Supplementary Online Content

Reiss-Brennan B, Brunisholz KD, Dredge C, et al. Association of integrated team-based care with health care quality, utilization, and cost. *JAMA*. doi:10.1001/jama.2016.11232

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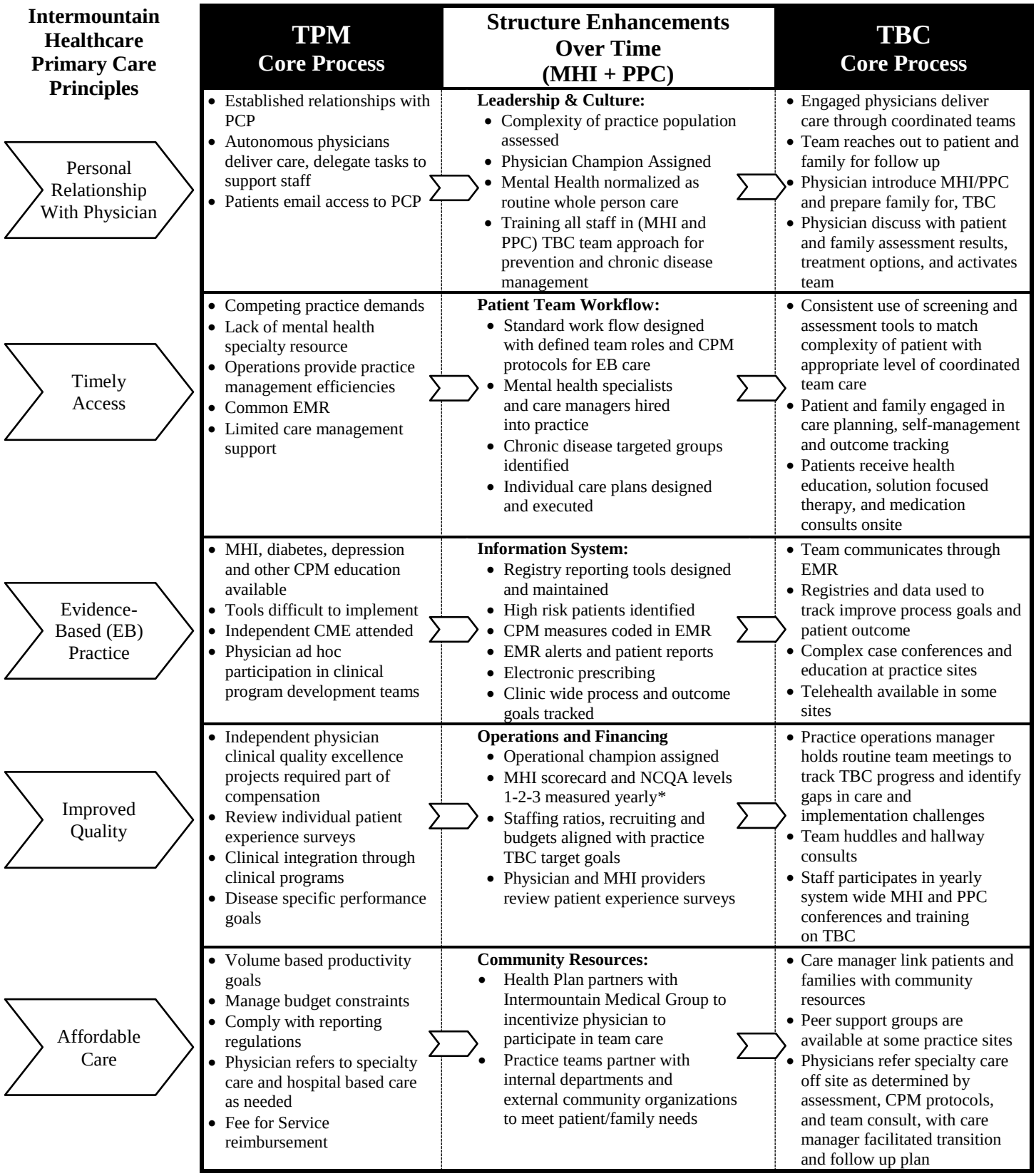
This supplementary material has been provided by the authors to give readers additional information about their work.

eFigure 1. Core Process Attributes of TPM Compared With r-TBC



eFigure 1 (continued)
Abbreviations:
MHI = Mental Health Integration
PPC = Personalized Primary Care
TBC = Team-Based Care
TPM = Traditional Practice Management
NCQA = National Committee for Quality Assurance
EMR = Electronic Medical Records

MH = Mental Health

***NCQA ACO Accreditation Levels**

Level 1: Organizations beginning the transformation and providing the basic infrastructure and some of the capabilities to meet the triple aim of better patient experience, better health and lower per capita cost. The length of status is 2 years.

Level 2: Organizations demonstrating well-established capabilities outlined in the standards to meet the triple aim of better patient experience, better health and lower per capita cost. The length of status is 3 years.

Level 3: Organizations meeting Level 2 criteria AND demonstrating strong performance or significant improvement in performance measures across the triple aim of better patient experience, better health and lower per capita cost. The length of status is 3 years.

Reference:
http://www.ncqa.org/programs/accreditation/accountable-care-organization-aco/aco-accreditation-levels

eTable 1. Definitions of Chronic Conditions

Chronic Condition	Diagnoses (ICD-9-CM)*	Encounters (CPT)*	Exclusions
High Blood Pressure	360.42, 362.11, 401, 401.0, 401.1, 401.9, 402, 402.0, 402.00, 402.01, 402.1, 402.10, 402.11, 402.9, 402.90, 402.91, 403, 403.0, 403.00, 403.1, 403.10, 403.9, 403.90, 404, 404.0, 404.00, 404.01, 404.1, 404.10, 404.11, 404.90, 404.9, 404.91, 405, 405.0, 405.01, 405.09, 405.1, 405.11, 405.19, 405.9, 405.91, 405.99, 437.2	Outpatient visit with either: 99201-05, 99211-15, 99241-45, 99341-50, 99381-87, 99391-97, 99401-04, 99411-12, 99420, 99429, 99455-56	No documentation of renal transplant
Atrial Fibrillation	427.31	Inpatient admission with either: 3734, 3726-28	none
Coronary Artery Disease	410.xx, 411.0, 411.1, 411.81, 411.89, 412.0, 413.0, 413.9, 414.0, 414.01, 414.02, 414.03, 414.04, 414.05, 414.06, 414.07, 414.11, 414.80, 414.90	none	none
Heart Failure	398.91, 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 428.0, 428.1, 428.20, 428.21, 428.22, 428.23, 428.30, 428.31, 428.32, 428.33, 428.40, 428.41, 428.42, 428.43, 428.9	none	none
Depression	296.2, 296.20, 296.21, 296.22, 296.23, 296.24, 296.25, 296.26, 296.3,	Hospital admission *or*... Emergency	none

	296.30, 296.31, 296.32, 296.33, 296.34, 296.35, 296.36, 296.82, 296.90, 298, 298.0, 300.4, 309.1, 309.28, 311	Department Visit *or…* Outpatient visit with either: 99201-05, 99211-15, 99241-45, 99341-50, 99381-87, 99391-97, 99401-04, 99411-12, 99420, 99429, 99455-56	

ICD-9-CM: The International Classification of Diseases, Ninth Revision, Clinical Modification; CPT: Current Procedural Terminology

*To be identified with a chronic condition, specifications require at least one CPT and ICD-9-CM code to be paired on the same day

eTable 2. Investment Cost of Implementing TBC Program

Transitional or Ongoing	Cost Category	2010	2011	2012	2013	Total
Medical Group (Clinics)						
Ongoing	Salaries	$82,850	$572,537	$2,339,485	$5,814,858	**$8,809,729**
Transitional	Clinic/infrastructure expansion	$6,187	$42,753	$174,697	$434,214	**$657,850**
	Computers and phones	$10,000	$34,000	$70,000	$96,000	**$210,000**
SelectHealth (Health Plan)						
Ongoing	Medical Home Care Coordination Payments	$20,526	$183,541	$340,035	$707,012	**$1,251,113**
	Medical Home Quality/ Goal Payments	$25,000	$118,441	$298,333	$695,000	**$1,136,775**
Combined Totals (Clinic + Health Plan)						
All Costs	Total Investment (Aggregate $)	$144,563	$951,272	$3,222,550	$7,747,083	**$12,065,467**
	Total Investment (Per Member Per Year - PMPY)	$0.53	$3.28	$10.32	$22.19	**$9.86**

eTable 3. Post Hoc Stratified Analysis: Patients with all 4 years in the same level of TBC

Variables	**Patients with all 4 years in same level of TBC*** n=51,596				
	Normalized‡		**Adjusted†**		
	28,063 pt. yrs. # TBC events (%)	**23,533 pt. yrs. # TPM events (%)**	**OR**	**95% CI**	***p***
Quality Measures					
Intervention Variables					
Depression screening among patients with active depression	6,534 (22.76%)	12,610 (43.93%)	1.93	1.59, 2.26	<.001
Adherence to diabetes bundle	5,448 (31.27%)	4,195 (23.65%)	0.77	0.45, 1.33	.345(ns)**
Documented Self-care plan	86 (1.29%)	3,564 (53.50%)	41.55	30.07, 57.41	<.001
Non-intervention Variables					
Hypertension in Control (<140/90 mmHg)	42,892 (95.31%)	38,560 (85.68%)	0.89	0.76, 1.02	.081 (ns)
Documented Advanced Directives	13,385 (11.92%)	10,440 (9.30%)	0.78	0.65, 0.96	.017 (ns)
Annual visit with PCP	31,030 (27.64%)	99,605 (88.73%)	3.21	2.73, 3.77	<.001***
Service Utilization	**# TBC events (incidence rate per 100 person yr)**	**# TPM events (incidence rate per 100 person yr)**	**IRR**	**95% CI**	***p***
Hospital Admissions	14,038 (12.51)	10,669 (9.50)	0.76	0.65, 0.88	<.001
Emergency Department visits	38,416 (34.22)	19,592 (17.45)	0.51	0.46, 0.56	<.001
Ambulatory Sensitive Visits	6,229 (5.55)	3,613 (3.22)	0.58	0.44, 0.76	<.001
PCP visits	306,698 (273.22)	285,229 (254.10)	0.93	0.92, 0.94	<.001
Specialty Visits	281,991 (251.21)	245,332 (218.55)	0.87	0.84, 0.90	<.001
Urgent Care Visits	53,868 (47.99)	67,874 (60.47)	1.26	1.18, 1.36	<.001****

*TPM group is the referent; CI= Confidence Interval; IRR= incidence rate ratio; IQR- interquartile range; ß= Beta co-efficient; Intervention variables: measures linked specifically to TBC deployment; Non-intervention variables: measures that were not directly linked to TBC deployment

‡ The dataset was normalized by dividing by the odds ratio for quality measures and IRR for service utilization. This adjusted factors were next multiplied by TBC percentage and events to compute the corresponding TPM values.

†Generalized Estimated Equations modeling that adjusted for possible confounding including: age, sex, race/ethnicity, Charlson comorbidity index, geographical region of care, type of insurance, and number of years of routinized MHI prior to the study period (2003-2009).

For outcomes related to quality measures and service utilization, a $p \leq .008$ must be achieved to account for multiple inter-related comparisons. Outcomes not meeting this threshold were designated as non-significant (ns).

**For adherence to a diabetes bundle, reduced sample size in this subgroup analysis reduced statistical power dramatically.

***There was a system-wide initiative to increase annual visits to primary care as part of CMS quality rankings which had financial consequences. We hypothesize that TBC practices had evolved to a point of internal organization where they were better able to address such wide-spread initiatives.
****As predicted prior to the analysis, urgent care visits (walk-in primary care as an alternative to ED visits) should increase. This appears to be more concentrated in the subgroup analysis and is less apparent among the larger study population.