Bundling and Coordinating Post-Acute Care (BACPAC)
Toolkit for Preliminary Modeling and Implementation

PRESENTED TO:
Alliance for Home Health Quality and Innovation

PREPARED BY:
Al Dobson, Ph.D., Audrey El-Gamil, Steven Heath, M.P.A, Nikolay Manolov, Ph.D. & Joan DaVanzo, Ph.D., M.S.W.

January 7, 2014
Presentation Overview

• Post-Acute Care Bundling Context
• Structure of BACPAC Bundle
  • Episode trigger
  • Clinical condition categories
  • Bundle length
  • Care settings included/excluded
  • Role of convener
• Risk-Adjustment of Bundled Payments
• Payment Blends and Transitions
• Payment Distribution
  • Virtual vs. negotiated rates

• Implementation Considerations
  • Quality measures
  • Freedom of choice
  • Program evaluation
• Review of Analytic Assumptions and Supporting Data
• Review of Bundled Payment Simulations
  • Impact analyses for regional-level convener catchment area
  • Impact analyses for hospital discharge-level convener catchment area
• Conclusions
• Next Steps
• Appendices
Post-Acute Care Bundling Context

- Findings from the Clinically Appropriate and Cost-Effective Placement (CACEP) Project indicated that health care delivery and payment reform could re-engineer how care was provided, while reducing Medicare payments for post-acute care services and increasing quality
  - Bundled payments for post-acute care services are a logical first step in considering care and payment redesign

- Goal of bundling is to increase the efficiency of care across settings and encourage care coordination that is not currently provided under siloed prospective payment systems in fee-for-service medicine

- Success of bundled payments in constraining cost growth relies on the provision of care in the most clinically appropriate, cost-effective, and stable manner
Post-Acute Care Bundling Context

- CMS has developed the Bundled Payment for Care Improvement (BPCI) initiative that investigates and tests how post-acute care payment bundles could be structured, implemented, and paid.

- Due to extensive financial risk to providers, bundled payments must be carefully considered and implemented with appropriate safeguards for patients and providers.

- This project investigates the feasibility of bundled payment models.
CACEP-modeled reform could produce $34.7 billion in Medicare savings (2014-2023) without payment adjustment. With a 5.3% payment adjustment, projected savings reach $70 billion. With a 7.5% adjustment, projected savings reach $100 billion.


* Percent of post-acute care spending after discharge from the Index hospital.
Post-Acute Care Bundling Context

- PAC payment bundles can be designed to either include or exclude the index acute care hospital stay.

- A bundle that includes the index acute care hospital stay requires a MS-DRG + post-acute care management process that has not been developed and tested under the current fee-for-service system.
  - Generally, hospitals lack the infrastructure or experience to manage post-acute care.

- A PAC-specific bundle (excluding index hospitalization and managed by post-acute care providers or third party conveners) may allow bundling to function with reduced risk and impact on providers and patients.

- The stability of the bundle for both providers and the convener is directly related to the catchment area of the convener, with larger catchment areas yielding more stable bundles with lower provider risk.
There are two options for initiating a post-acute care bundle:
  • Day of (or day after) discharge from an acute care hospitalization
  • Day of admission to a post-acute care setting

By initiating the episode (bundle) upon discharge from the acute care hospital, the risk-bearing entity is incentivized to manage the transition to the post-acute care setting as soon as clinically appropriate to reduce the likelihood of adverse events (e.g., increases in severity)
  • However, under this arrangement, all patients discharged (even those who do not need formal post-acute care) might have interaction with the risk-bearing entity until it is determined if they need post-acute care

If the episode is initiated upon admission to the PAC setting, the patient may not receive any care coordination or management services between hospital discharge and post-acute care admission
  • The post-acute care risk-bearing entity would then be responsible for treating any complications due to the patient being “unmanaged” during this window

BACPAC analytic models are initiated the day after discharge from the acute care hospital, as was assumed in prior modeling efforts
Structure of BACPAC Bundle:
Clinical Condition Categories

- Bundles that are selected should include diagnostic conditions that are both high in volume and represent a significant share of Medicare expenditures
  - High volume conditions allow providers to better manage risk over a larger number of cases
  - High volume conditions could also result in significant savings for Medicare
- While BACPAC is a post-acute care bundle, the index hospital MS-DRG is used to clinically define the patient’s condition, consistent with BPCI
- MS-DRGs could then be divided further based on the patient’s functional ability or post-acute care needs
  - Example: an older, sicker, low functioning hip replacement patient (defined by a uniform assessment tool upon hospital discharge) could be identified by MS-DRG 470.15 to indicate greater severity than a younger, healthier, higher functioning hip replacement patient identified by MS-DRG 470.01
Based on the episode structure of the BPCI initiative, we modeled BACPAC bundles for 48 chronic conditions (comprising 179 MS-DRGs) (see attached appendices)

- CMMI identified these MS-DRGs as appropriate for bundled payments due to their frequency and relatively consistent reliance on post-acute care
- MS-DRGs are severity adjusted reflecting patient’s mix of chronic conditions and complications and comorbidities
- The BPCI 48 chronic conditions (179 MS-DRGs) are estimated to represent 76 percent of all acute care hospital discharges
Structure of BACPAC Bundle: Bundle Length

• An episode length should be chosen that is long enough so the bundle captures the majority of the care for the bundled condition without being too long to capture the utilization of unrelated events
  • Bundles are often considered for 30, 60, or 90 day episodes

• In practice, different episode lengths could exist to capture the specific rehabilitative timelines of various conditions

• All BACPAC condition category bundles were modeled for 60 days
  • Includes a reasonable window for patient rehabilitation following hospital discharge without introducing significant “noise” for unrelated services
Most post-acute care bundling initiatives focus on the formal post-acute care settings – HHA, SNF, IRF, and LTCH.

Bundling initiatives should define which care settings are able to trigger an episode and which care settings are included in the bundle, but cannot trigger an episode.

In the modeling of BACPAC, the following three care settings can trigger an episode following a physician’s order: HHA, SNF, and IRF.

Rationale: CACEP research suggests that there is considerable overlap in patients treated in these three care settings. Bundling payments for those settings and conditions which overlap can incentivize providers to use the most clinically appropriate and cost-effective setting for patients while ensuring patient safety and access. LTCH patients do not consistently overlap with patients in these other post-acute care settings. Future modeling may include LTCHs as an episode trigger.
In the modeling, the following care settings do not trigger a BACPAC bundle but are included in the bundled payment amount (consistent with BPCI):

- ER
- Readmissions to acute care hospital (planned and unplanned)
- Outpatient therapy

**Rationale:**

- Patients admitted directly to formal PAC settings upon hospital discharge are expected to require extensive services
- Patients discharged home (without home health) to receive outpatient therapy and physician services likely require less intensive care
  - Either case would add excessive variability to BACPAC bundled payments
- However, to encourage proper care coordination and quality, unplanned readmissions and ER visits are included in the bundle so that conveners do not use these care settings inappropriately to protect their payments
The following care settings are currently excluded from the BACPAC modeling entirely and will be paid for either through fee-for-service or other arrangements:

- **LTCH:** LTCH services are provided for a small subset of patients with the most severe conditions, and require a higher than average level of resources than are needed in other care settings.

- **Physician visits:** Because the patient population is medically complex and averages 5.1 chronic conditions, coordinating all physician visits can be administratively and clinically difficult and complicate the patient pathway. However, care coordination without physician involvement may be questioned.

- **Outpatient visits and Durable Medical Equipment:** The wide variety of services provided in this setting might increase the variation in payments; such variation does not necessarily encourage better care coordination.

- **Hospice:** Hospice services are currently paid on a PPS episode basis and represent a different care dimension; furthermore, we note that BPCI excluded hospice services.
Structure of BACPAC Bundle:
Role of Convener

- In a bundled payment system, we assume there will be a risk-bearing entity that manages the bundle and helps direct patient care transitions.
- For BACPAC, a convener – either the first PAC setting provider or a third party administrator – is needed to:
  - **Take responsibility for risk and manage the bundle:** Convener is responsible for absorbing risk of the bundle and will be held to some form of reserve requirements and other regulations set forth by CMS (data capabilities and quality reporting).
  - **Distribute payments to providers:** Conveners will accept the CMS determined site-neutral payment for the specific clinical condition category and be responsible for distributing payments to all providers (if applicable, see slide on payment distribution).
  - **Select first PAC setting:** Conveners will help direct patients to the most clinically appropriate and cost-effective PAC setting and manage transitions; reducing readmissions will be a priority.
Risk-Adjustment of Bundled Payments

• All Medicare prospective payment systems risk-adjust payments based on patient demographic and clinical characteristics, as well as geography
  
  • Patient demographic characteristics: Adjust for variation in the cost of treating patients due to demographic factors such as age and gender
    • Example: Within the ESRD composite rate, payment adjustments were proposed to include adjustment based on age, sex, and race, among others
  
  • Clinical characteristics: Adjust for variation in the cost to treat patients due to clinical severity, such as comorbidities and functional ability
    • Example: Post-acute care patient categorization (including HHA’s HHRGs, SNF’s RUGs, and IRFs CMGs) are based on patient severity and clinical need
  
  • Geography: Adjust for variation in cost due to differences in wage index and cost of care
    • Example: All care settings including Physician Fee Schedule, IPPS, and OPPS use geographic payment adjustments
Risk-Adjustment of Bundled Payments (cont’d)

• In our modeling, risk-adjustment to account for patient demographics and clinical characteristics would be implemented through tiered clinical condition categories
  
  • A patient with more than a specific number of comorbid conditions, and low functional ability would be assigned a condition category associated with the higher bundled payment than a clinically less severe patient with high functional ability, for example:
    
    • MS-DRG 470.01 – a 65 year old patient with high functional ability who is expected to be fully rehabilitated in a relatively short time
    
    • MS-DRG 470.15 – a 85 year old patient with low functional ability who is expected to not achieve full rehabilitation
Payment Blends and Transitions

Any transition from FFS payment silos to an at-risk bundled payment system would need to be phased-in with a series of transitions

- In implementing the IPPS, a series of hospital-specific, regional, and national blends were used to mitigate provider risk and prevent stinting of care

If BACPAC were enacted, we would propose the following three-part blend to be implemented at the MS-DRG condition category level over several years (e.g., 470.01)

- Convener’s 3-year historical average payment adjusted to payment year to reflect variation in local practice patterns
- Region’s historical average payment under FFS Medicare to capture variation in practice patterns (hospital referral cluster or region–HRC or HRR)
- National historical average under FFS subjected to an overall discount
Payment Blends and Transitions (cont’d)

- In the initial years, higher payment weights would need to be assigned to the convener’s historical average payment rate as the networks are being established and tested.
- Over time, the convener’s historical average payment rate would decrease, as the regional average and national payment rate weights increase.
- At the end of the transition (e.g., 10 years) bundled payments would be paid fully on a national site-neutral payment rate.
- For the purpose of modeling, we used the following payment blend for each clinical condition category, which is modeled at the MS-DRG level until clinical condition categories are developed.

<table>
<thead>
<tr>
<th>Clinical Condition Category</th>
<th>Convener’s 3-year average historical payment</th>
<th>Region’s average historical payment (HRR/HRC)</th>
<th>National historical average</th>
<th>Bundled Payment Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-DRG 470</td>
<td>80%</td>
<td>10%</td>
<td>10%</td>
<td>=</td>
</tr>
</tbody>
</table>

© 2014 Dobson DaVanzo & Associates, LLC. All Rights Reserved.
Payment Distribution

- Payments under a bundled payment system with a convener can be made in two ways:
  - Virtual payments
  - Negotiated payments
Payments are made from CMS directly to each provider under the existing FFS prospective payment systems and reconciled at the end of the episode in the form of future withholds to the convener.

Convener is at financial risk at the point of reconciliation for over-payments to individual providers and is responsible for managing care and transitions to ensure that total payments do not exceed the CMS-determined bundled payment rate.
Payment Distribution: Virtual Payments (cont’d)

Virtual Payments > Bundled Payment

Convener*

A ➔ H ➔ I ➔ OT

HHA PPS Payment = $3000
IRF PPS Payment = $8000
OP Therapy PPS Payment = $1200

Total Payment to Providers from CMS = $12,200
CMS-Defined Bundled Payment = $10,000
Loss by Convener (Pay-back to CMS) = $2,200

Virtual Payments < Bundled Payment

Convener*

A ➔ H ➔ I ➔ OT

HHA PPS Payment = $2000
IRF PPS Payment = $4000
OP Therapy PPS Payment = $1000

Total Payment to Providers from CMS = $7,000
CMS-Defined Bundled Payment = $10,000
Gain by Convener (Additional Payment) = $3,000

Convener can negotiate “gain-sharing” or “payback” (gain/loss) clauses with providers
* CMS could add a “withhold” policy to cover potential overages.
Payment Distribution: Negotiated Payments

- CMS gives the total payment bundle (not negotiated) to the convener; the convener then distributes payments to each provider. Those rates are negotiated between the convener and the providers prior to patient admission to the care setting
  - The convener can pay for unplanned rehospitalizations directly at the MS-DRG rate (not a negotiated rate with the hospital), and have the cost subsidized by all providers for greater than expected hospital readmission costs

- Convener is responsible for managing care and transitions and negotiating rates to ensure that total payments do not exceed the CMS-determined bundled payment rate
  - Arrangements with out-of-network providers need to be made

- The convener would have access to a series of benchmarks that identify the historical average Medicare payment for each provider within a specific clinical condition to help assess the reasonableness of provider claims
Payment Distribution: **Negotiated Payments (cont’d)**

**Negotiated Payments > Bundled Payment**

- Convener*
  - Negotiated Payment = $3000
  - Negotiated Payment = $7500
  - Negotiated Payment = $1000
- Total Payment to Providers from Convener = $11,500
- CMS-Defined Bundled Payment to Convener = $10,000
  - Loss by Convener = $1,500

**Negotiated Payments < Bundled Payment**

- Convener*
  - Negotiated Payment = $2000
  - Negotiated Payment = $6500
  - Negotiated Payment = $1000
- Total Payment to Providers from Convener = $9,500
- CMS-Defined Bundled Payment to Convener = $10,000
  - Gain by Convener = $500

Convener can negotiate “gain-sharing” or “payback” (gain/loss) clauses with providers

* CMS could add a “withhold” policy to cover potential overages.
Implementation Considerations

• Quality measures must be implemented to ensure that providers are held accountable for outcomes and stinting of patient care is avoided
  • While this analysis does not specify particular quality measures, they are critical to the success of bundling – conveners can use quality measures to determine patient placement to maximize outcomes, and assess whether gain-sharing is appropriate

• Freedom of choice must be assured for all beneficiaries
  • For purposes of this analysis, we assume that patients, family members, discharge planners, conveners, and physicians (while not covered under the bundled payment) must be involved in discharge planning and transitions.

• Evaluation of BACPAC
  • Using the model as described above, we provide impact analyses of “winners and losers” and payment compression (under-payment of high “cost” and over-payment of low “cost” episodes)

• Determining CBO savings
  • Savings could be determined by the absolute payment reduction at the program level, such as a cap where Medicare will not distribute payments beyond 98% of projected payments, for example
REVIEW OF ANALYTIC ASSUMPTIONS AND SUPPORTING DATA
Review of Analytic Assumptions

- **Episode Trigger:** Day after discharge from acute care hospital
- **Bundle Length:** 60 days
- **Care Settings:** HHAs, SNFs, and IRFs can trigger a bundle; planned and unplanned readmissions, ER visits, and outpatient therapy visits are included in the bundle
- **Conveners are modeled in two different ways:**
  - **Regional-level convener catchment area** in which we assume that one convener will be responsible for all patients in the HRR (n=306 conveners)
    - Regional-level convener catchment areas will likely be managed by third parties or post-acute care providers, while individual hospitals are more likely to (but not required to) manage hospital discharge-level convener catchment areas
  - **Hospital discharge-level convener catchment area** in which we assume that a single convener would be responsible for all patients that are discharged from a single acute care hospital (n=1,793 conveners; trimmed to remove low volume providers)
    - In actuality, the number of hospital conveners is likely to be greater, as few if any hospitals are expected to cede management of their MS-DRG revenue to another hospital convener
- **Payment blend for each MS-DRG clinical condition category in year 1:**
  - Convener: 80%; Region: 10%; National: 10%
# Distribution of Payments within a BACPAC Episode by Care Setting

- Appendices A through E contain descriptive and distribution analysis by MS-DRG and by chronic condition

## Distribution of Episode Payments by Care Setting for Total Episode Compared to BACPAC Bundles

<table>
<thead>
<tr>
<th>Setting</th>
<th>Total Episode</th>
<th>% Total Episode Payment</th>
<th>BACPAC Payment</th>
<th>% BACPAC Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>STACH</td>
<td>$107,698,104,980</td>
<td>50.1%</td>
<td>$25,212,053,980</td>
<td>24.5%</td>
</tr>
<tr>
<td>HHA</td>
<td>$13,301,943,040</td>
<td>6.2%</td>
<td>$13,301,943,040</td>
<td>12.9%</td>
</tr>
<tr>
<td>SNF</td>
<td>$49,228,889,320</td>
<td>22.9%</td>
<td>$49,228,889,320</td>
<td>47.9%</td>
</tr>
<tr>
<td>IRF</td>
<td>$13,542,703,620</td>
<td>6.3%</td>
<td>$13,542,703,620</td>
<td>13.2%</td>
</tr>
<tr>
<td>LTCH</td>
<td>$874,156,499</td>
<td>0.4%</td>
<td>-</td>
<td>n/a</td>
</tr>
<tr>
<td>Physician</td>
<td>$23,823,990,540</td>
<td>11.1%</td>
<td>-</td>
<td>n/a</td>
</tr>
<tr>
<td>OP Therapy</td>
<td>$531,311,200</td>
<td>0.2%</td>
<td>$531,311,200</td>
<td>0.5%</td>
</tr>
<tr>
<td>Other OP</td>
<td>$1,857,849,580</td>
<td>0.9%</td>
<td>-</td>
<td>n/a</td>
</tr>
<tr>
<td>DME</td>
<td>$1,287,237,578</td>
<td>0.6%</td>
<td>-</td>
<td>n/a</td>
</tr>
<tr>
<td>Hospice</td>
<td>$1,019,768,779</td>
<td>0.5%</td>
<td>-</td>
<td>n/a</td>
</tr>
<tr>
<td>ER</td>
<td>$983,071,061</td>
<td>0.5%</td>
<td>$983,071,061</td>
<td>1.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$214,989,559,644</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>$102,799,972,221</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Source: Dobson | DaVanzo analysis of 5% sample of Medicare beneficiaries, 2007-2010, extrapolated to the universe of Medicare beneficiaries. BACPAC episodes must be initiated by HHA, SNF or IRF and include the following care settings (HHA, SNF, IRF, OP Therapy, planned and unplanned readmissions to the acute care Hospital and ER). Total episode payments includes all care settings (including index acute care hospitalization) for episodes initiated in the HHA, SNF, and IRF.
**LTCHs are Rarely Used in BACPAC Episodes**

- **99.8% of BACPAC episodes do not include LTCH services**

- **When LTCH services are used, they are most often the third stop in the pathway (e.g., SNF-IRF-LTCH pathway)**

Source: Dobson | DaVanzo analysis of 5% sample of Medicare beneficiaries, 2007-2010, extrapolated to the universe of Medicare beneficiaries.

* LTCH services are not included as a trigger for BACPAC episodes

### Count of LTCH Stays within an Episode

<table>
<thead>
<tr>
<th>Number of Episodes</th>
<th>Percent of Episodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>7,911,260</td>
</tr>
<tr>
<td>1</td>
<td>33,540</td>
</tr>
<tr>
<td>2</td>
<td>800</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>34,340</strong></td>
</tr>
</tbody>
</table>

### Placement of LTCHs within Episodes that Contain LTCH Services

<table>
<thead>
<tr>
<th>Pathway Stop Number</th>
<th>Number of Episodes</th>
<th>Percent of Episodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>2</td>
<td>2,940</td>
<td>8.6%</td>
</tr>
<tr>
<td>3</td>
<td>10,080</td>
<td>29.4%</td>
</tr>
<tr>
<td>4</td>
<td>7,660</td>
<td>22.3%</td>
</tr>
<tr>
<td>5</td>
<td>5,820</td>
<td>17.0%</td>
</tr>
<tr>
<td>6</td>
<td>3,180</td>
<td>9.3%</td>
</tr>
<tr>
<td>7+</td>
<td>4,660</td>
<td>13.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>34,340</strong></td>
<td><strong>0.0%</strong></td>
</tr>
</tbody>
</table>
REVIEW OF BACPAC PAYMENT SIMULATIONS
BACPAC Simulations

BACPAC simulations were conducted to answer the following questions:

- How well does the modeled BACPAC structure (including the payment and outlier payment blends) explain Medicare episode payments at the regional-level and hospital discharge-level convener catchment areas?
  - Regression analyses were conducted to identify the drivers of Medicare episode payments
  - Regression analyses are the traditional way Medicare tests new payment systems prior to implementation

- How do modeled payments made under BACPAC align with payments under the current FFS system?
## Summary of Results: How Well Does BACPAC Structure Explain Payments?

Regression Analyses for Regional-level and Hospital Discharge-level Convener Catchment Areas (179 MS-DRGs; dependent variable = BACPAC Medicare Payments)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Regional-level Convener Catchment (n=31,980)</th>
<th>Hospital Discharge-level Convener Catchment (n=84,803)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Linear Model Cumulative R²*</td>
<td>Log-Log Model Cumulative R²*</td>
</tr>
<tr>
<td>MS-DRG Transition/Blend</td>
<td>0.111</td>
<td>0.106</td>
</tr>
<tr>
<td>Functional Ability and Live Alone</td>
<td>0.263</td>
<td>0.316</td>
</tr>
<tr>
<td>Age, Sex</td>
<td>0.268</td>
<td>0.317</td>
</tr>
<tr>
<td>Chronic Conditions</td>
<td>0.287</td>
<td>0.335</td>
</tr>
<tr>
<td>Sum of HCC Weights</td>
<td>0.318</td>
<td>0.362</td>
</tr>
<tr>
<td>Dual Eligibility</td>
<td>0.321</td>
<td>0.363</td>
</tr>
<tr>
<td>Index Hospital IME &amp; DSH</td>
<td>0.321</td>
<td>0.363</td>
</tr>
<tr>
<td>Look Back ICU/CCU</td>
<td>0.323</td>
<td>0.364</td>
</tr>
<tr>
<td>Rural</td>
<td>0.325</td>
<td>0.364</td>
</tr>
<tr>
<td>Percent Outlier Payment</td>
<td>0.629</td>
<td>0.470</td>
</tr>
</tbody>
</table>

Source: Dobson | DaVanzo analysis of 5% sample of Medicare beneficiaries, 2007-2010.

* Adjusted for degrees of freedom in coefficient.
Regression Results: Impact of Including HHA in BACPAC Bundles

Regression Analyses for Regional-level Convener Catchment Area Comparing 60-Day BACPAC Bundle Including Home Health to Model Excluding Home Health (179 MS-DRGs; dependent variable = BACPAC Payment)

<table>
<thead>
<tr>
<th>Variables</th>
<th>60 Days PAC Episodes - HHA SNF IRF (n=31,980)</th>
<th>60 Days PAC Episodes - SNF IRF Only (n=24,835)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Linear Model Cumulative R^2*</td>
<td>Log-Log Model Cumulative R^2*</td>
</tr>
<tr>
<td>MS-DRG Transition/Blend</td>
<td>0.111</td>
<td>0.106</td>
</tr>
<tr>
<td>Functional Ability and Live Alone</td>
<td>0.263</td>
<td>0.316</td>
</tr>
<tr>
<td>Age, Sex</td>
<td>0.268</td>
<td>0.317</td>
</tr>
<tr>
<td>Chronic Conditions</td>
<td>0.287</td>
<td>0.335</td>
</tr>
<tr>
<td>Sum of HCC Weights</td>
<td>0.318</td>
<td>0.362</td>
</tr>
<tr>
<td>Dual Eligibility</td>
<td>0.321</td>
<td>0.363</td>
</tr>
<tr>
<td>Index Hospital IME &amp; DSH</td>
<td>0.321</td>
<td>0.363</td>
</tr>
<tr>
<td>Look Back ICU/CCU</td>
<td>0.323</td>
<td>0.364</td>
</tr>
<tr>
<td>Rural</td>
<td>0.325</td>
<td>0.364</td>
</tr>
<tr>
<td>Percent Outlier Payment</td>
<td>0.629</td>
<td>0.470</td>
</tr>
</tbody>
</table>

Source: Dobson | DaVanzo analysis of 5% sample of Medicare beneficiaries, 2007-2010.
* Adjusted for degrees of freedom in coefficient.
BACPAC BUNDLES: IMPACT ANALYSES FOR REGIONAL-LEVEL (HRR) CONVENER CATCHMENT AREA
Regional-Level Convener Catchment Area: Larger Catchment Areas Provide Stability and Mitigate Provider Risk

Larger HRRs have higher volume to mitigate risk and stabilize the impact of BACPAC payments.

Source: Dobson | DaVanzo analysis of 5% sample of Medicare beneficiaries, 2007-2010.
Regional-Level Convener Catchment Area: Majority of Providers would Gain/Lose Less than 20 Percent of their Medicare Payment

Larger catchment areas do not eliminate, but significantly mitigate, provider risk

Source: Dobson | DaVanzo analysis of 5% sample of Medicare beneficiaries, 2007-2010.
Current FFS System: Bundling could have Less Impact on Providers than the Current PPS System

By way of comparison, the distribution of any losses is consistent with the current IPPS system, even after 30 years of operation.

Source: Dobson | DaVanzo analysis of Medicare 2010 Cost Reports
BACPAC BUNDLES:
IMPACT ANALYSES FOR HOSPITAL DISCHARGE-LEVEL CONVENER CATCHMENT AREA
Hospital Discharge-Level Convener Catchment Area: Smaller Catchment Areas Result in Instability and Heightened Provider Risk

Hospitals are unlikely to cede control of their MS-DRG revenue to other hospital conveners, resulting in smaller catchment areas, lower volume, lower stability, and greater risk of loss and access disruption.

Source: Dobson | DaVanzo analysis of 5% sample of Medicare beneficiaries, 2007-2010.

* Low volume providers were trimmed (<60 episodes represented in a 5% sample; n=754 hospitals of 4,236)
Hospital Discharge-Level Convener Catchment Area: Low Volume Conveners could Experience Extreme Losses, Leading to Access Issues

Source: Dobson | DaVanzo analysis of 5% sample of Medicare beneficiaries, 2007-2010.

* Low volume providers were trimmed (<60 episodes represented in a 5% sample; n=754 hospitals of 4,236)
Hospital Discharge-Level Convener Catchment Area: Stop Loss Provisions Attempt to Prevent Dislocation and Access Issues

Even with stop loss, provider risk remains significant in the small catchment area model.

Source: Dobson | DaVanzo analysis of 5% sample of Medicare beneficiaries, 2007-2010.
* Low volume providers were trimmed (<60 episodes represented in a 5% sample; n=754 hospitals of 4,236)
Conclusion

- **Catchment area size matters:**
  - Regional-level convener catchment areas (which would likely be managed by third parties or post-acute care providers) would produce more financially stable bundles than those organized around hospital discharges (which would likely be managed by individual hospitals)
  - Analyses suggest that actuarial stability occurs around 200 episodes within a clinical condition category

- **Focusing a bundle on post-acute care (excluding index hospitalization) would allow for the development and implementation of a bundle and coordinated care networks while mitigating provider risk**

- **A post-acute care bundle triggered by either an HHA, SNF, or IRF admission could be designed that incentivizes clinically appropriate and cost-effective care and generates substantial savings**
Conclusion

• Since models are based on the current FFS system, the variance identified between actual and projected payments should be more muted after care coordination is implemented.

• A series of blends and transitions, as well as an outlier policy, will be required to mitigate provider risk and ensure quality care to patients.
  • The inclusion of the outlier policy doubles the predictive power of the regression analyses.
Next Steps

As our research progresses on how a post-acute care bundle can be designed and implemented, we will further consider the following modifications to the BACPAC bundle:

• Inclusion of LTCH admissions

• Exclusion of planned and unplanned readmissions

• Role of the convener and its interaction with beneficiary choice
Next Steps (cont’d)

- **Inclusion of LTCH admissions**
  - While LTCHs treat very different patients than some of the other post-acute care providers, their inclusion may only minimally impact the average bundled payment rate (due to their low volume)
  - Inclusion of LTCHs would allow for an inclusive “post-acute care bundle” and allow for the appropriate placement of patients into all possible post-acute care settings
  - Exclusion of LTCHS could have considerable political and policy implications for the post-acute care industry given concerns that LTCHs could be appropriately used
Next Steps (cont’d)

- **Exclusion of planned and unplanned readmissions**
  - Over the last several years, the frequency of observation stays in lieu of hospital admissions has increased – a trend we expect to be reversed over time.
  - The inclusion of readmissions could underestimate the existing base bundled payment rate (to the extent that the “readmissions” are billed as observation stays and not captured in the BACPAC payments)
  - If readmissions are excluded from the bundle, providers would need to be dis-incentivized from discharging patients to the hospital to avoid a loss on their bundled payment
    - A possible opportunity could be sharing in the hospital readmission penalty
  - Without the conveners being directly incentivized to reduce readmissions under bundled payments, hospitals might provide more access and resources to conveners prior to the point of hospital discharge to ensure appropriate placement of patients
Next Steps (cont’d)

- **Role of the convener and its interaction with beneficiary choice**
  - Within a hospital there may be multiple conveners representing different post-acute care entities all interested in managing the care for a patient
    - The flow of patients to conveners must be considered and structures must be implemented
  - To ensure beneficiary choice, a patient needs to “choose” to be managed and agree to be treated in network providers
    - This may require beneficiary opt-ins (or opt-outs) to specific bundled payment arrangements
  - Extensive thought must be put into designing a policy that ensures both assignment of patients to conveners and how beneficiary choice will be ensured
Appendices

• Appendix A: Descriptive Statistics for BACPAC and Total Episodes by MS-DRG
• Appendix B: Distributional Statistics for BACPAC and Total Episodes by MS-DRG
• Appendix C: Distribution of Payments by Care Setting for BACPAC Episodes by MS-DRG
• Appendix D: Descriptive Statistics for BACPAC and Total Episodes by Primary Chronic Condition
• Appendix E: Distributional Statistics for BACPAC and Total Episodes by Primary Chronic Condition