Effective Health Care

Bundled Payment: Effects on Health Care Spending and Quality

Results of Topic Selection Process & Next Steps

The nominator is interested in using an updated systematic review on the use of payment models by health systems– what data show bundled payments work/don't work to inform the policies and practices of health systems and result in the increase the quality and efficiency of healthcare.

Topic meets all criteria but was not funded. Due to limited program resources, the program is unable to develop a review at this time. No further activity on this nomination will be undertaken by the Effective Health Care (EHC) Program.

Topic Brief

Topic Name: Bundled Payments: Effects on Health Care Spending and Quality

Nomination Date: August 2017

Topic Brief Date: November 2017

Authors:
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Conflict of Interest: None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

Summary:

- This nomination meets all selection criteria.
- The evidence base is likely small and heterogeneous.
- The potential for value is uncertain. Whether the new review will be used to inform health systems payment models decision-making is uncertain.

Table of Contents

Background

In 2012 AHRQ published Evidence Report No. 208, Bundled Payment: Effects on Health Care Spending and Quality by the RAND Evidence-based Practice Center.(1) The report reviewed 58 studies through 2011 and reached the following conclusion: “In summary, the introduction of bundled payment was associated with (1) reductions in health care spending and utilization, and (2) inconsistent and generally small effects on quality measures. These findings were consistent across different bundled payment programs and settings, but the strength of the body of evidence was rated as low, due mainly to concerns about bias and residual confounding.”

On July 25, 2016, the Department of Health & Human Services (HHS) announced the Bundled Payments for Care Improvement (BPCI) program that included up to 48 types of care episodes or bundled payment models. (2) The Administration’s goal with these initiatives is to make progress to shift Medicare payments from quantity to quality by creating strong incentives for hospitals to deliver better care at a lower cost. These models would reward hospitals that work together with physicians and other providers to avoid complications, prevent hospital readmissions, and speed recovery. CMS has determined that some bundled and other risk-bearing payment models (including Chronic Care for Joint Replacement, Oncology Care Model, and End-Stage Renal Disease model) qualify as Advanced Alternative Payment models (APMs). Clinicians who participate in these models are eligible to receive a 5% bonus on all their Medicare Part B billing charges for each year of participation. This incentive has driven many practices and providers to invest in bundled payments. This program is slated to end September 2018.

Healthcare systems face many uncertainties regarding BPs to include:

- Decisions on whether to participate in BPs
- What factors are associated with successful BP models
- Which disease specific models to implement,
- How to define the bundle,
- How to implement them, how to structure payments,
- Which providers and institutions to include (i.e. single vs. multiple)
- Whether payments should be retrospective or prospective
- How to handle gain (risk) sharing (e.g. “upcoding” and “unbundling”)

Nominator and Stakeholder Engagement:
The topic was discussed with the nominator who expressed interest in a review in this area and the relevance and value to their health systems membership. According to the nominator, the observation that “CMS is actively engaged in developing a new iteration of this program makes this brief timely and applicable as health systems think about how to participate in BPCI’s redesign and other commercial models.” They believe that the 2012 KQs are generally relevant to their membership given that new bundled payment (BP) models continue to be developed and evolve in terms of complexity.

Many members participate in Medicare ACOs including the Medicare Shared Savings Program and the Next Generation ACO Model. These models often complicate or pull eligible patients out of bundled payment initiatives--some health systems see participation in ACOs as a key contextual factor mediating their willingness to participate in bundled payments.

The key questions for this nomination are:

Key Question 1.
What does the evidence show on the effects of bundled payment versus usual (predominantly fee-for-service) payment on health care spending and quality measures?

Key Question 2.
Does the evidence show differences in the effects of bundled payment systems by key design features?

Key Question 3.
Does the evidence show differences in the effects of bundled payment systems by key contextual factors?

To define the inclusion criteria for the key questions we specify the population, interventions, comparators, outcomes (PICOS) of interest (Table 1).

Key Questions	What does the evidence show on the effects of bundled payment versus usual (predominantly fee-for-service) payment on health care spending and quality measures?	Does the evidence show differences in the effects of bundled payment systems by key design features?	Does the evidence show differences in the effects of bundled payment systems by key contextual factors?
Population	Healthcare systems	Healthcare systems	Healthcare systems
Interventions	Bundled payment	Program's incentive structure: • Financial • Nonfinancial	• Predisposing factors (e.g. financial, market characteristics • Enabling factors (e.g. organizational, staff and patient factors)
Comparators	Usual payment	Usual payment	Usual payment
Outcomes	• Health care spending • Quality of care	• Health care spending • Quality of care	• Health care spending • Quality of care
Setting	U.S. Public Insurance and Private-Sector, International bundled payment systems, single-setting and multiple providers/sites of care	U.S. Public Insurance and Private-Sector, International bundled payment systems, single-setting and multiple providers/sites of care	U.S. Public Insurance and Private-Sector, International bundled payment systems, single-setting and multiple providers/sites of care

Methods

We assessed nomination Bundled Payments: Effects on Health Care Spending and Quality, for priority for a systematic review or other AHRQ EHC report with a hierarchical process using established selection criteria (Appendix A). Assessment of each criteria determined the need for evaluation of the next one.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

Appropriateness and Importance

We assessed the nomination for appropriateness and importance.

Desirability of New Review/Duplication

We searched for high quality, completed or in-process evidence reviews published in the last three years on the key questions of the nomination. See Appendix B for sources searched.

Impact of a New Evidence Review

The impact of a new evidence review was qualitatively assessed by analyzing the current standard of care, the existence of potential knowledge gaps, and practice variation. We considered whether it was possible for this review to influence the current state of practice through various dissemination pathways (practice recommendation, clinical guidelines, etc.).

Feasibility of New Evidence Review

We conducted a literature search in PubMed from Jan 2011 to Dec 2017. We reviewed all identified titles and abstracts for inclusion and classified identified studies by study design, to assess the size and scope of a potential evidence review. See Appendix C for the PubMed search strategy.

Value

We assessed the nomination for value. We considered whether or not the clinical, consumer, or policymaking context had the potential to respond with evidence-based change; and if a partner organization would use this evidence review to influence practice.

Compilation of Findings

We constructed a table with the selection criteria and our assessments (Appendix A).

Results

Appropriateness and Importance

This is an appropriate and important topic, specifically the effects of bundled payment models on health care spending and quality. Health care costs are high and rising in absolute terms and as a percentage of gross domestic product. Quality of health care is also a significant concern. Health systems face uncertainty in how to choose, design and implement bundled payment models. Selection of payment models affects heath care financing decisions for a large, vulnerable population including people covered by MEDICARE and MEDICAID.

Desirability of New Review/Duplication

A new evidence review on bundled payment models would not be duplicative of an existing product. No systematic reviews were identified that were specific to bundled payments across clinical conditions, providers and institutions covered in key questions 1 to 3. The PROSPERO database identified two protocols (3,4) related to bundled payments, but these also did not cover the breadth of clinical conditions of the nomination.

Impact of a New Evidence Review

A new systematic review on the effects of bundled payments may have a high impact. Currently the effect of bundled payment models compared to usual payment models (e.g. fee for service, capitation) in terms of cost and quality is unclear due to limitations in the evidence base. There is also variation in payment models (e.g. clinical conditions, financial and non-financial incentives, organizational, market and patient characteristics) across payers and health systems due to limited study designs and outcome data. The optimal configuration for bundled payments is unknown.

Feasibility of a New Evidence Review

A new evidence review examining bundled payment models is feasible. We identified 21 studies of relevance to the topic (Table 2). Eleven studies were identified through PubMed (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15); 7 additional studies through the Cochrane Library Central Register of Controlled Trials (16) (17) (18) (19) (20) (21) (6); and 3 in clinicaltrials.gov (22) (23) (24). Specific types of bundles covered in these studies included joint replacement (5), hip and other fractures (2), newborn screening, outpatient therapy, renal dialysis (3), spinal surgery, diabetic amputations, cancer pharmacotherapy, sub-acute home rehabilitation, acute coronary syndrome and heart failure. See Table 2, Feasibility Column, Size/Scope of Review Section for the citations of included studies.

Table 2. Key Questions from Nomination, Results of Duplication Search, and Results of Feasibility Search

Key Question	Duplication (Completed or In-Process Evidence Reviews, 10/2014-10/2017	Feasibility (Published and Ongoing Research, 1/2011-12/2017; Yield=21)

KQ 1: What does the evidence show on the effects of bundled payment versus usual (predominantly fee-for-service) payment on health care spending and quality measures?	Total number of identified systematic reviews: 0	Size/scope of review
		Relevant Studies Identified: 21[6-12, 14-17]
		• Type:
		  ○ Multiple institutions were included in 14 studies and single institutions in 7 studies.
		  ○ Study designs included: observational (12), case series (7), before-after (2), cross-sectional (1), and survey (1)
		
		Clinicaltrials.gov
		• Recruiting: 0
		• Active: 3[25-27]
		• Complete: 0

KQ: Does the evidence show differences in the effects of bundled payment systems by key design features?	Total number of identified systematic reviews: 0	Size/scope of review Relevant Studies Identified: 0 Clinicaltrials.gov • Recruiting: 0 • Active: 3[25-27] • Complete:0

Key Question	Duplication (Completed or In-Process Evidence Reviews, 10/2014-10/2017	Feasibility (Published and Ongoing Research, 1/2011-12/2017; Yield=21)
KQ: Does the evidence show differences in the effects of bundled payment systems by key contextual factors?	Total number of identified systematic reviews: 0	Size/scope of review Relevant Studies Identified: 1[17] • Type: Case series Clinicaltrials.gov • Recruiting: 0 • Active: 3[25-27] • Complete:0

Value

The potential for value is uncertain. The nominator will use a new AHRQ systematic review to disseminate the findings to their health systems constituency. Whether the new review will be used to inform decision-making is uncertain. There are many other factors that may also affect the decisions to implement bundled payments beyond the evidence and these factors are beyond the control of health systems alone.

Summary of Findings

- This nomination meets all selection criteria.
- We found two in-process reviews but they will not cover not cover the breadth of clinical conditions of the nomination.
- The evidence base of a new review would likely be small and heterogeneous.
- The potential for value is uncertain. Whether the new review will be used to inform health systems payment models decision-making is uncertain

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Appendix A. Selection Criteria Summary

Selection Criteria	Supporting Data
1. Appropriateness	
1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.?	Yes, this topic represents a health care payment model available in the U.S.
1b. Is the nomination a request for a systematic review?	Yes, this topic is a request for a systematic review.
1c. Is the focus on effectiveness or comparative effectiveness?	The focus of this review is on both effectiveness and comparative effectiveness.
1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes, a logic model supports it. Yes, it is consistent with what is known about the topic.
2. Importance	
2a. Represents a significant disease burden; large proportion of the population	Yes, this topic represents a significant economic and quality of health care burden.
2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population	Yes, this topic affects heath care financing decisions for a large, vulnerable population including people covered by MEDICARE and MEDICAID.
2c. Represents important uncertainty for decision makers	Yes, this topic represents important uncertainty for decision makers.
2d. Incorporates issues around both clinical benefits and potential clinical harms	Yes, this nomination addresses both benefits and potential harms (i.e. reduced quality of care) of bundled payment models.
2e. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	Yes this health care costs are high and rising in absolute terms and as a percentage of gross domestic product.
3. Desirability of a New Evidence Review/Duplication	
3. Would not be redundant (i.e., the proposed topic is not already covered by available or soon-to-be available high-quality systematic review by AHRQ or others)	No systematic reviews were identified that were specific to bundled payments across clinical conditions, providers and institutions. The PROSPERO database identified two protocols related to bundled payments, but these also did not cover the breadth of clinical conditions of the nomination. •“A meta-analysis of the effects of bundled interventions on surgical site infections in colorectal surgery.” (3) •“Determining the effectiveness of the implementation of bundled interventions aimed at reducing rates of c. difficile infections in hospital settings: a systematic review.”(4)
4. Impact of a New Evidence Review	

4a. Is the standard of care unclear (guidelines not available or guidelines inconsistent, indicating an information gap that may be addressed by a new evidence review)?	Yes, the effect of bundled payment models compared to usual payment models (e.g. fee for service, capitation) in terms of cost and quality is unclear due to limitations in the evidence base.
4b. Is there practice variation (guideline inconsistent with current practice, indicating a potential implementation gap and not best addressed by a new evidence review)?	Yes, there is variation in payment models (e.g. clinical conditions, financial and non-financial incentives, organizational, market and patient characteristics) across payers and health systems due to limited study designs and outcome data. The optimal configuration for bundled payments is unknown.
5. Primary Research	
5. Effectively utilizes existing research and knowledge by considering: - Adequacy (type and volume) of research for conducting a systematic review - Newly available evidence (particularly for updates or new technologies)	*Size/scope of review:* We estimate that the total size of the relevant literature (2011-present) may be approximately 100 studies for key question #1 and 10-20 for key questions 2 and 3 (low confidence). *ClinicalTrials.gov:* We identified 3 relevant trials on ClinicalTrials.gov. *Cochrane RCT filter results:* We identified *8* additional RCTs covering bundled payment model interventions.
6. Value	
6a. The proposed topic exists within a clinical, consumer, or policy-making context that is amenable to evidence-based change	Yes, this topic will inform health systems on the effects of bundled payments in terms of cost and quality of care. The future of CMS bundled payment models in the current administration and Congress is uncertain given recent and potential attempts to repeal or replace the Affordable Care Act.
6b. Identified partner who will use the systematic review to influence practice (such as a guideline or recommendation)	Yes, The nominator will disseminate the findings of the review to inform their health systems membership on how best to implement bundled payment models in their systems. Whether the new review will be used to inform decision-making is uncertain.

Appendix B. Search for Evidence Reviews (Duplication)

Listed are the sources searched. No evidence reviews were identified.

Source
Search date: Oct 2014 to Oct 2017
AHRQ: Evidence reports and technology assessments, USPSTF recommendations
Cochrane Systematic Reviews and Protocols http://www.cochranelibrary.com/
PubMed Health http://www.ncbi.nlm.nih.gov/pubmedhealth/
PROSPERO Database (international prospective register of systematic reviews and protocols) http://www.crd.york.ac.uk/prospero/

Appendix C. Search Strategy & Results (Feasibility)

We searched PUBMED (filter to include systematic reviews and meta-analyses for duplication and controlled trials and observational studies for feasibility), the Cochrane Library and the PROSPERO databases from 2011 to the present for high-quality, completed or in-process evidence reviews (including systematic reviews and meta-analyses) pertaining to the key questions of the nomination.

The search terms utilized for these searches are provided below.

(bundl*[tiab] OR episode[tiab] OR “prospective payment”[tiab] OR warranty[tiab] OR warranti*[tiab] OR global[tiab]) AND (payment[tiab] OR finance*[tiab] OR reimburse*[tiab] OR incentive*[tiab] OR fees[tiab]) AND (trial[tiab] OR compare*[tiab] OR effect*[tiab] OR impact[tiab] OR outcome*[tiab] OR result*[tiab])