Research Update: Summary of Dobson | DaVanzo Research Activities

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PRESENTED BY:
Al Dobson, Ph.D.

PREPARED BY:
Al Dobson, Ph.D. & Audrey El-Gamil

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Dobson DaVanzo & Associates, LLC Vienna, VA 703.260.1760 www.dobsondavanzo.com

Presentation Overview

- **Climate of O&P Industry and Need for Research**
  - O&P's Bang for the Buck: Small Proportion of Care Expenditures but Big Impacts
- **Retrospective Cohort Study: Economic Value of O&P Services Among Medicare Beneficiaries**
  - Purpose and Methodology
  - Economic Value of:
    - Lower Extremity Orthoses
    - Spinal Orthoses
    - Lower Extremity Prostheses
  - Conclusions
- **Ad Hoc Analysis of Important O&P Issues:**
  - Impact of "Upgrading" Prosthetic Patients to Higher K-Level Devices
  - Growth in O&P Services by Provider Type
  - Explaining the Growth in L0631 from 2008 to 2011
  - Use of Custom Orthotics following OTS
- **Discussion**

Climate of O&P Industry and Need for Research

- **The O&P industry has commissioned Dobson | DaVanzo to research a variety of issues to better understand the value of O&P services to Medicare beneficiaries and to the Medicare program and how current policies may be limiting O&P's benefits to beneficiaries**
- **O&P services represent a very small proportion of Medicare spending within an 18-month patient episode but have the ability to change health care utilization patterns and patient outcomes**
  - The cost of the orthotic devices (AFOs, KAFOs, and SOs) represented about 2 percent of total Medicare spending over 18-months
  - In many instances, the cost of the orthotic or prosthetic is amortized over time due to reduced utilization of other health care services
- **As Medicare payment cuts and bundled payment arrangements are considered, payers and providers need to understand the value of O&P services to maximize the benefit to patient outcomes within a given budget**

RETROSPECTIVE COHORT STUDY:
ECONOMIC VALUE OF O&P SERVICES AMONG MEDICARE BENEFICIARIES

Purpose and Methodology

- **Our study has one main research objective:**
  - To determine the financial benefit to government and private payers when a person with limb impairment or limb loss attains restored mobility through receipt of O&P services
- **Analysis was based on a dataset capturing four years of Medicare claims data (2007-2010) for a custom cohort of study (O&P users) and comparison group patients (non-users) (2.4 million beneficiaries total)**
- **Potential study group patients were required to have received one of the following O&P services and to have a specified etiological diagnosis**
  - Lower extremity orthoses
  - Spinal orthoses
  - Lower extremity prostheses

Methodology in Brief

- **Patients were required to have at least one-year of claims prior to receiving O&P service to allow for risk-adjustment, and a minimum of 18 months of post-service claims available**
- **CMS provided a custom pull of claims for comparison group patients, who were matched many-to-one to study group patients using propensity score matching techniques based on patient demographic and clinical characteristics (etiological diagnosis and comorbidities), prior health care utilization, and mortality**
- **Matched pairs were compared on measured outcomes including Medicare payments (PMPM and overall), prevalence of fractures and falls, use of physical therapy, and ER and hospital admissions**

Lower Extremity Orthoses: Summary of Findings

- **Study group patients who receive lower extremity orthoses had:**
  - fewer falls and fractures
  - fewer emergency room admissions
  - reduced cost to Medicare
- **Medicare episode payments were $2,920 – or 10 percent – less than the comparison group (including the price of the orthotic) ($27,007 vs. $29,927)**
- **Study group patients were able to sustain more rehabilitation, and were able to remain in their homes as opposed to needing placement in facility-based settings**

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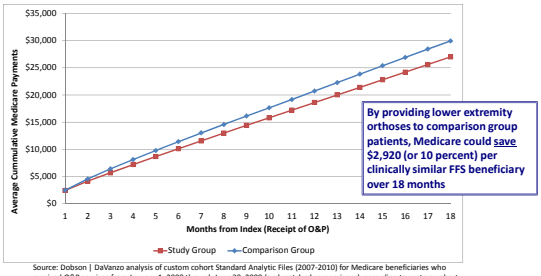
7

Lower Extremity Orthoses: Cumulative Medicare Payment

Lower Extremity Orthoses: Cumulative Medicare Episode Payment by Cohort (18 Month Episodes from 2008-2010)



Source: Dobson | DaVanzo analysis of custom cohort Standard Analytic Files (2007-2010) for Medicare beneficiaries who received O&P services from January 1, 2008 through June 30, 2009 (and matched comparisons), according to custom cohort database definition.

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8

Spinal Orthoses: Summary of Findings

- **Study group patients who received spinal orthoses had Medicare episode payments that were $93 (or 0.3 percent) lower than comparison group patients ($32,598 vs. $32,691)**
- **Study group patients had a higher rate of ambulatory and home-based care (as opposed to facility-based care)**
  - This could suggest that the use of spinal orthoses allows patients to remain mobile and independent in their homes
- **Study group patients had a slightly higher prevalence of fractures and falls, which may have been due to their increased ambulation and mobility**
  - The comparable rate of ER admissions and Medicare payments for study and comparison group patients suggests that the fractures and falls did not result in facility-based care

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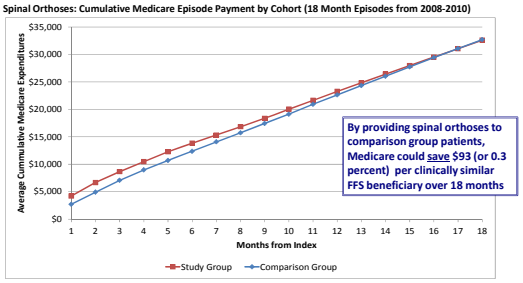
9

Spinal Orthoses: Cumulative Medicare Payment

Spinal Orthoses: Cumulative Medicare Episode Payment by Cohort (18 Month Episodes from 2008-2010)



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10

Lower Extremity Prostheses: Summary of Findings

- **Study group patients who received lower extremity prostheses were more likely to receive home health or extensive outpatient therapy than to receive facility-based care**
  - Study group patients had slightly higher rates of fractures and falls (likely due to increased ambulation)
  - Despite the higher rates of fractures and falls, study group patients experienced fewer acute care hospitalizations and less facility-based care
- **Study group patients who received prosthetics have only slightly higher total Medicare payments ($728, or just 1 percent) over the 12 month episode than those who do not ($68,040 vs. 67,312)**
  - Cost of device was nearly amortized by the end of 12 months
- **Patients could experience better quality of life and increased independence compared to patients who did not receive the prosthetic at essentially no additional cost to Medicare or to the patient**

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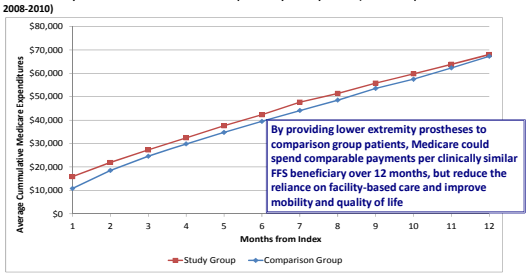
11

Lower Extremity Prostheses : Cumulative Medicare Payment

Lower Extremity Prostheses: Cumulative Medicare Episode Payment by Cohort (12 Month Episodes from 2008-2010)



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12

Conclusions

- **Results of our rigorous propensity score matching suggest that patients who received O&P services, generally had:**
  - Fewer hospital admissions and facility-based admissions
  - More outpatient rehabilitative therapy visits
  - Comparable or lower Medicare episode payments
- **Analyses suggest that patients who received O&P services may have experienced more fractures and falls, but this was likely due to increased ambulation attributed to the device**
  - The more frequent fractures and falls were not associated with a significant increase in ER admissions (or higher overall costs)
- **Across all O&P services, the cost of the device was nearly, if not completely, amortized over the study period**
- **This suggests that the reduction in health care utilization exceeded the cost of the O&P services, increasing quality of life for the patient and reducing the cost to the Medicare program**

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AD HOC ANALYSIS OF IMPORTANT O&P ISSUES

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Impact of "Upgrading" Prosthetic Patients to Higher K-Level Devices

- **Purpose is to determine if patients who received "upgraded" prosthetic devices (i.e., devices beyond their functional limitation assessment indicated on the claims) achieved different clinical outcomes and/or Medicare payments over 18-months compared to patients who received the "appropriate" prosthetic devices**
- **Patients who either: 1) received a prosthetic device that exceeded, or 2) received a prosthetic device that was appropriate for the functional limitation assessment reported on the claim was included in the analysis (n=8502 patients)**
  - An example of a patient who received an "upgraded" device is a patient assigned as a K-1 or K-2 but received a device with a minimum functional assessment of K-3

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Impact of "Upgrading" Prosthetic: Descriptive Statistics

- **95 percent of patients are identified as K-2 or K-3**
- **K-3 patients had, on average, lower Medicare episode payments than K-2 patients**
  - K-3 patients generally had higher DME, but lower SNF and HHA spending over the episode
  - The overall reduction in utilization across settings resulted in lower overall Medicare payments over the episode
- **Patients who received upgraded devices had, on average, lower Medicare episode payments than those who received appropriate devices (not due to Medicare payment denials)**
  - Higher deltas (e.g., 2+) had significantly higher DME payments but lower health care utilization in other settings such as physician visits, outpatient care, hospitalizations, SNF, and IRF stays

K-Level Distribution (All Devices)

K-Level	Percent of Patient Episodes	Average Post-Period Medicare Payment
1	3.4%	$79,809
2	30.9%	$81,513
3	64.5%	$79,967
4	1.2%	$78,664
Total	**100%**	**$80,423**

Distribution of K-Level Delta (All Devices)

Delta K-Level (Received Minus Appropriate Level)	Percent of Patient Episodes	Average Post-Period Medicare Payment
0 (approp.)	70.3%	$ 81,115
1	23.5%	$ 80,892
2+	6.2%	$ 70,723
Total	**100%**	**$ 80,423**

Source: Dobson DaVanzo custom cohort analysis of Medicare beneficiaries across all care settings (2006-2009)

- **Providing an upgraded device to Medicare beneficiaries may result in comparable, or even lower, overall health care utilization, compared to receiving the appropriate level prosthetic device**
- **The cost of the prosthetic device is fully amortized during the 18-month episode and does not result in higher overall Medicare spending**

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Impact of "Upgrading" Prosthetic: Regression Results

- **Across all devices, with the exception of the prevalence of patient falls, there is no statistically significant difference in the 18-month outcomes (including Medicare payment) of patients fitted with one-level upgraded devices and those with appropriate devices**
- **Among L5321 users, patients fit with an upgraded device experienced more falls and SNF admissions than patients fitted with an appropriate K-Level device, but have statistically lower Medicare payments over an 18-month episode period**

Regression Risk Adjusted Difference in Patient Outcomes for Patients Receiving One-Level Device Upgrade Compared to Patients Receiving Appropriate Devices

	Percentage Point Difference in Probability (1) or Mean Difference in Average Value (2) (Upgrade minus Appropriate)			
Outcome Variable	**All Devices**	**L5301**	**L5321**	**L5540**
Mortality Rate (1)	-0.14%	0.04%	-0.02%	-0.13%
Falls (2)	0.064*	-0.026	0.140*	0.102*
Fractures (2)	0.030	-0.143	0.065	0.003
ER Visits (2)	0.048	-0.031	-0.085	0.343*
Physical Therapy Visits (2)	-0.123	0.204	-0.228	0.223
Occupational Therapy (2)	-0.113	-0.047	-0.077	-0.027
IP Admissions (2)	0.029	0.114	-0.056	0.058
SNF Admission Probability (1)	0.76%	2.15%	5.18%*	-5.91%*
Total Medicare Payment (2)	-$1,212	$2,002	-$3,508*	-$401

(1) The percentage point difference in the probability of the outcome (positive percent indicates upgraded patients are more likely to experience the outcome).
(2) Difference in the average value of the outcome (positive number indicates increased utilization of the outcome)
* Statistically significant
Source: Dobson DaVanzo custom cohort analysis of Medicare beneficiaries across all care settings (2006-2009)

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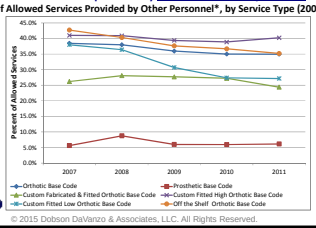
Growth in O&P Services by Provider Type

- **Purpose is to determine the extent to which Medicare is reimbursing non-certified O&P personnel in select states with a licensure statute for selected O&P services (Florida, Illinois, Texas)**
  - CMS should only pay for O&P services for Medicare beneficiaries from practitioners and suppliers that meet state O&P licensure laws
- **From 2007-2011, only about one-third (32.3 percent) of Medicare allowed services for O&P base codes were billed by certified O&P personnel**
  - About 63.8 percent of O&P services were provided by either certified O&P personnel or physicians
- **About 36.2 percent of O&P services were provided by other non-certified personnel**

Percent of Allowed Services Provided by Other Personnel*, by Service Type (2007-2011)



Note: Other Personnel excludes certified O&P Personnel and Physicians, who are exempt from licensure laws. OT/PT professionals are included in the analysis although they are typically excluded from licensure requirements as well.

Source: Dobson | DaVanzo analysis of DME services for 5% sample of Medicare beneficiaries (2007-2011), extrapolated to universe of Medicare beneficiaries.

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Use of Custom Devices following Receipt of OTS Devices

- **Among patients who received OTS devices, 19 percent subsequently received custom fit/fabricated devices**
  - Among TLSO and LSO patients who received the custom device after the OTS, almost all patients received a custom fitted device
  - About two-thirds of AFO patients received a custom fabricated device
- **This suggests that 19 percent of patients may have received duplicative care by first receiving the OTS, only to then receive a custom device**
  - The progression of a medical condition or the immediate need for care to be followed by a custom device may account for a small proportion of these patients

Distribution of OTS Patients who Subsequently Received Custom Fabricated or Fitted Orthotics (2008)

		Received OTS as First Orthotic Device		Subsequently Received Custom Fitted/Fabricated Device	
Type	Total Patients	Patients	Percent of Total Patients	Patients	Percent of OTS Patients
TLSOs	20,408	1,519	7.4%	163	10.7%
LSOs	197,906	19,917	10.1%	3,372	16.9%
AFOs	268,232	56,959	21.2%	11,359	19.9%
Total	486,546	78,395	16.1%	14,894	19.0%

Distribution of Custom Fitted and Custom Fabricated Orthotics among OTS Patients who Subsequently Received Custom Devices (2008)

	Subsequently Received Custom Fitted/Fabricated Device	Received Custom Fitted		Received Custom Fabricated	
Type		Patients	% of OTS Patients	Patients	% of OTS Patients
TLSOs	163	147	90.2%	16	9.8%
LSOs	3,372	3,306	98.0%	66	2.0%
AFOs	11,359	3,454	30.4%	7,905	69.6%
Total	14,894	6,907	46.4%	7,987	53.6%

Source: Dobson | DaVanzo analysis of custom cohort Standard Analytic Files (2007-2010) for Medicare beneficiaries who received O&P services from January 1, 2008 through December 31, 2008.

TLSO - Thoracic Lumbar Sacral Orthosis
LSO – Lumbar Sacral Orthosis
AFO – Ankle Foot Orthosis

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Growth in L0631 by Non-Certified Personnel

- **According to an OIG report, Medicare claims for L0631 back orthoses more than doubled from 2008 to 2011**
- **Analysis of Medicare claims data indicated that billing of L0631 increased annually by 37% across provider types**
  - Only 17 percent of all L0631 services are billed by certified O&P personnel (45K/273K)
  - About 60 percent of services are provided by medical supply companies (w/o certified O&P), which doubled its allowed services from 2008 to 2011 (166K/273K)
  - Physicians, Other providers, OT/PTs, and Labs increased allowed services more than 50 percent annually
- **This suggests that non-certified O&P personnel providing L0631 is the driver of the increase in Medicare services**

Allowed Services of L0631 by O&P Classification (2008-2011)

	Allowed Services by Year					Annual Growth Rate
Provider	2008	2009	2010	2011	Total	
Certified O&P Personnel	6,307	9,241	14,837	15,518	45,903	35%
non-O&P	33,944	45,192	60,838	87,681	227,655	37%
Total	40,251	54,433	75,675	103,199	273,558	37%

Allowed Services of L0631 by Supplier Classification (2008-2011)

	Allowed Services by Year					Annual Growth Rate
Supplier Classification	2008	2009	2010	2011	Total (2008-2011)	
Medical Supply	28,610	33,999	42,229	61,495	166,333	29%
Cert. O&P Personnel	6,307	9,241	14,837	15,518	45,903	35%
Physician	4,535	7,357	11,228	16,066	39,186	52%
Other	*	*	6,095	8,005	17,456	1070%
OT/PT	270	393	764	972	2,399	53%
Lab	*	*	522	1,143	1,758	946%
Pharmacy	*				*	-
Hospital	*				*	-
Total	40,251	54,433	75,675	103,199	273,558	37%

Source: Dobson | DaVanzo analysis of Physician Supplier Procedure Summary Master File (2008-2011).

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Discussion

- **The O&P industry has faced many obstacles as non-certified providers treat a larger share of O&P patients than certified providers**
- **Overall allowed charges for O&P providers generally increased from 2011 to 2012, but there was a slight decrease in the proportion of allowed claims submitted by certified O&P providers**
  - Growth in services (largely by non-certified providers) has brought the appropriateness of payment and value of the services into question by CMS and OIG
- **Both recently completed and current research studies conducted by Dobson | DaVanzo aim to demonstrate the value of O&P services to beneficiaries and to the Medicare program**
  - Current studies underway:
    - Analysis of patient outcomes by provider type: Do patients who receive O&P service from certified professionals have different outcomes than those who are treated by medical supply companies and physicians
    - Projection of future demand of O&P professionals over the next 10 years (commissioned by NCOPE)
    - Publication of retrospective cohort study findings in peer-reviewed journal

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Dobson DaVanzo & Associates, LLC (Dobson|DaVanzo) is a health economics consulting firm based in the Washington, D.C. metropolitan area

Contact information:
(703) 260-1762
al.dobson@dobsondavanzo.com
www.dobsondavanzo.com

450 Maple Avenue East, Suite 303
Vienna, VA 22180

Dobson|DaVanzo