On-line supplement: Methods

Phase I. Pre-Workshop Preparation

The workshop co-chairs organized an expert group of workshop participants and speakers. The workshop content was outlined (supplemental table 1) and a review of the literature was completed (supplemental table 2).

Phase II. In-Person Workshop

During the eight-hour workshop, experts presented relevant literature, data, and program experience across the diverse topics listed in supplemental table 1. We drew on existing programs, implementation methodologies, and published evidence across COPD and other disease-related readmission reduction programs to develop a workshop program (supplemental table 1). This included obtaining patient and patient advocate input, evaluating the relationship of readmissions to other health outcomes, identifying opportunities to add value to existing readmission reduction programs, identifying best practices for program evaluation, evaluating readmissions as a useful metric, and identifying additional resources and/or tools needed to optimize efforts to reduce readmissions. The workshop was audio-recorded and transcribed to enable qualitative analysis and word-for-word information to prepare the report. After each presentation the workshop participants had the opportunity to ask the presenting expert questions and engaged in a brief discussion to synthesize the information and data that had just been presented. The workshop was broken down into three main sessions. First, several talks were given by diverse stakeholders that provided the relevant background evidence on the reason for the penalty, data from other conditions that were subject to the penalty prior to COPD, and potential pitfalls of the penalty including widening health disparities. Also critical to this session were talks led by patient and patient advocates to ensure that the patient experience and voice was included in the synthesis of the report. The second portion included presentations on current readmission reduction programs that incorporated a variety of approaches. Finally, there was a large group action planning session to prepare for post-workshop activities.

Phase III. Post-Workshop Data Synthesis, Analysis, and Report

After the workshop concluded, the Chairs began to prepare for the next steps. The workshop audio recordings were transcribed and summarized into to themes. These themes were then presented to the workshop members via a conference call to ensure consensus that the workshop information had been summarized thoroughly. A second conference call was used to confirm the approach and outline of the workshop report. Finally, the chairs led the report drafting, including re-reviewing the literature to update the report with recently published advances. This draft was then shared with workshop participants to include their input and to ensure consensus.

TABLES

Supplemental Table 1: Workshop Programing		
Topic	**Session**	**Lead(s)**
Introduction	Part I: Setting the stage-background and stakeholder perspectives	Co-chairs
Impact of CMS HRRP on Readmission Rates across d		Laura Feemster
International perspective and approaches to reducing readmissions		Andrea Gershon
Patient experience with COPD		Steven Meyers/Jamie Sullivan
Quality improvement and implementation framework		David Au
Problem of readmissions from a payer perspective		Daniel Lessler
Use of patient navigators	Part II: Case presentations	Jerry Krishnan
Health system approach (two hospitals)		Frank Sciurba
CMS demonstration project		Mark Dransfield
Role of pulmonary rehab		Jean Bourbeau
Interprofessional teams		Valerie Press
Integrating specialty care		Laura Feemster
	Part III: Group discussion, themes, and next steps	
Developing and measuring HRRP program		David Au/Jerry Krishnan
Concerns of HRRP widening disparities		Valerie Press/Andrea Gershon
Best methods for engaging patients and studying PROs		Laura Feemster/Jamie Sullivan
Action planning		All participants

Supplemental Table 2: Pre-workshop literature search by topic area

Topic	References
COPD guidelines	• Global Initiative for Chronic Obstructive Lung Disease Pocket Guide to COPD Diagnosis, Management and Prevention, Updated 2016. • Hattab Y, Alhassan S, Balaan M, Lega M, Singh AC. Chronic Obstructive Pulmonary Disease. Crit Care Nurs Q. 2016 Apr-Jun;39(2):124-30. • American Thoracic Society and European Respiratory Society. 2004. https://www.thoracic.org/copd-guidelines/resources/copddoc.pdf • Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease, 2006 • (2015) 8th international conference on management and rehabilitation of chronic respiratory failure: the long summaries – part 1. Multidisciplinary Respiratory Medicine 10:1 • (2015) Update in Chronic Obstructive Pulmonary Disease 2014. American Journal of Respiratory and Critical Care Medicine 192:9, 1036-1044 • Criner GJ, Bourbeau J, Diekemper RL, Ouellette DR, Goodridge D, Hernandez P, Curren K, Balter MS, Bhutani M, Camp PG, Celli BR, Dechman G, Dransfield MT, Fiel SB, Foreman MG, Hanania NA, Ireland BK, Marchetti N, Marciniuk DD, Mularski RA, Ornelas J, Road JD, Stickland MK. Prevention of acute exacerbations of COPD: American College of Chest Physicians and Canadian Thoracic Society Guideline. Chest. 2015 Apr;147(4):894-942.
Economic impact	• Foo J, Landis SH, Maskell J, Oh YM, van der Molen T, Han MK, Mannino DM, Ichinose M, Punekar Y. Continuing to Confront COPD International Patient Survey: Economic Impact of COPD in 12 Countries. PLoS One. 2016 Apr 19;11(4):e0152618
COPD Screening	• Guirguis-Blake JM, Senger CA, Webber EM, Mularski RA, Whitlock EP. Screening for Chronic Obstructive Pulmonary Disease: Evidence Report and Systematic Review for the US Preventive Services Task Force. JAMA. 2016 Apr 5;315(13):1378-93. • US Preventive Services Task Force (USPSTF), Siu AL, Bibbins-Domingo K, Grossman DC, Davidson KW, Epling JW Jr, García FA, Gillman M, Kemper AR, Krist AH, Kurth AE, Landefeld CS, Mangione CM, Harper DM, Phillips WR, Phipps MG, Pignone MP. Screening for Chronic Obstructive Pulmonary Disease: US Preventive Services Task Force Recommendation Statement. JAMA. 2016 Apr 5;315(13):1372-7.
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Quality of Care - COPD	• Krishnan JA, Gussin HA, Prieto-Centurion V, Sullivan JL, Zaidi F, Thomashow BM. National COPD Readmissions Summit: Integrating COPD into patient-centered hospital readmissions reduction programs. J COPD F. 2015; 2(1): 70-80. • Lindenauer PK, Pekow P, Gao S, Crawford AS, Gutierrez B, Benjamin EM. Quality of care for patients hospitalized for acute exacerbations of chronic obstructive pulmonary disease. Ann Intern Med. 2006 Jun 20;144(12):894-903.
COPD readmissions-US	• Jencks SF, Williams MV, Coleman EA. Rehospitalizations among Patients in the Medicare Fee-for-Service Program. *N Engl J Med*. 2009;360(14):1418-1428. doi:10.1056/NEJMsa0803563 • Krishnan JA et al. (2014) Reducing the Risk of Rehospitalization in Patients with Chronic Obstructive Pulmonary Disease Exacerbations. Fewer Known Unknowns. *Annals of the American Thoracic Society* 11:5, 797-798 Read More: http://www.atsjournals.org/doi/abs/10.1164/rccm.201308-1541PP#.WApPoPkrJhF • COPD Readmissions : Addressing COPD in the Era of Value-based Health Care Tina Shah, MD, MPH[a], Valerie G. Press, MD, MPH[b], Megan Huisingh-Scheetz, MD, MPH[c], Steven R. White, MD[a,] · Chest Volume 150, Issue 4, October 2016, Pages 916–926 • A retrospective analysis to identify predictors of COPD-related rehospitalization Melissa H. RobertsEmail author, Emmanuelle Clerisme-Beaty, Chris M. Kozma, Andrew Paris, Terra Slaton and Douglas W. Mapel *BMC Pulmonary Medicine*BMC series – open, inclusive and trusted201616:68 • Understanding Why Patients With COPD Get Readmitted:A Large National Study to Delineate the Medicare Population for the Readmissions Penalty Expansion • Tina Shah, MD, MPH; Matthew M. Churpek, MD, PhD; Marcelo Coca Perraillon, MA; R. Tamara Konetzka, PhD *Chest.* 2015;147(5):1219-1226. doi:10.1378/chest.14-2181 • (2016) Meeting the challenge of COPD care delivery in the USA: a multiprovider perspective. *The Lancet Respiratory Medicine* 4:6, 473-526 • (2016) Readmissions following an initial hospitalization by COPD exacerbation in Spain from 2006 to 2012. *Respirology* 21:3, 489-496Hatipoglu US, Aboussouan LS.
General readmission reduction	• Henke RM, Karaca Z, Jackson P, Marder WD, Wong HS. Discharge Planning and Hospital Readmissions. Med Care Res Rev. 2016 May 4. pii: 1077558716647652. • J Am Med Dir Assoc. 2013 Oct;14(10):736-40. doi: 10.1016/j.jamda.2013.03.004. Epub 2013 Apr 20. Project ReEngineered Discharge (RED) lowers hospital readmissions of patients discharged from a skilled nursing facility. Berkowitz RE[1], Fang Z, Helfand BK, Jones RN, Schreiber R, Paasche-Orlow MK. • Jt Comm J Qual Patient Saf. 2012 Jul;38(7):301-10. 2011 John M. Eisenberg Patient Safety and Quality

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Supplemental Table 3: Care Transition Programs

Care Transition Programs	Focus	Methods	Target patients
Project RED[59]	Discharge preparation and follow-up	Designing an appropriate plan, communicating that clearly to the patient and clinicians, checking patient understanding, and providing reinforcement post-discharge	Hospitalized adult patients, not disease specific.
Project BOOST[60]	Improve care quality within a specific health care setting	Continuous feedback loop using Plan-Do-Study-Act framework	Hospitalized older adult patients, not disease specific.
Ideal Transition in Care Model[61]	Successful transition from hospital to home	Identifies specific elements beginning prior to discharge and continuing until outpatient follow-up with an outpatient physician	Hospitalized adult patients, not disease specific.
Project RED: Project Re-Engineered Discharge; Project BOOST: Better Outcomes for Older Adults Through Safe Transitions Project			