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How Effective is Disease Management for Chronically Ill Medicaid Beneficiaries?

Results from California's Disease Management Pilot Program on
Expenditures and Utilization

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November 2, 2011

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Presenter Disclosures

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- (1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

“No relationships to disclose”

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California Medicaid Disease Management Pilot Program (DMPP)

- A three-year pilot program to deliver disease management (DM) services to adult fee-for-service Medicaid beneficiaries in two California counties.
- Intervention consisted of targeted telephonic evaluation and counseling provided by a third-party vendor to beneficiaries having one or more of six common chronic conditions.
- Intervention was targeted based on vendor-defined risk categories, with those in the highest risk category (~10%) given an initial health assessment and ongoing telephone counseling intended to improve self-management of all chronic conditions.

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Evaluation Goals

- To determine if DM produced significant reductions in expenditures compared to beneficiaries in a comparison group of 8 California counties matched according to beneficiary demographic characteristics, utilization, and spending.
- To determine if DM produced significant changes in major utilization measures, independent of whether it produced reductions in expenditures.

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Data and Sample

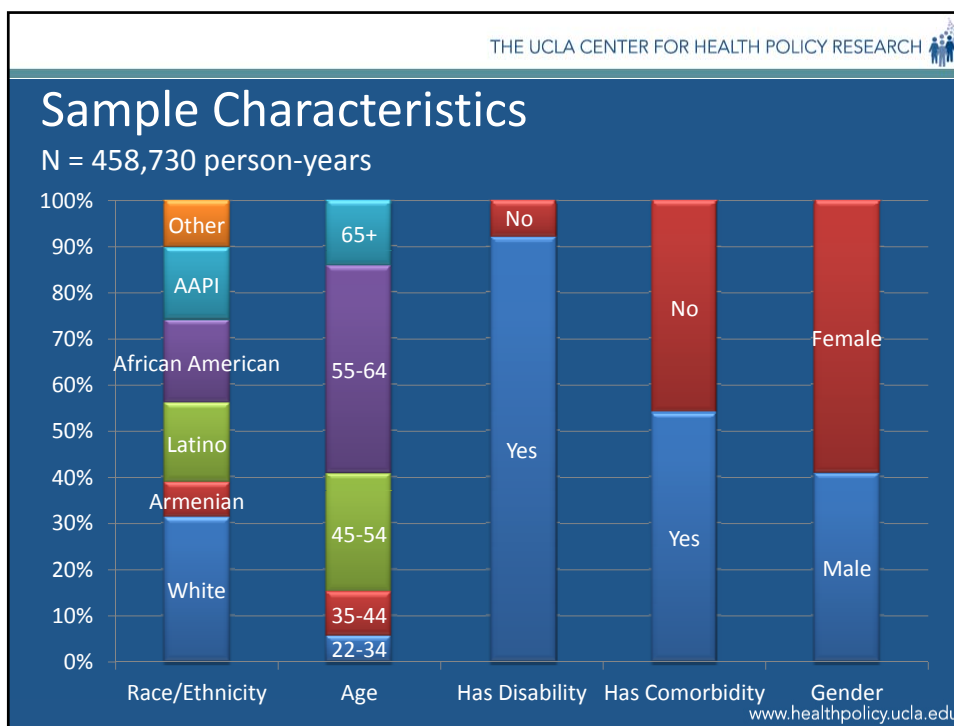
- 5 years of California Medicaid claims
 - Pre-period data from 9/1/04 8/31/07, prior to implementation of DM pilot program
 - Post-period data from 9/1/07 to 8/31/09
- Intervention group: Alameda and Los Angeles counties
 - Comparison group: Fresno, Riverside, Sacramento, San Bernardino, San Diego, San Francisco, San Joaquin, and San Clara counties
- Adult FFS beneficiaries ages 22 and older, with full scope benefits
- Targeted 6 chronic conditions: asthma, diabetes, CHF, ADS, CAD, COPD
 - CAD and ADS combined in this analysis because of small sample sizes
- Exclusions include dialysis, transplant, cancer, HIV/AIDS, HMO beneficiaries, and American Indians
- Final sample size: 364,679 observations (person-years)
 - 104,400 unique individuals: 39,451 (intervention) and 64,949 (control)


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Analysis Variables

- Major Covariates
 - Race/ethnicity: White (ref. group), Latino, African American, Asian American/Pacific Islander (AAPI), other
 - Gender
 - Age: 22 to 34, 35 to 44, 45 to 54, 55 to 64, 65 and older (ref. group)
 - Disabled eligibility status (vs. other)
 - Comorbidity with at least one other DMPP condition (vs. none)
 - Months of annual enrollment
 - Chronic Disease and Disability Payment System (CDPS) risk score
 - Propensity score adjustment for residing in a DMPP county
- Outcome variables (per year)
 - Total expenditures
 - Hospitalizations
 - Total hospital inpatient days
 - Emergency room visits
 - Outpatient (outpatient hospital, clinic, physician) visits

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Sample Characteristics

Variable	Mean	Std. Dev.
Annual Expenditures	\$8,619	\$15,034
\$ > 0	0.923	0.277
IP use > 0	0.165	0.371
IP admits	0.288	0.905
IP days	1.762	7.342
ER use > 0	0.276	0.447
ER visits	0.679	2.087
OP use > 0	0.717	0.451
OP visits	5.081	6.011
CDPS Risk Score	1.171	0.872

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Analytic Methods

- Difference-in-Difference analysis (pre/post*intervention/control)
- All models stratified by disease
- Analyses adjusted for multiple observations per person
- Confidence intervals bootstrapped using 1,000 replicates

Expenditures

- 1) Probability of $\$ > 0$ → Logistic regression
- 2) Probability of hospitalization if $\$ > 0$ → Logistic regression
- 3) Total $\$$ if hospitalized → Generalized linear models (GLMs) with log link function and gamma distribution
- 4) Total $\$$ if not hospitalized → Generalized linear models (GLMs) with log link function and gamma distribution

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Analytic Methods

Inpatient (IP) Utilization

For those with $\$ > 0$:

- IP use > 0 → Logistic regression
- Number of IP admissions → Zero-truncated Poisson regression
- Number of IP days → Zero-truncated negative binomial regression

Emergency Room (ER) Utilization

For those with $\$ > 0$:

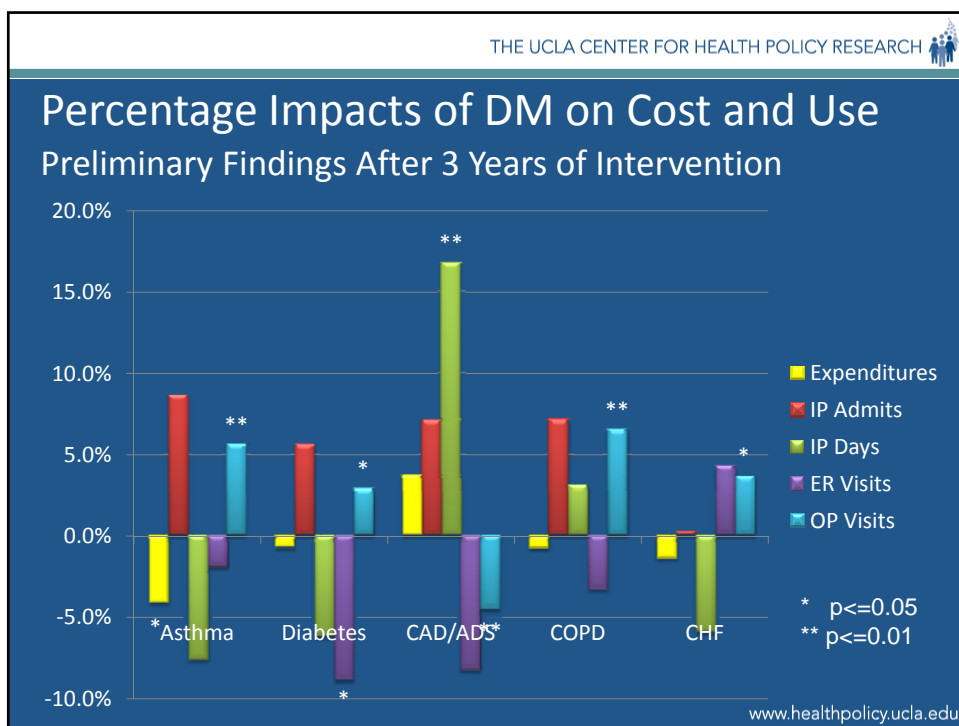
- ER use > 0 → Logistic regression
- Number of ER visits if ER use > 0 → Zero-truncated Poisson regression

Outpatient (OP) Utilization

For those with $\$ > 0$:

- OP use > 0 → Logistic regression
- Number of OP visits if OP use > 0 → Zero-truncated Poisson regression

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Conclusions

- California's DM pilot program produced significant savings in only one of the five chronic illnesses.
 - Reduced ER visits and increased OP visits were expected, increased IP admits were not.
- Telephonic DM services provided by third-party vendors may be less effective unless coordinated with the patient's primary care provider.
- As California's SPD beneficiaries begin transitioning from FFS to managed care in 2011, there is an ongoing need to evaluate DM services for this segment of the Medi-Cal population.

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