



Impact of Interruptions in Public Insurance Coverage on Utilization and Expenditures by Enrollees with Depression

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Medicaid

- Medicaid is a joint federal/state health insurance program in the US
- Serves as the primary source of health insurance for millions of the poor and medically indigent
- Previous studies have demonstrated that Medicaid coverage significantly improves access to health care for the poor

Medicaid Coverage

- Generally assumed that access to care and continuity of care no longer a problem when enrolled in Medicaid
- Nationally, < 20% of Medicaid enrollees continuously enrolled over four-year period
 - Nearly two-thirds become uninsured when Medicaid coverage is lost

Interruptions in Coverage

- Interruptions in coverage may occur because of requirements to reenroll after a fixed period of time
- Individuals may have trouble navigating through paperwork and bureaucracy to renew coverage
 - Enrollees with depression may especially have trouble with these requirements

Loss of Medicaid Coverage

- Little is known about what happens to enrollees who have interruptions in coverage
 - Previous study showed greater inpatient utilization among Interrupted Medicaid beneficiaries with schizophrenia
- Loss of Medicaid coverage was shown to have a detrimental effect on health care utilization in other studies
 - Resulted in poorer outcomes
 - Loss of a usual source of care

Conceptual Model

- When individuals with depression lose coverage
 - Access to care will drop
 - Utilization of treatment will decline
 - Health status will decline to a point where expensive acute care services are needed
 - To get reimbursed, hospitals will help patients reenroll in Medicaid

Hypotheses

- H1: Individuals with depression who experience interruptions in coverage will have greater utilization of acute care services (emergency room visits, inpatient hospitalizations) during periods following an interruption in coverage
- H2: Greater use of expensive acute care services will lead to higher Medicaid expenditures during periods following an interruption in Medicaid coverage

Data

- Claims and eligibility data from January 1999 to December 2002 from Florida Medipass (a primary care case management program)
- Identified individuals with depression based on diagnoses assigned by providers on claims in 1999
 - All individuals with a claim with a diagnosis corresponding to major depression or dysthymia were included (296.2, 296.3, 300.4)
 - Identified 52,907 individuals with depression

Interruptions in Coverage

- Individuals with depression identified as having an interruption in coverage
 - Must have experienced 32 or more consecutive days without Medicaid coverage followed by a period of at least three months of coverage
 - A full month was chosen because persons can be retroactively enrolled for that 1-month period
- The analysis included all individuals with depression who experienced at least one interruption in coverage
 - N=5,199

Analytic Approach

- Medicaid enrollees with depression serve as their own control
 - Medicaid utilization and expenditures for the three-month period immediately preceding an interruption in coverage are compared to utilization and expenditures during the three-month period immediately following an interruption in coverage

Dependent Variables

- Four dependent variables were examined in the analysis
 - Number of inpatient episodes
 - Total length of inpatient stay (for those who had at least one inpatient episode)
 - Number of emergency room visits
 - Total Medicaid expenditures

Independent Variables

- Two variables corresponding to interruptions in coverage were used
 - Dummy variable for post-interruption
 - Total length of the interruption
- Analyses also controlled for age, gender, race, urban/rural, disability status

Statistical Analyses

- Number of inpatient episodes and number of emergency room visits were modeled using negative binomial regression
- Length of stay was modeled using exponential regression
- Total expenditures used a two-part model
 - Logit and gamma regression
- Differences in utilization and expenditures between the pre-interruption and post-interruption period and 95% CI of the differences were calculated

Characteristics of Interruptions

Mean # of interruptions	1.2
Mean length of interruptions	273 days
Number of interruptions	
One	4,309
Two	695
Three	97
Four	14
Five	4

Results for Inpatient Episodes and Length of Stay

	Inpatient Episodes		Length of Stay	
	IRR	P-value	TR	P-value
Post-Int.	1.94	<.001	1.10	.505
Length	1.00	.871	1.00	.148
Age	1.00	.854	1.00	.514
Male	0.61	<.001	0.93	.617
White	1.43	.002	0.90	.378
Disabled	1.61	<.001	1.45	.006
Rural	0.81	.171	0.82	.206

Results for Number of ER Visits

	IRR	P-value
Post-interruption	166.10	<.001
Length of interruption	1.00	.526
Age	0.99	.022
Male	0.43	<.001
White	1.44	<.001
Disabled	1.15	.140
Rural	1.08	.365

Results for Total Medicaid Expenditures

	Any Expenditures		Expenditures Use	
	Coeff	P-value	Coeff	P-value
Post-Int.	-.829	<.001	.222	<.001
Length	-.001	<.001	.0003	.079
Age	.010	.093	.018	<.001
Age ²	-.0002	.011	-.00004	.402
Male	-.436	<.001	-.037	.540
White	.152	.018	.108	.038
Disabled	-.032	.698	.488	<.001
Rural	-.143	.108	-.104	.109

Change in Utilization/Expenditures

	Pre-Int	Post-Int	Change	95% CI
Hospital Episodes	.045	.087	+.041	(.028,.054)
Length of Stay	6.1	7.7	+1.6	(-0.1,3.3)
ER Visits	.003	.490	+.487	(.453,.524)
Expenditures	1,098	1,260	+162	(51,271)

Conclusions

- Utilization of acute care services significantly increase following a temporary loss in coverage
- Per member per month expenditures increase by about \$55 after an interruption in coverage
- Provides indirect support that individuals with depression have trouble accessing care during periods of interrupted coverage (not directly tested)

Implications

- Beneficiaries with depression who experience interruptions are likely to experience poor outcomes
- More research is needed, but might want to reconsider eligibility policies for beneficiaries with chronic conditions such as depression

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