

### Appendix 1: Steps in the Quality Improvement project

1. Each QI team received an initial feedback report with aggregated process and characteristics of patients with low back pain and neck pain, in which processes and outcomes of the office were compared with the benchmark of all offices within the CRS network of UPMC. Main health outcomes for low back pain and neck pain were disabilities measured with the Oswestry Disability Index (ODI) and Neck Disability Index (NDI), respectively. Annex 1 provides an overview of variables in the feedback reports.
2. The researchers convened a group session with each QI team to discuss a) the PT office profile of outcomes compared with the network benchmark; b) potential reasons for any significant variation from the benchmark; and c) potential interventions to address the variation in outcomes. Clinical practice guidelines for low back pain and neck pain were used to initiate thinking about possible variation in clinical practice for diagnosis, treatment and evaluation related to outcomes of care.
3. QI teams drafted goals for their QI project under the leadership of their Quality Manager. The research team supported the Quality Managers in formulating the project goals through written and oral feedback.
4. In a second session, each QI team discussed and formalized the goals for the project with support of the researchers, and each group submitted their goal as a Commitment to Change statement.
5. Each QI team conducted their project using the IHI worksheet and available tools during a 6-month time frame. The research team and Quality Managers of the QI teams met bi-monthly to discuss progress and to learn from each other's experiences.
6. The QI teams received monthly feedback reports with aggregated outcomes at the office level compared with the benchmark of all practices in the CRS network of UPMC.
7. After finalizing the project, results were evaluated in a meeting of each QI team with the researchers and adjustments were made where necessary to incorporate the changes into routine practice.

**Appendix 2: Self-reported use of outcome measures**

		Pre-QI (n)		Post-QI (n)	
<i>I use the ODI in .. % of my patients with low back pain</i>		Intake	Discharge	Intake	Discharge
Overall	0-20%				
	21-40%				
	41-60%		1		3
	61-80%		2		8
	81-100%	17	14	16	5
Team 1	0-20%				
	21-40%				
	41-60%		1		1
	61-80%		1		3
	81-100%	6	4	6	2
Team 2	0-20%				
	21-40%				
	41-60%				
	61-80%				4
	81-100%	6	6	5	1
Team 3	0-20%				
	21-40%				
	41-60%				2
	61-80%		1		1
	81-100%	5	4	5	2
<i>I use the NDI in .. % of my patients with neck pain</i>		Intake	Discharge	Intake	Discharge
Overall	0-20%				
	21-40%				
	41-60%		1		3
	61-80%		3		8
	81-100%	17	13	16	5
Team 1	0-20%				
	21-40%				
	41-60%		1		1
	61-80%		2		3
	81-100%	6	3	6	2
Team 2	0-20%				
	21-40%				
	41-60%				
	61-80%				4
	81-100%	6	6	5	1
Team 3	0-20%				
	21-40%				
	41-60%				2
	61-80%		1		1
	81-100%	5	4	5	2

**Appendix 3: Characteristics of included patients**

LBP	Pre-QI					Post-QI				
	#	Age	F (%)	BMI	CCI	#	Age	F (%)	BMI	CCI
Team 2	146	62.9	53.3	29.1	0.68	196	62.8	66.9	30.0	0.69
<b>Neck Pain</b>										
Team 1	104	50.4	66.5	26.6	0.51	43	52.3	51.5	28.3	0.70
Team 2	51	55.0	64.8	29.1	0.61	80	60.8	68.3	28.8	0.48
Team 3	101	53.1	66.0	29.7	0.72	114	58.3	62.6	29.2	0.84

Patients were included in a 6-month time frame prior to the Quality Improvement (QI) project and a 6-month time frame post-QI. LBP: Low Back Pain; BMI: Body Mass Index; F: Female; CCI: Charlson Comorbidity Index

**Appendix 4: Pre- and post-QI health outcomes**

<b>Neck Pain</b>	<b>NDI at intake</b>	<b>NDI at discharge</b>	<b>MCID<sup>1</sup> (%)</b>	<b>NDI ≤14 at discharge<sup>2</sup> (%)</b>	<b>Pain at intake</b>	<b>Pain at discharge</b>
<b>Pre-QI</b>						
Team 1 (n=104)	13.9	11.9	50.0	69.6	5.1	4.0
Team 2 (n=52)	13.7	9.7	43.3	76.7	4.9	3.2
Team 3 (n=101)	15.3	11.1	48.6	66.7	5.4	4.0
<b>Post-QI</b>						
Team 1 (n=43)	15.8	12.7	15.4	73.3	5.7	4.4
Team 2 (n=80)	14.1	9.2	54.0	81.1	5.1	3.2
Team 3 (n=114)	16.7	12.4	37.0	63.2	5.3	3.9
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<b>Low back pain</b>	<b>ODI at intake</b>	<b>ODI at discharge</b>	<b>MCID<sup>3</sup> (%)</b>	<b>ODI ≤20 at discharge<sup>2</sup> (%)</b>	<b>Pain at intake</b>	<b>Pain at discharge</b>
<b>Pre-QI</b>						
Team 2 (n=146)	27.8	19.2	51.9	61.3	5.1	3.0
<b>Post-QI</b>						
Team 2 (n=196)	30.7	23.1	50.4	51.2	5.6	4.0

NDI: Neck disability index; MCID: Minimal Clinical Important Difference

<sup>1</sup>Estimated at 7.5 points or 30% of the initial score when the initial score is ≤10; <sup>2</sup>Indicates minimal disability; <sup>3</sup>Estimated at 10 points or 30% of the initial score when the initial score is ≤20 points.