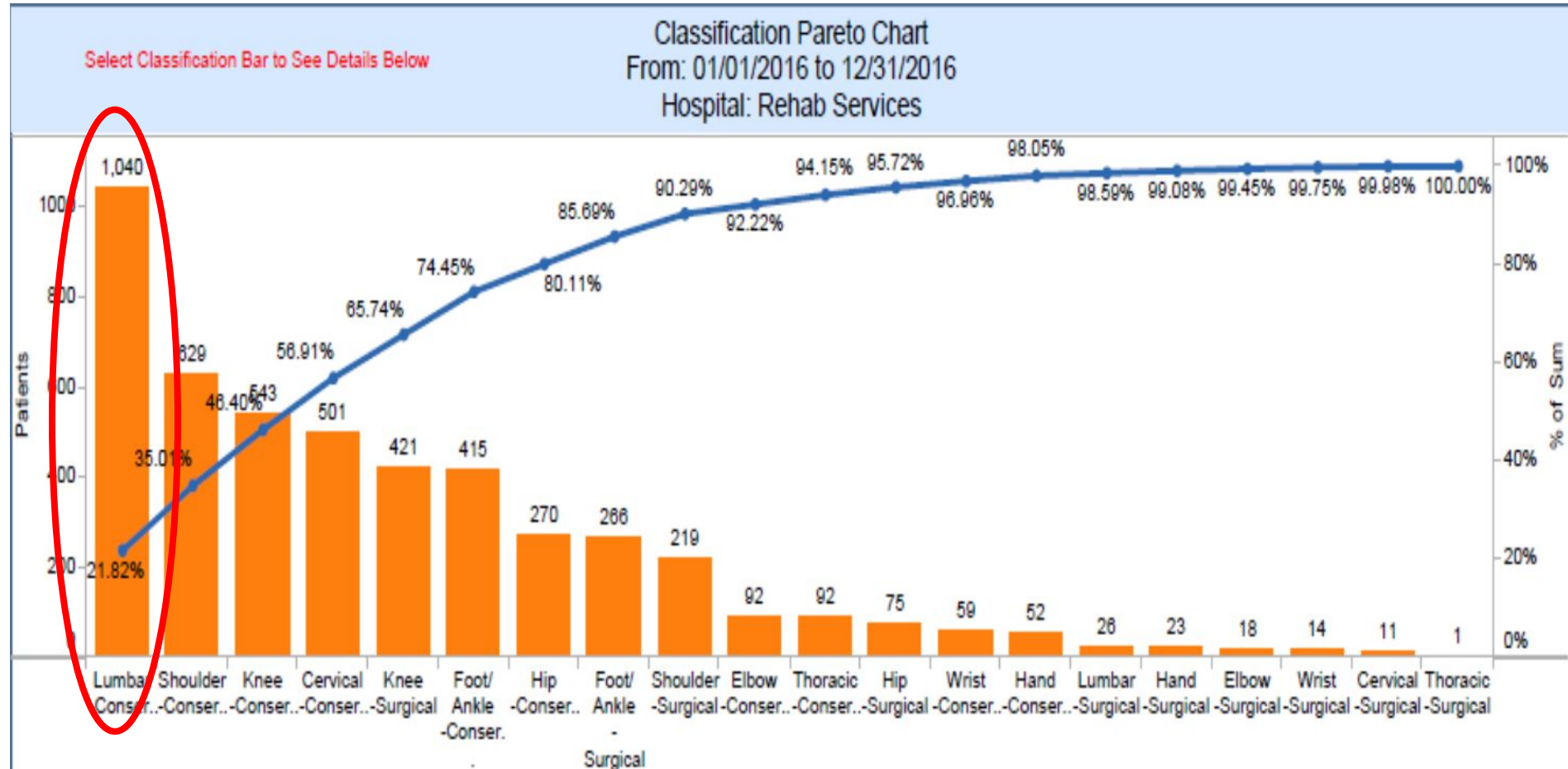


Improvement Science

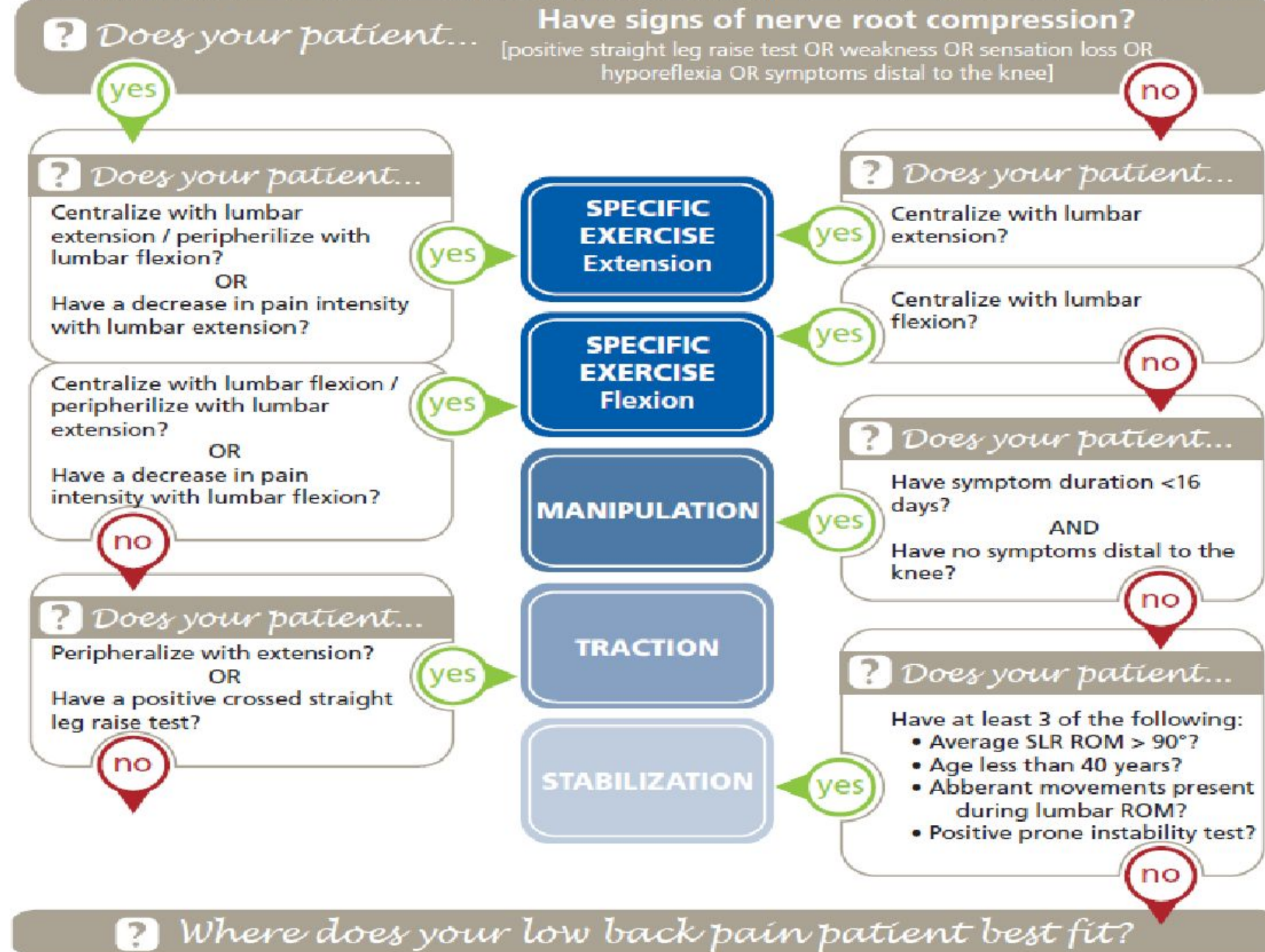
Key points — shared baseline to implement EBP

1. Select a high priority clinical condition
2. Generate an evidence-based 'best practice' guideline
3. Blend the guideline into the flow of clinical work
 - Staffing, training, supplies, physical layout, educational training materials, measurement/information flow
4. Embed data systems to track (1)protocol variations (2)short- and long-term results
 - Intermediate and final clinical, cost, and patient satisfaction outcomes
- 5. *Demand that clinicians vary based on individual patient needs***
6. Measure, learn from and (over time) eliminate variation arising from professionals; retain variation arising from patients (mass customization)

1. Identify high priority clinical process



Treatment - Based Classification of Low Back Pain



2. Build an evidence-based **BEST** Practice protocol

3. Blend it into the clinical workflow.

Blend the guideline into a standard clinical workflow

Example form from the EMR: iCentra

Classification Factors

Manipulation

- ☐ Symptoms < 16 days
- ☐ No symptoms distal to knee
- ☐ Lumbar hypomobility
- ☐ FABQ/W < 19
- ☐ Hip internal rotation > 35 degrees

Specific Exercise

- ☐ Flexion
- ☐ Extension
- ☐ Lateral shift
- ☐ Centralizes with movements
- ☐ Directional preference - decreased pain or improved symptoms w/ movement or position

Stabilization

- ☐ Age < 40 years
- ☐ Aberrant movements w/ ARO
- ☐ Positive prone instabilit
- ☐ Average SLP ROM > 91 degr
- ☐ Lumbar hypermobility

Traction

- ☐ Peripheralizes w/ multiple movements
- ☐ Sign of nerve root compression
- ☐ No centralization or directional preference

Classification Comment

--

4. Embed data systems to track the outcomes

Measuring Process Compliance with the Low Back Pain Treatment-Based Classification System

A Quality Improvement Initiative

*Kate Minick, PhD, DPT, OCS, CSCS
Gerard Brennan, PT, PhD, FAPTA*



PURPOSE of the Intervention

To measure physical therapists' compliance with a standard workflow to evaluate patients with LBP using the ***Treatment-Based Classification*** and to assess the effect of compliance on **reducing the rate of failures** of care.

- Failure rate is the proportion of patients who fail to achieve a MCID on the Modified Oswestry

4. Embed data systems to track the outcomes

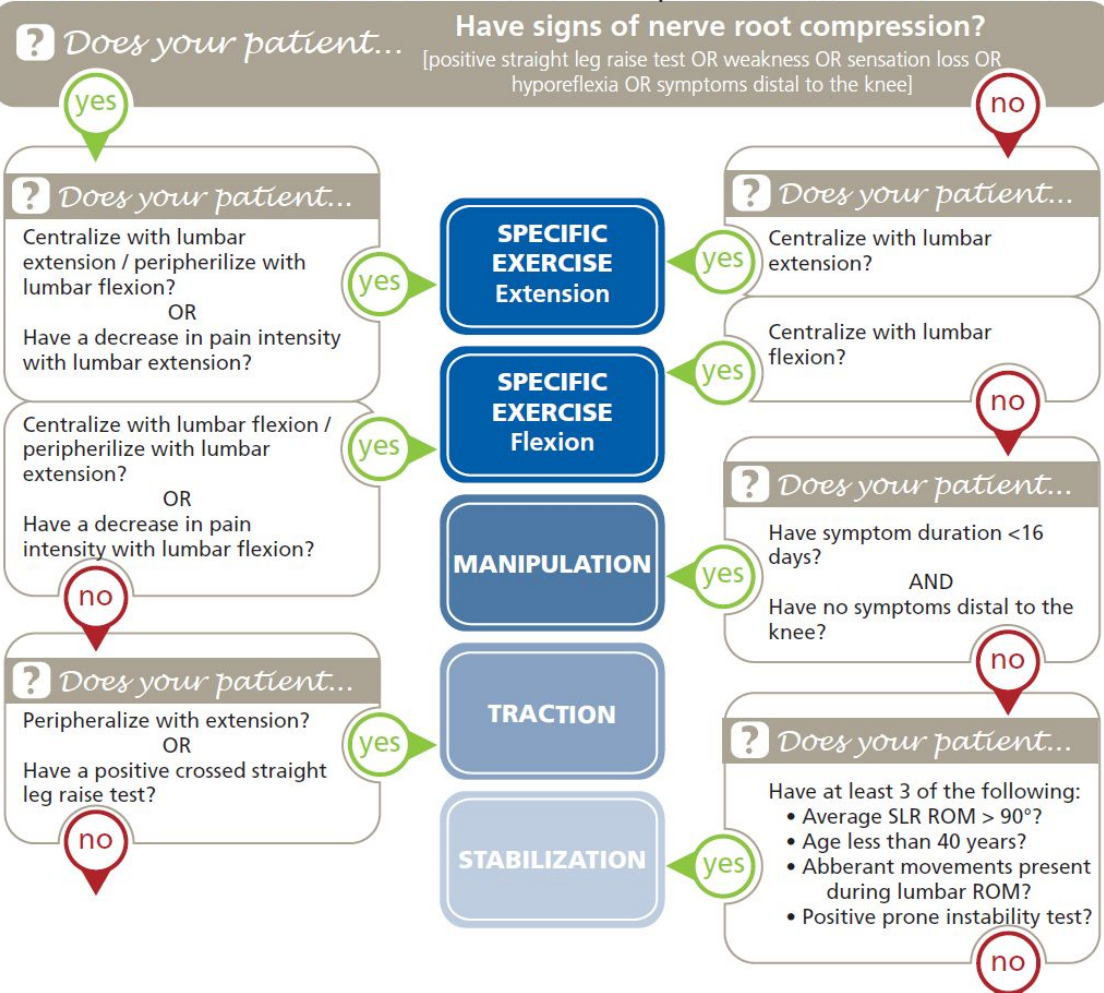
What is needed?



Quality Review Template: "the Scorecard"

EVALUATION					
Algorithm					
Complete form from L→R until column P populates					
Entry Key: <ul style="list-style-type: none"> 0 = No 1 = Yes 9 = Missing 					
Does the patient have: Nerve Root Compression	Does the patient: Centralize with repeated extension	Does the patient: Centralize with repeated flexion	Does the patient: +NRC peripheralize with ext or have +XSLR	Does the (-) NRC patient have: symptoms <16 days AND no symptoms below knee	Does the (-) NRC patient have 3 of 4 criteria: SLR ROM >90, age <40, aberrant mvmts, +PIT

Treatment - Based Classification of Low Back Pain



Methods:

“Inner Setting” the structural, political, cultural context through which implementation process occurs.

- Therapists were re-educated on TBC through online modules at the start of 2017
- A Quality Review Tool (QRT) was developed in Excel to standardize the chart audit and was ***piloted*** (**TRIALABILITY**) on 20 charts with 5 test reviewers
- Following refinement of the QRT, 7 reviewers completed a 90-minute audit training


“Outer Setting”: the economic, political, and social context

- Pay for Performance incentive for PTs
- Clinical outcomes being incorporated into therapist’s job performance reviews
- The effect of the peer’s opinions of the leadership and overall professional engagement.

Methods

- Each reviewer completed 20-22 patient chart reviews each quarter using the electronic health record
 - Reviewers' clinical questions were resolved with group consensus
- *Compliance* was defined as a therapist making a correct classification and matching the first treatment to that classification
- Pearson X^2 was used to measure the association between:
 - classification and compliance,
 - as well as compliance and FTP rate
- Results for each clinic were compiled and disseminated to clinic managers

Quality Review "Scorecard"

Low Back Pain Treatment-Based Classification Quality Review																		
<div></div> <div>Therapist Classifications: Sp Ex Extension Sp Ex Flexion Manipulation Traction Stabilization <i>Must be entered exactly</i></div>		EVALUATION																
		Algorithm <i>Complete form from L→R until column O populates</i>								Best Fit Criteria								
Patient MRN	Therapist's Classification	Entry Key: • 0 = No • 1 = Yes • 9 = Missing	Does the patient have: Nerve Root Compression	Does the patient: Centralize with repeated extension	Does the patient: Centralize with repeated flexion	Does the +NRC patient: peripheralize with ext or have +XSLR	Does the (-) NRC patient have: symptoms <16 days AND no symptoms below knee	Does the (-) NRC patient have 3 of 4 criteria: SLR ROM >90, age <40, aberrant mvmts, +PIT	other Extension criteria: Symptoms extending to buttock/legs, ↓ pain with ext, preference for walking / standing	other flexion criteria: ↓ pain with flx, >50 years old, spinal stenosis	other manipulation criteria: hypomobility, pain with mobility testing, FABQw<19, hip IR>35, no peripheralization	other traction criteria: sx extending to buttock/legs, inability to centralize w repeated mvmt, leg intensity> back	other stabilization criteria: Hypermobility, increasing episode frequency, 3+ episodes, generalized flexibility	1st Treatment Adherent?	Correct Classification	Therapist's Classification Decision Correct?	Correct Classification AND Treatment Adherence Match?	Total Compliance
A	Sp Ex Extension		1	1	0									1	Sp Ex Extension	Yes	MATCHED	62.5%
B	Sp Ex Flexion		0	0	0	0	1							1	Manipulation	No	NOT Matched	
C	Stabilization		0	0	1	0	0	0						1	Sp Ex Flexion	No	NOT Matched	
D	Traction		1	0	0	0	0	0				1		1	Traction	Yes	MATCHED	
E	Stabilization		0	9	9									1	Incomplete Eval	No	NOT Matched	
F	Stabilization		0	0	0	9	0	1						1	Stabilization	Yes	MATCHED	

=IF(OR(C5=9,D5=9,E5=9,AND(C5=0,D5=0,E5=0,G5=9),AND(C5=0,D5=0,E5=0,G5=0,H5=9),AND(C5=1,D5=0,E5=0,F5=9)),"Incomplete Eval",IF(D5=1,"Sp Ex Extension",IF(E5=1,"Sp Ex Flexion",IF(AND(C5=1,D5=0,E5=0,F5=1),"Traction",IF(AND(C5=0,D5=0,E5=0,G5=1),"Manipulation",IF(AND(C5=0,D5=0,E5=0,G5=0,H5=1),"Stabilization",IF(AND(D5=0,E5=0,I5=1),"Sp Ex Extension",IF(AND(D5=0,E5=0,J5=1),"Sp Ex Flexion",IF(AND(D5=0,E5=0,K5=1),"Manipulation",IF(AND(D5=0,E5=0,L5=1),"Traction",IF(AND(D5=0,E5=0,M5=1),"Stabilization",""))))))))))))

=IF(O5="", "", IF(B5=O5, "Yes", "No"))

=IF(P5="", "", IF(AND(P5="Yes", N5=1), "MATCHED", "NOT Matched"))

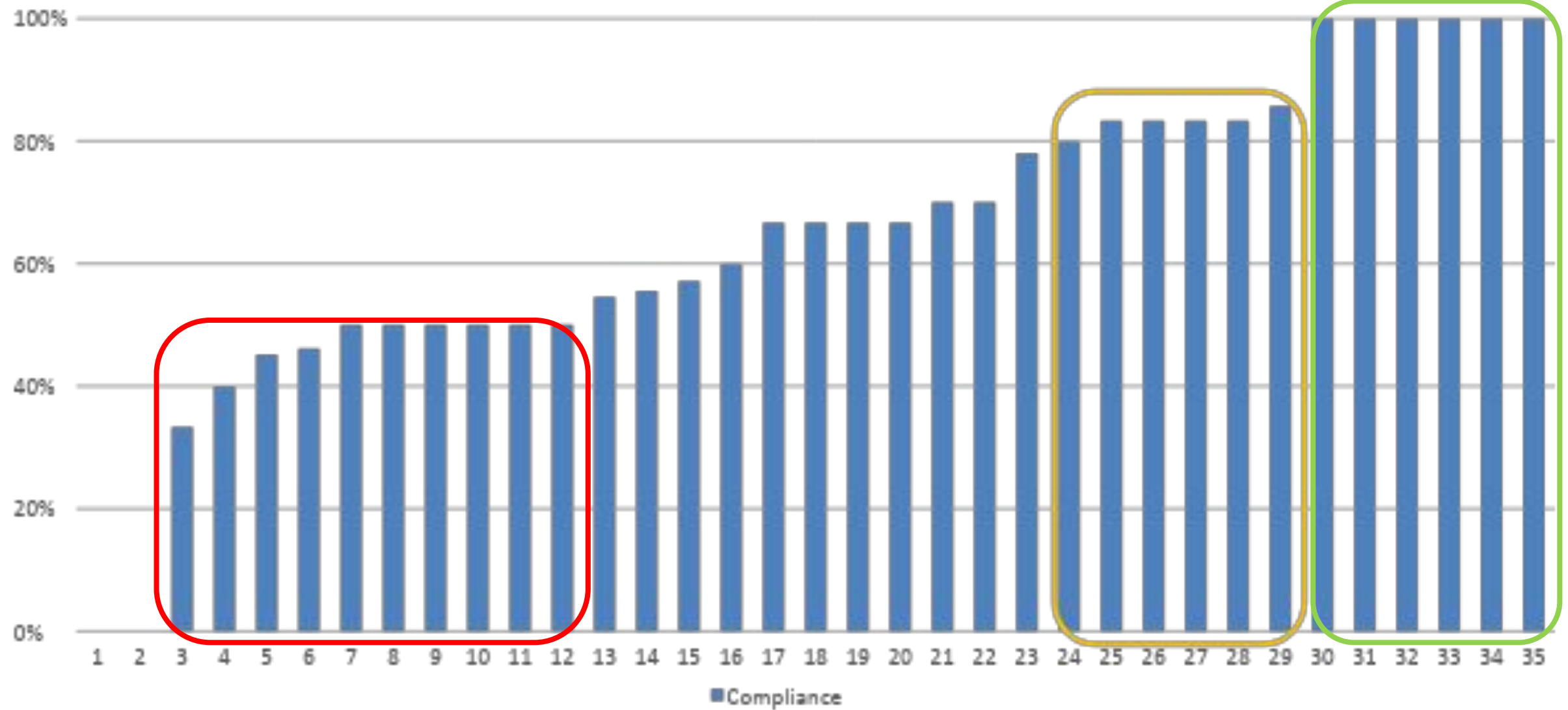
=COUNTIF(Q5:Q250, "MATCHED")/COUNTA(A5:A250)

Results – 4th quarter 2017

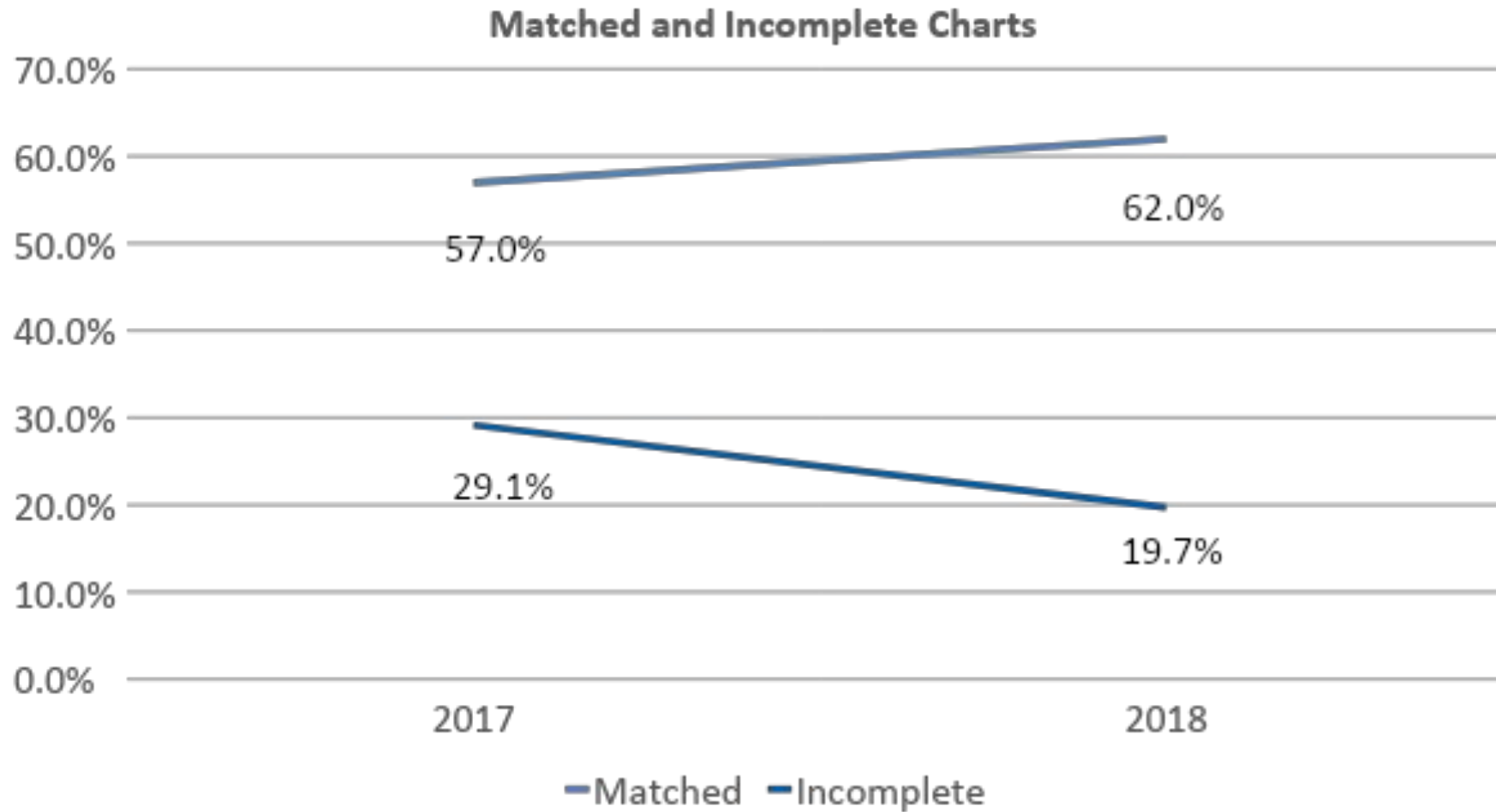
Low Back Pain Treatment-Based Classification Quality Review																	
Intermountain [®] Healthcare		EVALUATION															
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	Manipulation	1	0	1	0								0	Sp Ex Flexion	No	NOT Matched	56.3%
	Manipulation	9	9	9	0	1	9						0	Incomplete Eval	No	NOT Matched	
	Stabilization	9	9											Incomplete Eval	No	NOT Matched	
	Stabilization	1	0	0	0	0	0	1						Sp Ex Extension	No	NOT Matched	
	Manipulation	0	0	0	0	0	0	0	0	1			0	Manipulation	Yes	NOT Matched	
	Sp Ex Extension	1	1										1	Sp Ex Extension	Yes	MATCHED	
	Sp Ex Extension	1	1										1	Sp Ex Extension	Yes	MATCHED	
	Stabilization	0	0	0	0	0	1						0	Stabilization	Yes	NOT Matched	
	Stabilization	0	0	0	0	1							1	Manipulation	No	NOT Matched	
	Traction	1	0	0	0	0	0	0	1				0	Sp Ex Flexion	No	NOT Matched	
	Sp Ex Flexion	0	9	9										Incomplete Eval	No	NOT Matched	
	Sp Ex Flexion	0	9											Incomplete Eval	No	NOT Matched	
	Stabilization	0	0	0	0	0	1						1	Stabilization	Yes	MATCHED	
	Stabilization	1	0	0	0	0	1	0	0	0	0	0	1	Stabilization	Yes	MATCHED	
	Stabilization	1	0	0	0	0	1	0	0	0	0	0	1	Stabilization	Yes	MATCHED	
	Stabilization	0	0	0	0	0	0	0	0	0	0	0	1	Stabilization	Yes	MATCHED	
	Sp Ex Extension	1	1										0	Sp Ex Extension	Yes	NOT Matched	
	Sp Ex Extension	0	9											Incomplete Eval	No	NOT Matched	
	Manipulation	0	9	0	0	0	0	0	0	9	0	0	0	Incomplete Eval	No	NOT Matched	
	Manipulation	0	0	0	0	1							0	Manipulation	Yes	NOT Matched	
	Sp Ex Extension	1	1										1	Sp Ex Extension	Yes	MATCHED	



LBP Process Compliance



Results



2017 Q4 & 2018 Q2

Classification	MCID Success	MCID Failure	Total
Matched	163	55	218
Not Matched	91	55	146
	254	110	364

Pearson $\chi^2(4) = 6.4188, p=0.011$

How does the LBP example illustrate the Synergy of Implementation Science and Improvement Science?

Improvement Science

- Systems-level work to improve quality (clinical outcomes); value
- Measured performance to achieve improvement

Implementation Science

- Worked to promote systematic uptake of EBP interventions into practice and to impact policy.
- Focused on the timely and appropriate uptake of EBP

Summary: How does the LBP example illustrate the principles of Implementation Science (CQI)

1. “Gateway”: our decision to implement and measure a process.
2. “Transition period”: the time for therapists to develop skill, consistency, and commitment to the process.
3. Evaluated the effectiveness locally and across settings to demonstrate that the process is sustainable and can be disseminated.
4. Implementation (deployment) considered:
 - “Inner setting” structural, political, and cultural contexts
 - “Outer setting” economic, political, and social contexts

Thank you!



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