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Utilization of Custodial Nursing Homes by Elderplan Social HMO Members: Predicting Expected Rates using Medicare Health Outcomes Survey Data

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Study Questions

1. How does risk-adjusted nursing home utilization compare between Elderplan and other MA plans?
   - While NH utilization was similar or somewhat lower in Elderplan overall, long term nursing home residence was much lower in Elderplan while short-term nursing home utilization was higher.
2. Is there evidence that the plan members' home care benefit utilization directly offset nursing home utilization?
   - Dividing Elderplan's 2004 frail membership into cohorts based on usage of personal care workers, nursing home utilization went down substantially as personal care utilization increased.
   - This is despite the much higher frailty of the higher home-care-utilizing cohorts.

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About Elderplan

- Enrollment of about 17,000 (up from 9,000 in 2002)
- Over 30% Frail, “Nursing Home Certifiable”
- Benefit package in 2004 included up to $7800 in chronic care benefits, including personal care services, which are the lion’s share of CCB service utilization and expenditure.

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Elderplan has Extremely Low Nursing Home Residence Rates Compared to General Medicare Population

- Average point-in-time level of nursing home residence (100 days or more) approximately 1/6 the New York State average (.7% vs. 4.6%) from 2001 to 2004.
- This is despite Elderplan's higher than average age and frailty.
  - Comparing Medicare Current Beneficiary Survey in 2002 compared to Elderplan HOS in 2002, Elderplan has 40-100% higher ADL levels.
- Question: How would this result hold up in comparison to other MA plans?

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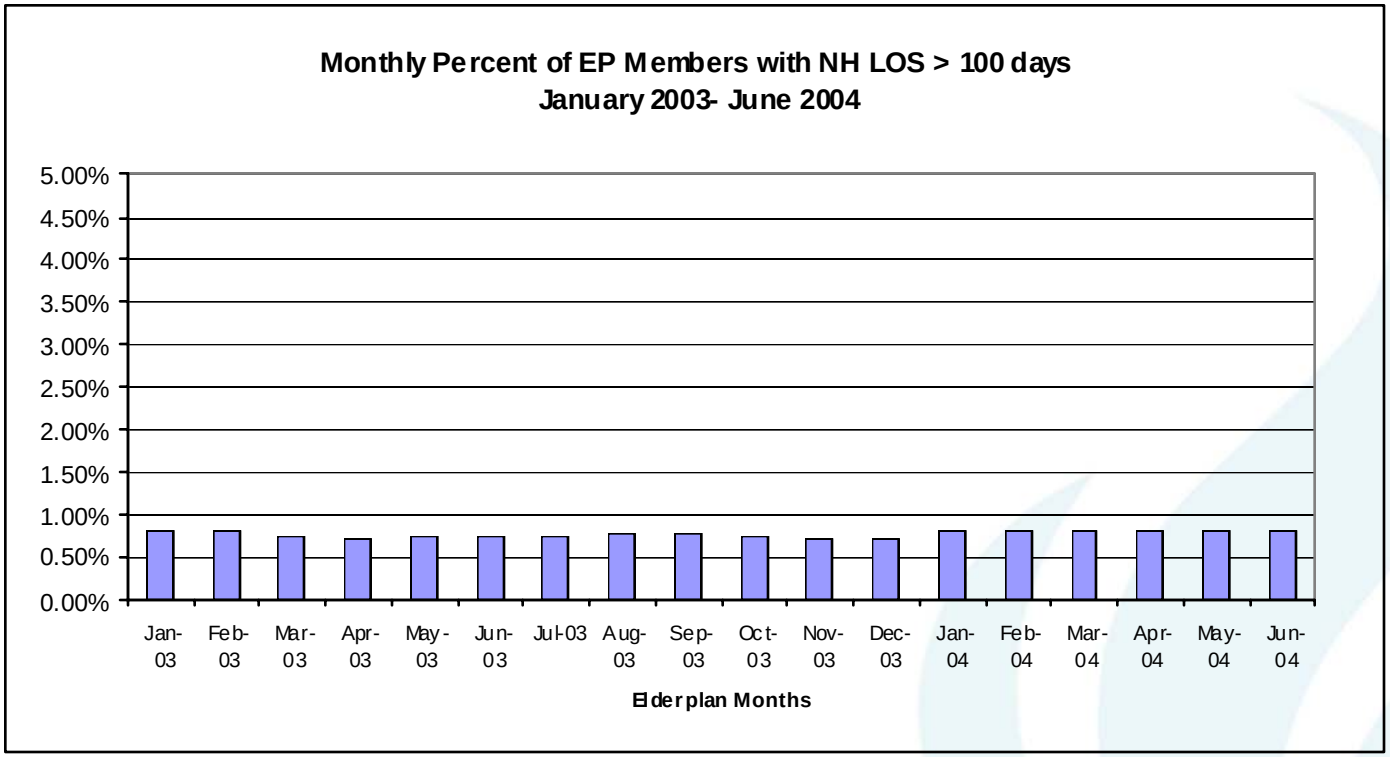
Elderplan has Extremely Low Nursing Home Residence Rates Compared to General Medicare Population



- Average point-in-time level of nursing home residence (100 days or more) approximately 1/6 the New York State average (.7% vs. 4.6%) from 2001 to 2004.This is despite Elderplan's higher than average age and frailty based on comparison of HOS to MCBS.
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Is EP Nursing Home Residence low because the nursing home residents disenroll?

- There is some disenrollment effect, but it is small: it adds an additional .3% to EP's .7% NH residence rate.
  - An additional 1% of plan members disenroll every year while residing in a nursing home for 30 days or more.
  - Adjusting for broader plan disenrollment rates, these disenrollments add about .3% to the Elderplan nursing home residence rate.

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Health Outcomes Survey

- A longitudinal, self-administered survey of Medicare Advantage enrollees
  - Beneficiaries are randomly sampled from each plan and surveyed every spring
  - Two years later, these same respondents are surveyed again
- Purpose to identify health care status of Medicare+Choice enrollees
- Independent Evaluation completed in December 2004
  - Concluded that the HOS data are valid, reliable, and that the HOS Program has been effective in meeting its goals.
- Wave IV – 2001-2003

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The Harris Model of HOS-based predictors of NH Utilization

- Sample
  - HOS self-respondents
  - Wave III (1999-2001)
- Linked HOS with MDS, OSCAR, EDB
- Method—Cox
  - Cox Proportional Hazards Regression Model was used to predict the risk of entering a nursing home
- Various models were tested to determine the final variables
  - Independent Variables - Predisposing, Enabling, Need-Based
  - Dependent Variable - Nursing Home Admission

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Applying This Model—Part I

- Harris used only those who filled out HOS Survey themselves for her analysis.
  - In order to mirror her analysis, we needed to isolate nursing home utilization of individuals who filled out the HOS themselves, dividing groups by responder type—that is, self-responders and proxy responders. (HOS Data file w/ Beneficiary Information) We also wanted to see the difference in NH utilization between self and proxy responders and both relative to non-responders.

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Applying This Model—Part II

- At first, we tried to use our HOS sample as all MA plans receive it from CMS—that is, de-identified. This presented a number of problems. We used HOS sample measures for some independent variables and had to use plan-wide measures for others.
- Although individual-level data is also sent by CMS routinely to plans who request it, this is an incomplete, de-identified HOS sample in which we could not account for outcomes among those who did not fill out or who incompletely filled out their survey in its second administration.
- To resolve the issue described above, we submitted a DUA to with CMS, requesting the entire set, including "non-responders" (n=1000).
  - This allowed us to track utilization among those who did not fill out a second survey.
  - We then did the analysis analysis based on a three –way grouping determined by the baseline variable "C4WHOCMP":

1. Self-responders (Harris method)
2. Proxy-responders
3. Non-responders

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Complicating Factors of Applying This Model

- Harris drew on National MDS Sample for Nursing Home utilization. We draw on Elderplan claims for post-acute and payment codes for long-term NH.
- Therefore, disenrollment is a censoring event for us and not for Harris. We have superficially adjusted for disenrollment.
- Harris does not distinguish between short-term and long-term NH stays. Because Elderplan's long-term stays are seemingly low relative to short-term stays, this is a key area of analysis.
  - Harris assumed that about 50% of stays in her sample become long-term stays (> 100 days), reflecting widespread national trends over decades. (e.g. J. Kasper "Who Stays and Who Goes", Kaiser Family Foundation, 2005)
  - However, with the growth of post-acute rehab in nursing homes, more recent estimates indicate that only 40% of nursing home admissions "convert" to custodial nursing home stays.

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The Harris Model of HOS-based predictors of NH Utilization

Covariate	Min	Max	National Average-- Harris Model
MHS	0	1	48.00
Felt Sad	0	1	0.18
CA	0	1	0.13
CHF	0	1	0.06
AMI	0	1	0.10
pulmonary	0	1	0.12
arthritis	0	1	0.48
DM	0	1	0.15
CVA	0	1	0.06
ADLs	0	6	0.77
Age	65	102	74.00
Gender (M)	0	1	0.42

Covariate	Min	Max	National Average-- Harris Model
Latino	0	1	0.04
Black	0	1	0.06
Asian	0	1	0.01
Divorced/Separated	0	1	0.07
Widowed	0	1	0.30
Never Married	0	1	0.05
Medicaid Eligible	0	1	0.02
30-50k income	0	1	0.18
Greater than 50k	0	1	0.09
Home Ownership	0	1	0.84
Nursing Home Utilization Rate			8%

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Elderplan's Baseline HOS vs. MA Average

HOS-based Model	RR	HR	harris mean	self EP (n=319)	Self-Responders Compounded Rate	proxy EP (n=107)	Proxy-Responders Compounded Rate	all EP (n=426)	All-Responders Compounded Rate
MHS	1.20	1.01	48.00	52.05	8.40%	57.33	8.94%	53.39	8.53%
Felt Sad	64.60	1.65	0.18	0.23	8.60%	0.40	9.96%	0.27	8.93%
CA	16.60	1.17	0.13	0.09	8.55%	0.11	9.93%	0.09	8.88%
CHF	41.90	1.42	0.06	0.04	8.49%	0.11	10.12%	0.06	8.88%
AMI	9.10	1.09	0.10	0.08	8.48%	0.12	10.14%	0.09	8.87%
pulmonary	31.60	1.32	0.12	0.12	8.47%	0.13	10.17%	0.12	8.88%
arthritis	6.10	1.06	0.48	0.49	8.48%	0.64	10.27%	0.52	8.90%
DM	45.00	1.45	0.15	0.17	8.53%	0.26	10.68%	0.19	9.03%
CVA	36.40	1.36	0.06	0.04	8.47%	0.18	11.06%	0.07	9.06%
ADLs	26.80	1.27	0.77	1.06	9.08%	2.35	16.10%	1.38	10.48%
Age	9.70	1.10	74.00	77.10	12.10%	79.85	27.68%	77.79	14.88%
Gender (M)	10.00	1.10	0.42	0.40	12.08%	0.42	27.68%	0.40	14.86%
*Latino	-22.90	0.77	0.04	0.01	12.19%	0.04	27.70%	0.01	14.96%
*Black	-7.40	0.93	0.06	0.23	12.03%	0.21	27.40%	0.22	14.78%
*Asian	-40.20	0.60	0.01	0.01	12.06%	0.00	27.54%	0.01	14.82%
*Other	-31.80	0.68	0.03	0.01	12.15%	0.09	26.91%	0.01	14.93%
Divorced/Separated	44.40	1.44	0.04	0.10	12.29%	0.08	27.35%	0.10	15.10%
Widowed	-8.70	0.91	0.25	0.41	12.15%	0.51	26.69%	0.44	14.91%
Never Married	83.30	1.83	0.13	0.11	12.41%	0.28	29.16%	0.09	15.17%
Medicaid Eligible	25.40	1.25	0.02	0.05	12.49%	0.16	30.09%	0.08	15.36%
30-50k income	-10.90	0.89	0.18	0.07	12.66%	0.05	30.55%	0.06	15.58%
Greater than 50k	-21.80	0.78	0.09	0.02	12.86%	0.03	31.00%	0.03	15.82%
Missing Income	24.90	1.25	0.12	0.17	13.02%	0.21	31.63%	0.18	16.04%
Home Ownership	-20.90	0.79	0.84	0.50	14.09%	0.49	34.33%	0.50	17.38%

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Nursing Home Utilization Outcomes

NH Rates	EP Individual Level HOS File--All (n=426)	EP Individual Level File--Self-Responders (n=319)	EP Individual Level File--Proxy-Responders (n=107)	EP Individual Level HOS -- Non-Responders (n=574)	National Average--Harris Model
Expected Nursing Home Utilization Rate		**14.4%**			**8.2%**
Actual Nursing Home Utilization Rate	15.4%	14.1%	20.5%	15.9%	8.2%
Disenrollment adjustment	0.98	0.99	0.97	0.96	
Actual Nursing Home Rate Adjusted for Disenrollment	**15.7%**	**14.2%**	**21.1%**	**16.6%**	**8.2%**
Expected Long-Term Nursing Home Utilization Rate		**5.8%**			**3.3%**
Actual Long-Term Nursing Home Utilization Rate	**3.0%**	**1.9%**	**6.5%**	**4.0%**	**?**
Actual Adjusted Long-Term Nursing Home Utilization Rate	**3.1%**	**1.9%**	**6.7%**	**4.2%**	**?**
% = Custodial / All NH Admissions	**22%**	**13%**	**33%**	**26%**	**~40%**

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Results of HOS Analysis—All Nursing Home Stays

- Elderplan had slightly lower nursing home admission rates than would have been predicted looking at whole plan membership and available (continuously enrolled) individual HOS responders. Looking only at the individual, continuously enrolled self-responders, Elderplan is equal to the predicted rate.
- However, long-term nursing stays were much lower than would be expected based on national MA trends.
- It appears from this data that direct custodial admissions and conversions of short-term post-acute stays into long-term stays are lower in Elderplan than in other MA plans on a risk-adjusted basis.

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Analysis continued…

- New York as a whole has low Medicare SNF utilization, high nursing home residence
- Elderplan showed the opposite pattern—high Medicare SNF utilization, very low nursing home residence, even compared to other managed care plans .

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Next step: Looking at NH Use and Personal Care Utilization

- Long-Term Nursing Home Days:
  - Within Nursing Home Certifiable (NHC) population, a 2004 total of 140 Chronic (Status Code 01) Nursing Home Stays of Greater than 100 Days.
  - 56 out of 140 (40%) long-term stays among PCW Users, while PCW users only 23% of NHCs.
  - But Frailty Index is much higher among PCW users (.39 vs. .15).

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PCW Benefit is Going to Frailest Members

- Within NHC Population, Average Frailty Score (from the HSF Frailty Index) for PCW Utilizers is .39. Average Frailty for non-PCW utilizers is .15 (2004)
- Same for HCCs:
  - PCW Utilizers: 1.61
  - Non-PCW Utilizers: 1.28
- PCW costs also go up with frailty score. The Frailty score has a 30% correlation with PCW costs among PCW users. There is a small (8%) correlation with HCC.

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As PCW Hours go up in 2004, Long-Term Nursing Home Stays Go Down

- Effect is above $2400 in PCW Benefits: that is, more than one visit per week.
- Long-term NH Stays identified by Status Code 01 (Chronic Institutional) for 100 Days or more.
- Both NH Days and NH Stays go down dramatically with PCW.

PCW Users with annual utilization above this amount	Avg LTC Stays*1000 MPY
$1,000	61
$1,700	59
$2,400	59
$3,200	54
$4,000	49
$4,800	41
$5,600	27
$6,400	12

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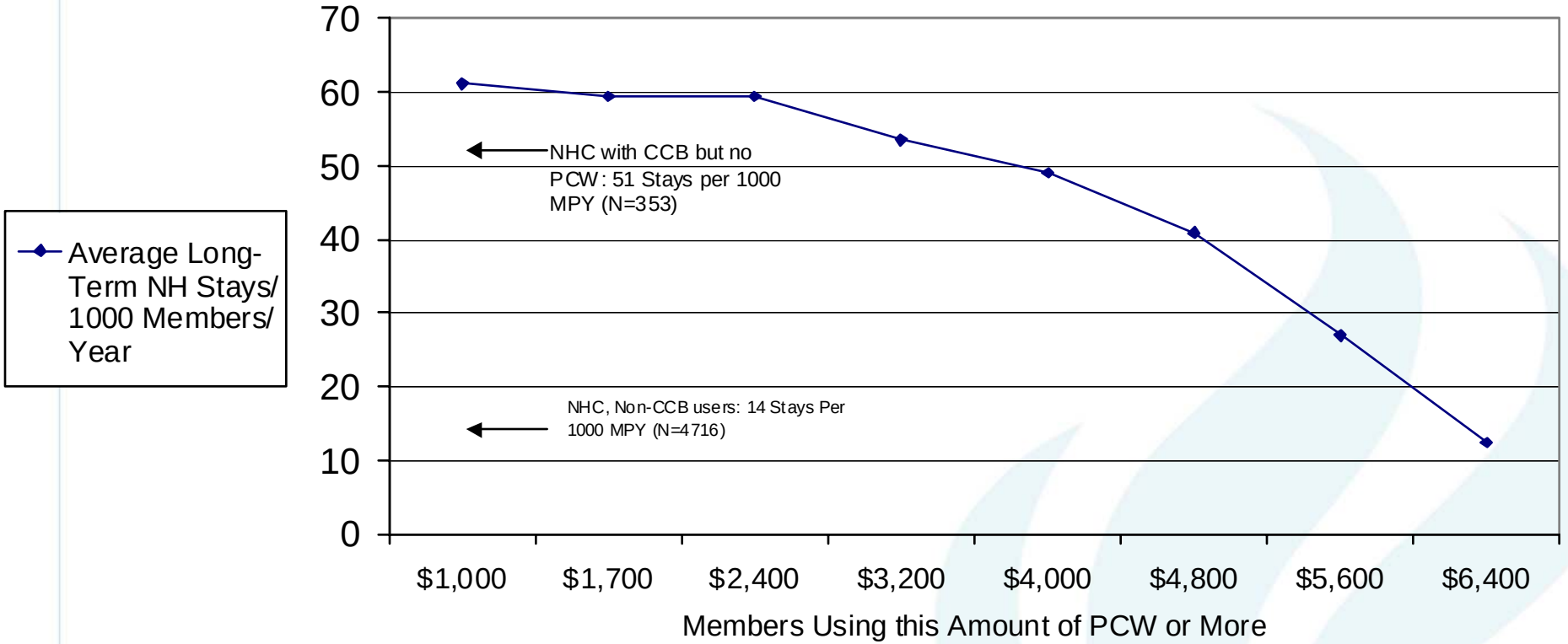
As PCW Hours Go Up, Long-Term NH Stays Go Down

(Non-Medicaid EP Members, broken out by PCW Cost Level)



High Levels of PCW Utilization Also Correlated With Lower Hospitalizations

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(Non-Medicaid PCW Users, Hospitalizations per year per member, 2004)