

Clinically Appropriate and Cost-Effective Placement (CACEP) Study

Final Report Summary

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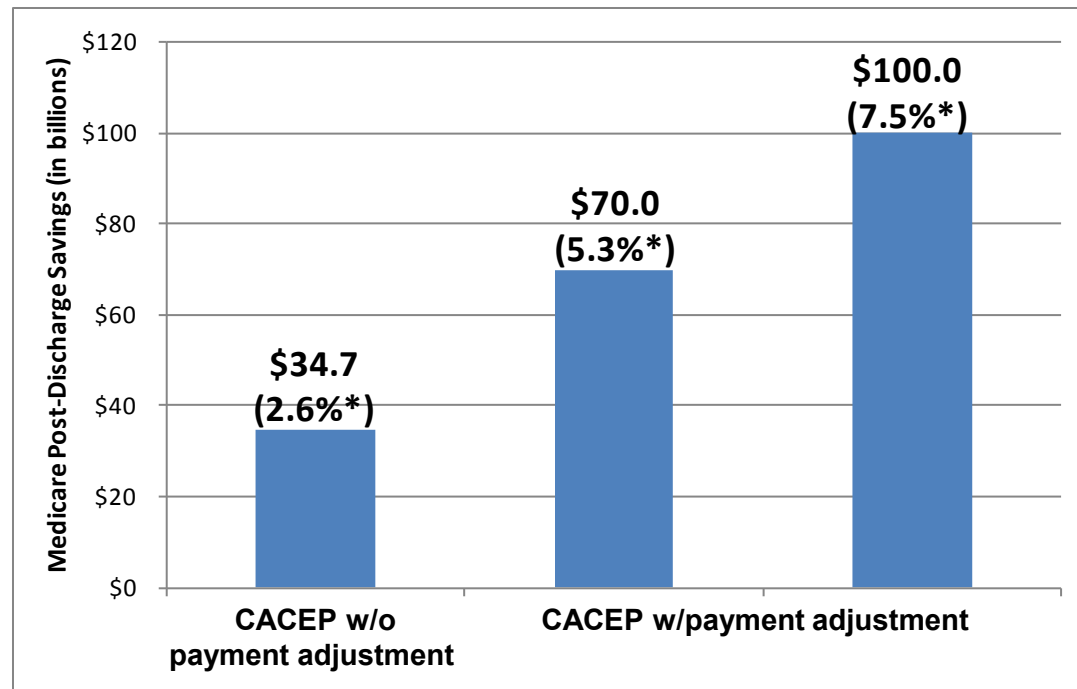
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Study Highlights

- **The Medicare Trust Fund is under considerable strain**
 - The Trust Fund is projected to become insolvent by 2024
- **There is significant opportunity for efficiencies and savings**
 - Index hospital plus post-acute episodes represent >50% of Medicare FFS spending
 - Hospital readmissions double Medicare episode expenditures and patient pathways
 - There is considerable overlap in the distribution and characteristics of patients treated across post-acute care settings
- **Shifting patients into more cost-effective, clinically appropriate settings could achieve substantial Medicare savings**
 - The Trust Fund could be extended by about 2.5 years through clinically appropriate and cost-effective patient placement and restructuring of care delivery

Study Highlights: Savings Projections

Projected Medicare 10-Year Savings (2014-2023)
as a Percent of Medicare Post-Discharge Spending

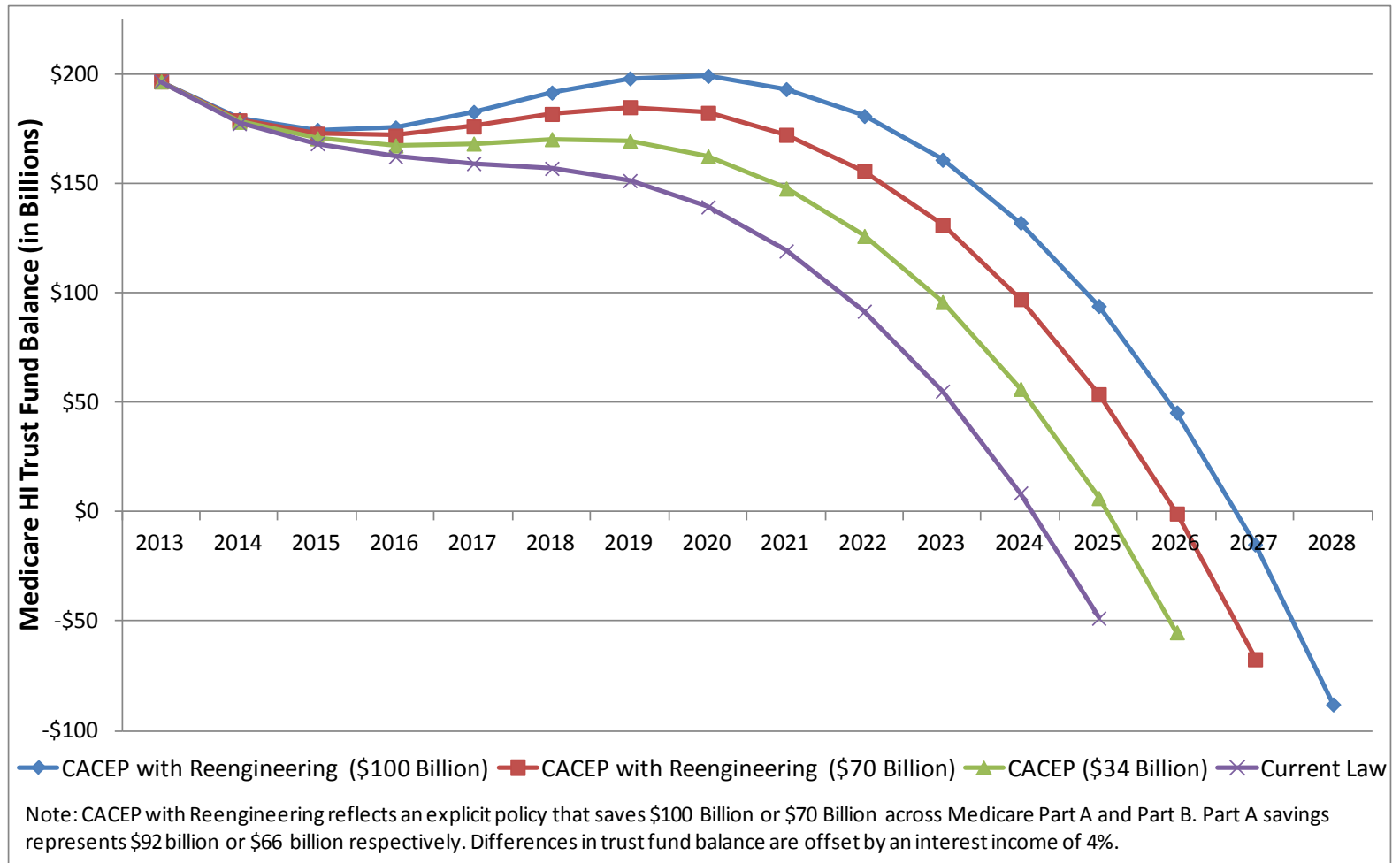


- CACEP-modeled reform could produce \$34.7 billion in Medicare savings (2014-2023) without payment adjustment. With a 5.3% payment adjustment, projected savings reach \$70 billion. With a 7.5% adjustment, projected savings reach \$100 billion.

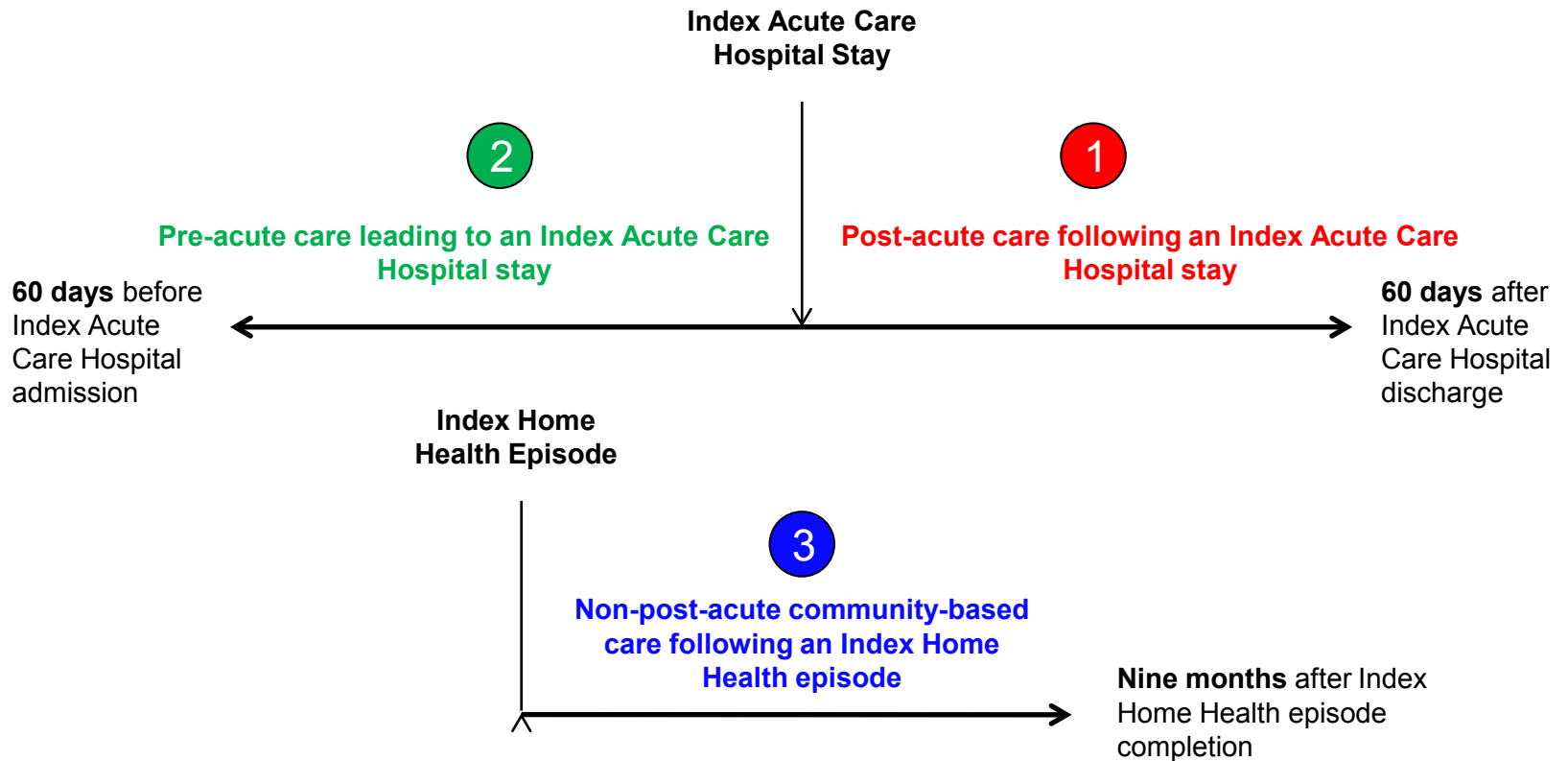
Source: Dobson | DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2008, wage index adjusted by setting and geographic region, and standardized to 2009 dollars.

* Percent of post-acute care spending after discharge from the Index hospital.

Study Highlights: Trust Fund Projections



CACEP Post-Acute Care Episodes



- **Post-acute care episodes (including Index STACH) = >50% of FFS Spending**
- **Post-acute care (HHA, SNF, IRF, LTCH) during episodes = ~20% of FFS Spending**

Key Findings from CACEP Working Paper Series: Episode Frequency & Expenditures

- **Episode frequency is highly concentrated in a relatively few MS-DRGs**
- **Patient overlap across first settings may be considerable**
 - The top MS-DRGs and primary chronic conditions by episode payment and frequency are highly comparable across first settings; therefore, MS-DRGs and chronic conditions may not meaningfully risk-adjust episode payments
- **The variation in the episode payments is driven by differences in post-acute care payments, first setting, and complexity of the bundle (i.e., number of “stops” in patient pathway)**
- **Formal first settings (after index STACH stay) have very different expenditure levels, ordered from HHA as the lowest to SNF, IRF, and then LTCH as the highest**

Key Findings from CACEP Working Paper Series: Patient Pathways & Readmissions

- **Patient pathways comprise the number of sequence “stops” a patient makes across various providers over time once a patient leaves the index STACH**
 - Providers are not accustomed to thinking in terms of pathways, as patients leave the hospital and visit numerous different providers; siloed PPSs encourage this behavior
- **There are many patient pathways within each MS-DRG**
 - More complex pathways are associated with higher Medicare payments
 - Differences in patient pathways drive the expenditure variability by first setting and within and across MS-DRGs
- **Presence of a readmission doubles Medicare expenditures and pathway complexity (i.e., number of sequence stops)**
- **Patient pathways and presence of a readmission is correlated with:**
 - Patient demographics (including functional status)
 - Severity of patient chronic conditions
 - Number of patient comorbidities
 - Medical/surgical distinctions
 - First setting (e.g., HHA vs. SNF vs. IRF vs. LTCH)
 - Region

MS-DRGs Ranked by Medicare Episode Payment Show Considerable Overlap by First Setting

Overall Top 9 MS-DRGs Ranked by Medicare Episode Payment for Post-Acute Care Episodes by Select First Setting (2007-2009)

MS-DRG	Med/Surg	Overall	HHA	SNF	IRF	LTCH
470: Major joint replacement or reattachment of lower extremity w/o MCC	Surgical	1	1	1	1	34
871: Septicemia or severe sepsis w/o MV 96+ hours w MCC	Medical	2	6	3	20	3
291: Heart failure & shock w MCC	Medical	3	2	7	29	9
003: ECMO or trach w MV 96+ hrs or PDX exc face, mouth & neck w maj O.R.	Surgical	4	91	31	10	1
194: Simple pneumonia & pleurisy w CC	Medical	5	9	5	65	22
481: Hip & femur procedures except major joint w CC	Surgical	6	73	2	3	53
292: Heart failure & shock w CC	Medical	7	3	14	63	37
065: Intracranial hemorrhage or cerebral infarction w CC	Medical	8	29	6	2	30
392: Esophagitis, gastroent & misc digest disorders w/o MCC	Medical	9	20	35	125	80

Source: Dobson | DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009, wage index adjusted by setting and geographic region, and standardized to 2009 dollars. Medicare Episode Payment includes care from all facility-based and ambulatory care settings and excludes beneficiary co-payments, DME, and Part D payments.

Frequencies of Primary Chronic Conditions Also Show Considerable Overlap by First Setting

Example: MS-DRG 470

Primary Chronic Condition for MS-DRG 470 (major joint replacement w/o MCC) for Post-Acute Care Episodes (Ranked by Medicare Episode Paid) by Select First Setting (2007-2009)

Primary Chronic Condition	HHA	Overall	SNF	IRF	LTCH	STACH	Community
Rheumatoid Arthritis/Osteoarthritis	1	1	1	2	3	1	1
Osteoporosis	2	2	2	1	1	3	2
Chronic Obstructive Pulmonary Disease	3	5	5	5	7	4	4
CHF* COPD	4	3	3	3	2	2	3
DIABETES* CHF	5	4	4	4	4	5	5
CHF* RENAL	6	6	7	6	5	6	6
None	7	8	9	9	*	10	7
Lung Cancer	8	9	8	8	*	8	9
Hip/Pelvic Fracture	9	7	6	7	6	7	8
Ischemic Heart Disease	10	10	10	10	*	9	10
Depression	11	11	11	12	*	*	12
Cataract	12	12	17	*	*	11	11
Diabetes	13	13	13	13	*	*	15
Chronic Kidney Disease	14	15	16	14	*	*	14
Heart Failure	15	14	12	11	*	*	13

* Primary Chronic Condition not present in this setting

Source: Dobson | DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009, wage index adjusted by setting and geographic region, and standardized to 2009 dollars. Medicare Episode Paid includes care from all facility-based and ambulatory care settings and excludes beneficiary co-payments and Part D payments.

First Setting Selection has a Material Impact on Medicare Program Expenditures

Example: MS-DRG 470

Medicare Episode Payment for MS-DRG 470 (major joint replacement w/o MCC) for Post-Acute Care Episodes by Select First Setting (2007-2009)

First Setting	Number of Episodes	Average Medicare Episode Payment	Difference from Overall Payment
HHA	366,140	\$18,068	\$5,411
SNF	430,240	\$26,861	(\$3,382)
IRF	128,680	\$33,538	(\$10,059)
LTCH	1,080	\$57,896	(\$34,417)
STACH	2,580	\$30,302	(\$6,823)
Community	134,240	\$17,340	\$6,140
Overall	1,062,960	\$23,479	\$0

Source: Dobson | DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009, wage index adjusted by setting and geographic region, and standardized to 2009 dollars. All episodes have been extrapolated to reflect the universe of Medicare beneficiaries. Medicare Episode Payment includes care from all facility-based and ambulatory care settings and excludes beneficiary co-payments, DME, and Part D payments.

Note: ER, OP, OP Therapy, Hospice and Other IP first setting episodes are not included in the overall.

Patient Pathways for Medical Conditions Show More Variation than for Surgical Conditions

Example: MS-DRGs 470 & 291

Overall 5 Most Frequent Patient Pathways for Post-Acute Care Episodes (2007-2009)

MS-DRG 470: major joint replacement w/o MCC

Pathway Pattern	Percent of Episodes	Average Medicare Payment
A-H-C	19.6%	\$17,172
A-S-H-C	12.4%	\$25,073
A-C	7.4%	\$14,003
A-S-C	5.0%	\$22,517
A-I-H-C	4.0%	\$31,839
Subtotal	48.4%	\$20,483
Other	51.6%	\$25,333
Total	100.0%	\$22,986

MS-DRG 291: heart failure & shock w MCC

Pathway Pattern	Percent of Episodes	Average Medicare Payment
A-C	23.8%	\$11,240
A-H-C	7.4%	\$13,111
A	6.6%	\$12,024
A-C-A-C	4.0%	\$24,774
A-S	3.2%	\$21,717
Subtotal	45.0%	\$13,612
Other	55.0%	\$28,078
Total	100.0%	\$21,572

Facility-Based (and Home Health) Sequence Stops:

A=STACH (Index or Readmission)
H=HHA
I=IRF
L=LTCH
S=SNF

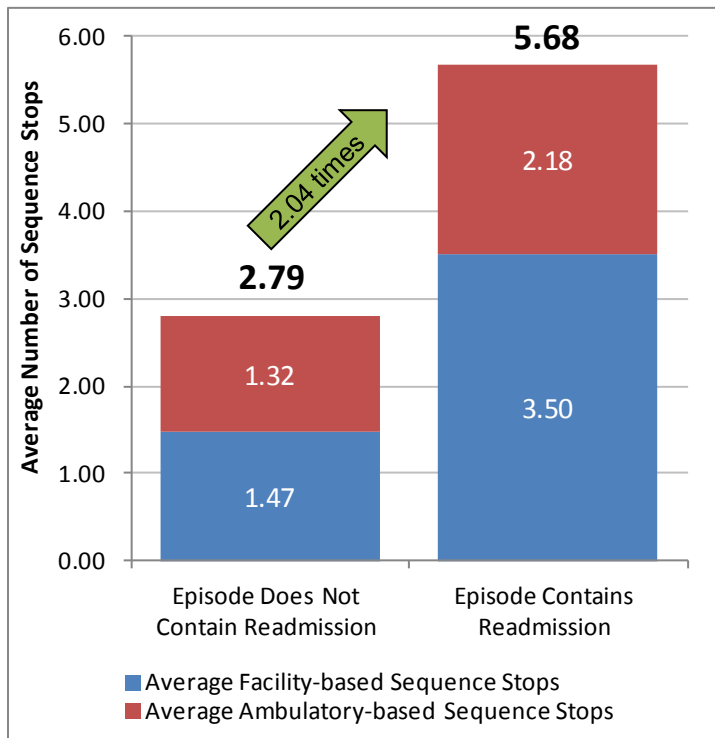
Ambulatory-Based Sequence Stops:

C=Community (Physician and Outpatient)
E=ER
P=OP Therapy
T=Hospice
Z=Other IP

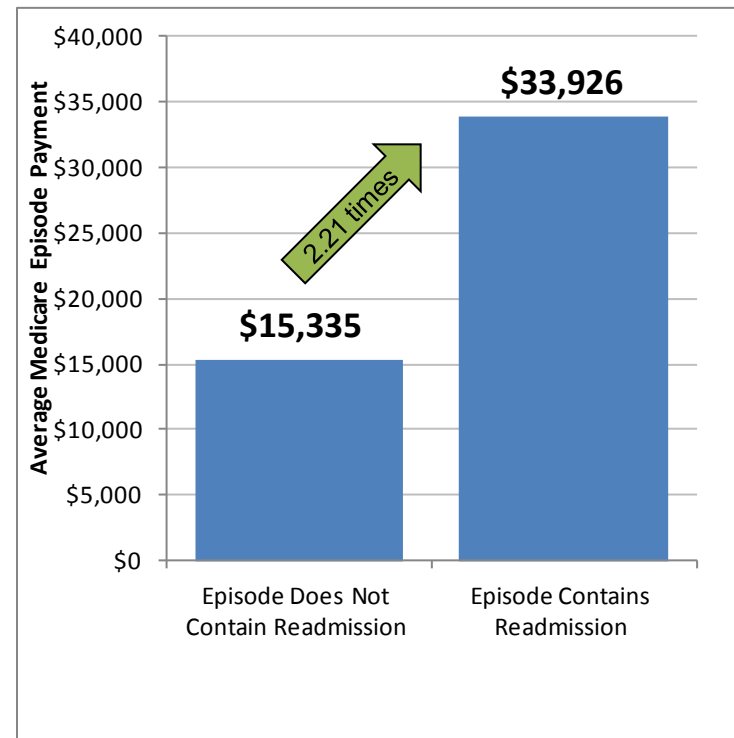
Source: Dobson | DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009, wage index adjusted by setting and geographic region and standardized to 2009 dollars. Average Medicare Episode Payment includes care from all facility-based and ambulatory care settings and excludes beneficiary co-payments, DME, and Part D payments.

Patient Pathways with Readmissions Double Medicare Episode Payments

Average Facility- and Ambulatory-Based Sequence Stops by Readmission Status



Average Medicare Episode Payment by Readmission Status



Source: Dobson | DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009, wage index adjusted by setting and geographic region and standardized to 2009 dollars. Average Medicare Episode Payment includes care from all facility-based and ambulatory care settings and excludes beneficiary co-payments, DME, and Part D payments.

Literature-based Assumptions Guided our Modeling

- **Consistent with our assumptions, Cutler notes:** (Cutler DM, Davis K, Stremikis K, 2010)
 - The “effect of multiple large policy changes may differ substantially from the effects of small trials of single interventions. In such a situation, it is imperative to cast a wider net than traditional standards do.”
- **Thorpe and colleagues also note:** (Thorpe KE, Ogden LL, 2010)
 - “Reform-based initiatives could produce major gains in a relatively short period of time.” Reform, “...demands bold initiatives that are based on the best evidence available and swiftly implemented.”
- **Although full scale programs to test the scalability of local programs do not exist, literature suggests that providers are able to adapt the way care is provided to achieve the required results both for patients and for the Medicare program**

There are various factors that the models do not (and cannot) account for that will influence whether estimated results could actually be achieved. Accordingly, our results must be considered indicative of the general range of savings that could be achieved, rather than definitive predictions of what would happen if specific policies were adopted.

Literature-based Assumptions Guided our Modeling (cont'd)

- **The Veterans Affairs (VA) Home-Based Primary Care (HBPC) program has shown that a national program using existing clinical care tools is able to use home care to produce sizeable savings**
 - In 2002, the VA achieved overall net savings of 24% through the HBPC program, and later replicated these results in 2007
 - Reduction in hospital admissions by 31%, nursing home admissions by 25%, hospital days of care by 80%, and nursing home days of care by 90%

Differences Between VA HBPC & Medicare Home Care are Significant

VA Home-Based Primary Care

Targets complex chronic disease
Comprehensive primary care
Skilled care not required
Strict homebound not required
Accepts declining status
Interdisciplinary team
Longitudinal care
Reduces hospital days
Limited geography & intensity

Medicare Home Health

Remediable conditions
Specific problem-focused
Requires skilled care
Must be homebound
Requires improvement
One or multidisciplinary
Episodic, post-acute care
No definitive impact
Anywhere; anytime

- **The Medicare home health benefit may need to be reconsidered**

Summary of Analytic Model Savings

	One-Year Medicare Savings (in billions) (2008)	Percent of Post-Discharge Spending* (2008)	10-Year Medicare Savings (in billions) (2014-2023)
Restructuring through Clinically Appropriate and Cost-Effective Placement Models			
Model 1A: Cascade of Care to Most Clinically Appropriate and Cost-Effective Setting Model (Hybrid Model)	\$2.5	2.6%	\$34.7
Model 1B: Moderate Restructuring (Reengineering) of Care Beyond CACEP	\$5.1	5.3%	\$70.0
Model 1C: Aggressive Restructuring (Reengineering) of Care Beyond CACEP	\$7.3	7.5%	\$100.0
Hospital Reduction Model for Ambulatory Care Sensitive Conditions			
Model 2: Hospital Reduction Model for Ambulatory Care Sensitive Conditions	\$3.0	1.7%**	\$37.7
Hospital Readmission Reduction Models Within HHA First Setting Episodes			
Model 3: Regional Readmission Reduction Model	\$0.5	0.5%	\$10.3
Model 4A: National Readmission Reduction Model (25%)	\$0.2	0.2%	\$4.2
Model 4B: National Readmission Reduction Model (50%)	\$0.4	0.4%	\$8.3
Model 4C: National Readmission Reduction Model (75%)	\$0.6	0.7%	\$12.5

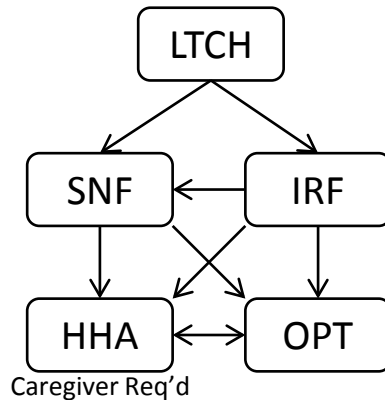
Source: Dobson | DaVanzo analysis of research-identifiable 5% SAF for all sites of service 2008, wage index adjusted by setting and geographic region, and standardized to 2009 dollars.

* Post-discharge spending refers to all spending during the post-acute care episode, excluding the index acute care hospitalization.

** Represents the percent of post-acute care spending and the index acute care hospitalization.

Clinically Appropriate and Cost-Effective Placement (CACEP) Effect

Modeled Patient Shifting



Distribution of Patient Episodes by Current First Setting and Simulated Clinically Appropriate First Setting Among Select MS-DRGs

		Simulated Clinically Appropriate First Setting				
		OP Therapy	HHA	SNF	IRF	LTCH
Current First Setting	OP Therapy	29%	71%			
	HHA	14%	86%			
	SNF	5%	15%	80%		
	IRF	3%	9%	18%	69%	
	LTCH			31%	11%	58%

Source: Dobson | DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2008, wage index adjusted by setting and geographic region.

Clinically Appropriate and Cost-Effective Placement (CACEP) Effect (cont'd)

Change in Distribution of Patient Episodes from Simulated Clinically Appropriate First Setting Among Select MS-DRGs

First Setting	Current First Setting	Clinically Appropriate First Setting
OP Therapy	6.9%	9.5%
HHA	35.8%	43.7%
SNF	45.0%	38.4%
IRF	10.6%	7.5%
LTCH	1.6%	0.9%
Total	100%	100%

Source: Dobson | DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2008, wage index adjusted by setting and geographic region.

Study Implications

- **There is considerable patient overlap across post-acute care settings**
- **Shifting patients to clinically appropriate, lower cost post-acute care settings may optimize care and increase program efficiency**
- **CACEP-modeled reform with payment adjustment could produce additional Medicare savings and extend the Medicare Trust Fund by 2.5 years**
- **The CACEP model may be useful to policymakers as they develop Medicare reform options**

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