

First Mailed Educational Intervention to Physicians Reduced Pharmacy, Hospital & Outpatient Costs

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Jack Gorman, M.D.

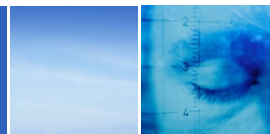
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18th Annual Mental Health Agency Services Research Conference

February 11, 2008



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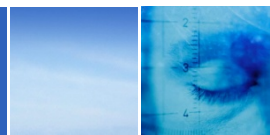
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Harold Carmel, M.D.

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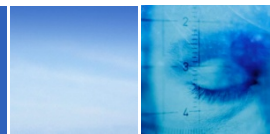


Outline

Introduction

Methodology and Results

Discussion and Perspective

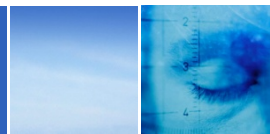


Outline

Introduction

Harold Carmel, M.D.

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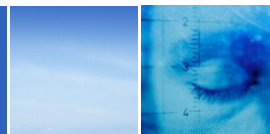
CNS Overview -- Introduction

Founded:	March 1999
Headquarters:	21 Bloomingdale Road White Plains, NY 10605
Employees:	400 in 12 offices and 8 states nationwide
Business Divisions:	Clinical Drug Development and Care Management Technologies
Clients:	Government Agencies, Pharmaceutical & Biotechnology Companies Healthcare Organizations
Internet:	<i>www.cnswebsite.com</i>

CARE MANAGEMENT TECHNOLOGIES

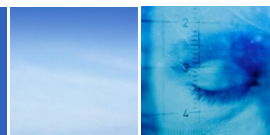
Evolution of Products

- **Behavioral Pharmacy Management (BPM)**
- **Behavioral Care Optimization (BCO)**
- **Health Care Optimization (HCO)**

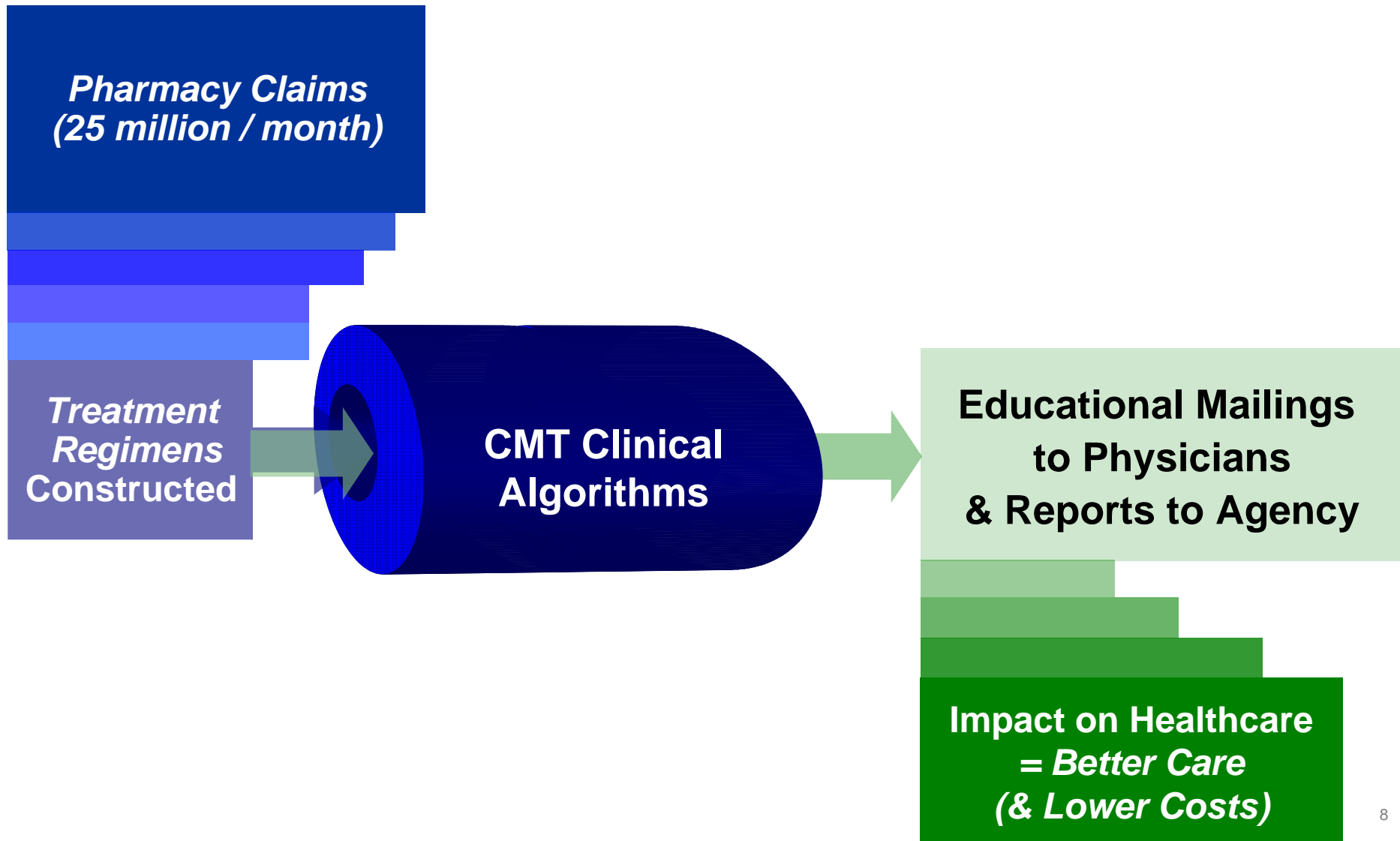


CARE MANAGEMENT TECHNOLOGIES

- **Currently providing services in 22 states**
- **Adding commercial health plan customers**
- **Expanding information technology capabilities**
- **Online Analytics**



Behavioral Pharmacy Management (BPM)

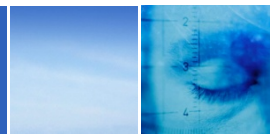


Behavioral Pharmacy Management (BPM) Program



Clinical Algorithms = Quality Indicators™

- **Evidence-based**
- **Expert Consensus**



Expert Consensus Guidelines

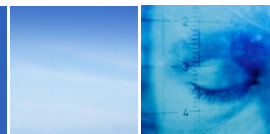


Care Management Technologies
 Disease management solution for people with serious mental illness

Educational Mailings = Clinical Considerations™

- **Intended As “News You Can Use”**
- **Includes:**

**Clinical Issue
Clinical Considerations
References**

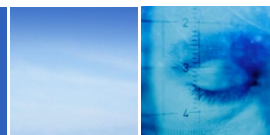


Use of 2 or More SSRI's for 60 or More Days

CLINICAL ISSUE	CLINICAL CONSIDERATIONS	REFERENCES
<ul style="list-style-type: none"> ■ Combining SSRIs offers no additional benefit when compared with an adequate dose of one agent. ■ Increased risk of side effects may contribute to poor adherence. ■ May reflect failure to discontinue ineffective treatment or interruption of cross-titration. 	<ul style="list-style-type: none"> ■ If you haven't already, please consider assessing whether each medication has been tried at the optimal therapeutic dose for sufficient time before adding any new medication. ■ If you haven't already, please consider ensuring that, when switching medications, the first medication is discontinued. ■ If there is a clinical need for a second antidepressant (for example, in treating comorbid anxiety and depression or residual depressive symptoms), if you haven't already, please consider using agents with complementary mechanisms of action, rather than two SSRIs. ■ If you haven't already, please consider reviewing medication use and adherence with patient and/or family. ■ If you haven't already, please consider reviewing the original diagnosis and consider revising treatment to reflect the current clinical formulation, including comorbid psychiatric and physical disorders. ■ If you haven't already, please consider psychosocial interventions; cognitive-behavioral therapies may improve treatment response. ■ If you haven't already, please consider referral for psychiatric consultation (if you are not a psychiatrist). 	<ul style="list-style-type: none"> ■ Shelton RC. The use of antidepressants in novel combinations. <i>J Clin. Psychiatry</i> 2003; 64 (Suppl. 1):14-18. ■ Stahl SM. Basic mechanisms of antidepressants, Part 1: Antidepressants have several different mechanisms of action. <i>J Clin. Psychiatry</i> 1999; 59 (Suppl. 4):5-14. ■ Trivedi MH et al. Algorithm for the treatment of chronic depression. <i>J Clin. Psychiatry</i> 2001; 62 (Suppl. 6):22-29. ■ Suppes T, Dennehy EB, Hirschfeld RM. The Texas Implementation of Medication Algorithms: Update to the algorithms for bipolar disorder. <i>J Clin. Psychiatry</i> 2005; 66 (7):870-886. ■ Hollon SD, Jarrett RB. Psychotherapy and medication in the treatment of adult and geriatric depression. <i>J Clin. Psychiatry</i> 2005; 66:455-468.

Physicians Are Invited to Provide Feedback

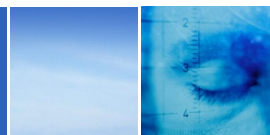
- **Can Be Used By State**
- **Used By CNS for Performance Improvement**



Development

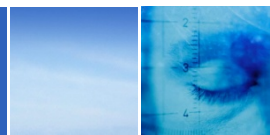
- **Clinical Development Committee**
 - Internal

- **Editorial Board**
 - National Experts
 - Chaired by Chris Reist, MD (Vice Chair of Psychiatry, University of California, Irvine)



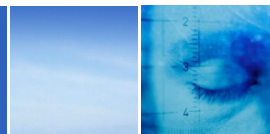
Principles

- **Use existing data sets**
- **Supportive of physicians**
- **Intervention is educational**
- **Continuous quality improvement**
- **Provides data analysis and operational support to State**



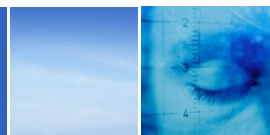
Goals

- **Improve quality of care**
- **Improve coordination among physicians**
- **Improve patient response**
- **Decrease risks**



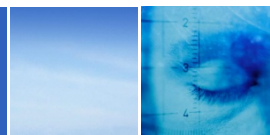
Assumptions

- **Prescribing within evidence base results in better patient outcomes**
- **Most physicians will *voluntarily* prescribe within quality standards when they know what they are**



Assumptions

- **Many states use Behavioral Pharmacy Management as part of comprehensive set of interventions**
- **For example, peer-to-peer consultation can be effectively used**



Quality Indicators

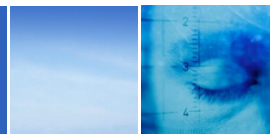
- **Categories:**

High Risk

Redundancy

Continuity & Coordination of Care

**– also: Bipolar
Antipsychotics**



- **More generally:**

Multiple Medications

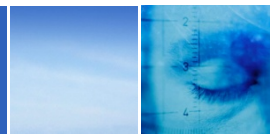
Dose (High- and Low-)

Safety

Multiple Prescribers (patient behavior)

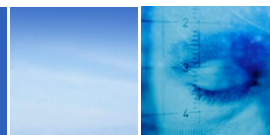
Failure To Refill (patient behavior)

Practice Guidelines



Drug Categories

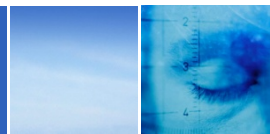
Antipsychotics	Antidepressants
Benzodiazepines	Mood Stabilizers
Opiates	Insomnia Agents
Psychotropics (in general)	ADHD meds



Behavioral Pharmacy Management (BPM)

BPM is Award-Winning

- **The Missouri Mental Health Medicaid Pharmacy Partnership was awarded the American Psychiatric Association 2006 Bronze Achievement Award for success in improving the quality of prescribing practices for psychiatric medications and patient outcomes.**
- **Funding: through a contract between Eli Lilly & Co. and Comprehensive NeuroScience Inc.**
- **An alliance of the Missouri Dept. of Social Services' Div. of Medical Services, the Missouri Dept. of Mental Health, and Comprehensive NeuroScience, Inc.**



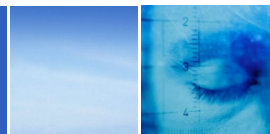
Outline

Methodology and Results

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Problem

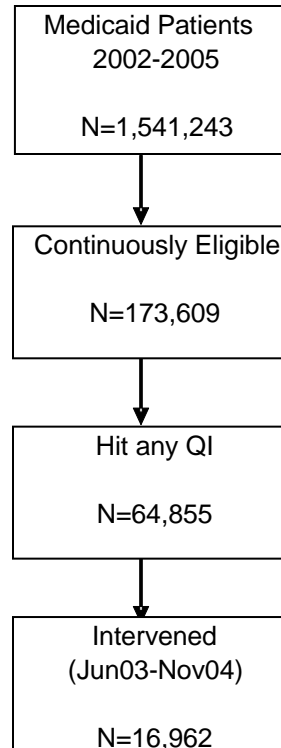
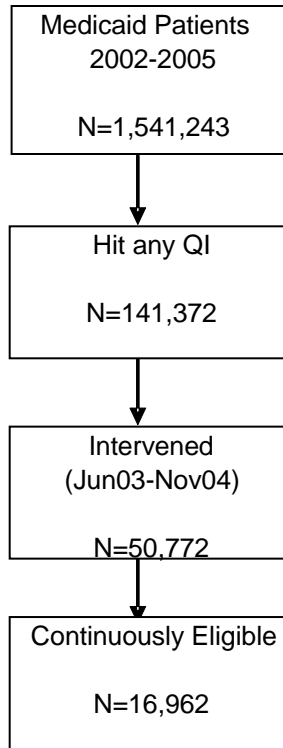
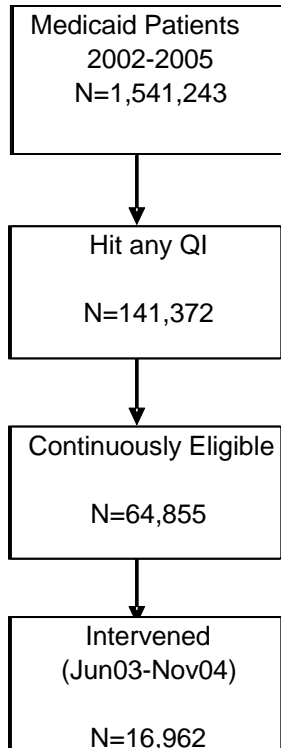


- Need to determine effect of CNS product
- Randomization
- Propensity score matching
- Scope of intervention

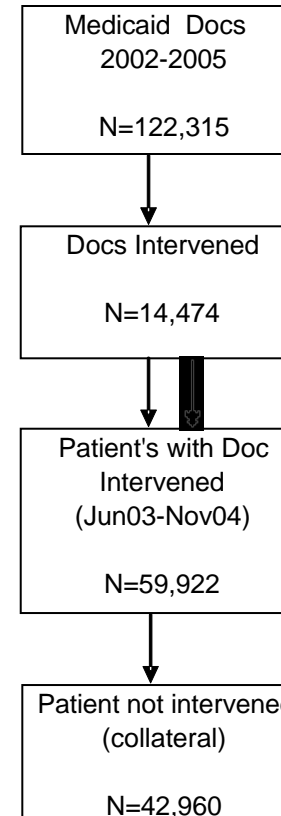
Study Population



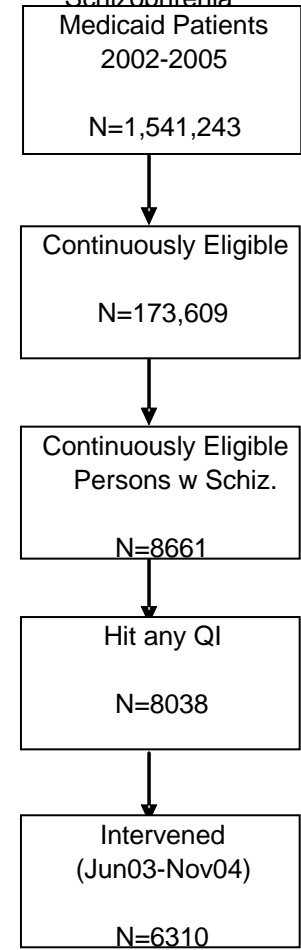
All Intervened Patients



Collateral Patients



Persons with Schizophrenia



Study Population



Cohort (mailing)	Mailing Date	Number patients Mailed	Number Collateral Patients Not Mailed	Number Schizophrenic Patients Mailed
First	1-Jun-03	2013	18606	804
Second	29-Aug-03	495	1457	209
Third	22-Oct-03	5694	6819	2465
Fourth	15-Dec-03	1939	675	742
Fifth	5-Feb-04	1053	1486	319
Sixth	15-Mar-04	653	911	137
Seventh	11-May-04	1597	1268	564
Eighth	3-Jun-04	717	459	229
Ninth	9-Jul-04	571	441	166
Tenth	4-Aug-04	535	349	154
Eleventh	29-Nov-04	1695	10489	521
Total		16,962	42,960	6310

Methodology



- Mixed linear model used
- Factors in the model included cohort and intervention
- Time since mailing included as a covariate
- Time was centered at the time of intervention so that time 0 represented the time of the intervention for a given cohort

Methodology



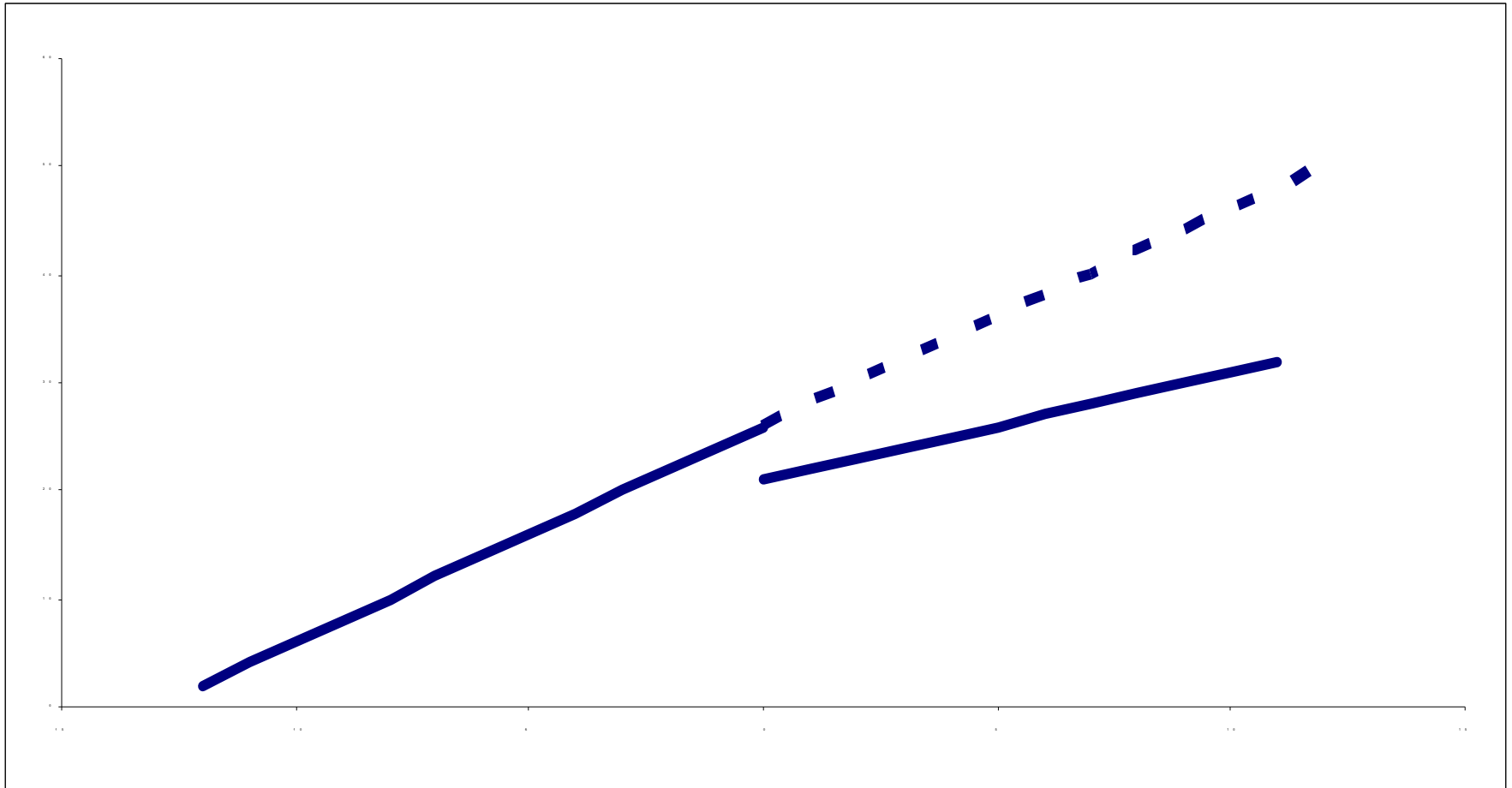
- Patients included as a random effect over time.
- Correlation between months estimated via Compound Symmetry covariance structure.
- Degrees of Freedom were adjusted using Kenward-Rogers methodology.
 - Due to the number of patients this had minimal effect.

Methodology



- All Patients:
 - Continuously Active Throughout Study Period
 - Were Being Mailed On (To Their Physician) For The First Time

Method 1 (predicted “pre”)



Methodology

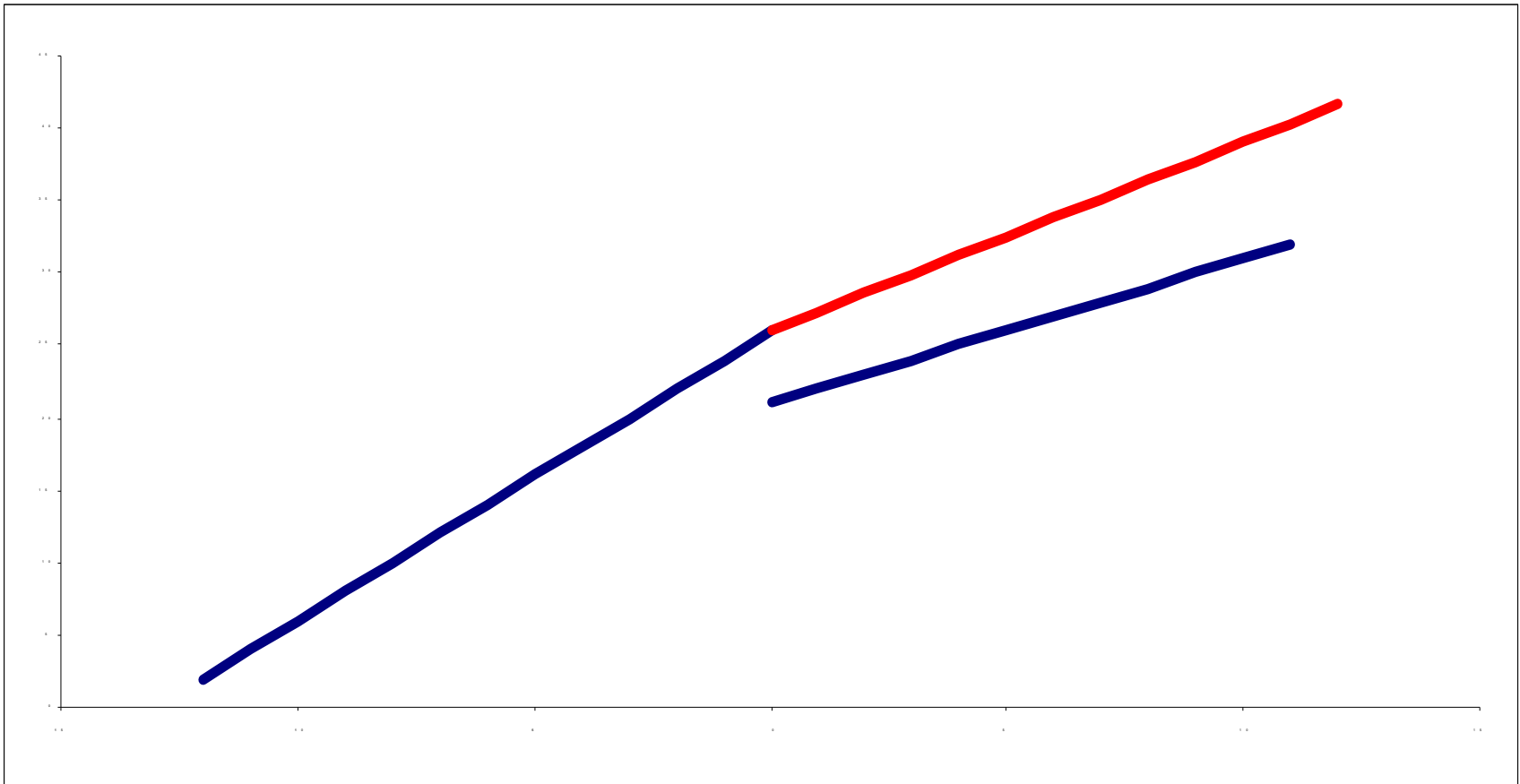
Method 1 (based on trends)

- Model: cost = cohort*intervention + cohort*intervention*time

$$(y_{ijkl} = \beta_{o_{ij}} C_i I_j + \beta_{1_{ij}} C_i I_j x_t + \varepsilon_{ijkl})$$

- The “cohort*intervention” interaction represents the intercepts for each intervention group within each cohort
- The cohort*intervention*time represents the slopes (or rates of change) for each intervention group within each cohort

Method 2 (estimated “pre”)



Methodology



Method 2 (based on trends)

- Based on data from subsequent cohorts which had not yet been intervened using their data prior to their intervention.
- Regression model using time prior to intervention and accounting for the correlation within a patient was used to estimate the trend.

Methodology



Method 2 (based on trends)

- Pre Model:

$$\text{cost} = \text{intercept} + \text{slope} * \text{time}$$

- Post Model:

$$\text{cost} = \text{cohort} + \text{cohort} * \text{intervention} * \text{time}$$

- The Pre Model uses all data from patients that receive a mailing prior to their receiving a mailing to estimate the rate of change (slope)
- In the Post Model, “cohort” term represents a common intercept for each intervention group within each cohort
- The cohort*intervention*time represents the slopes (or rates of change) for each intervention group within each cohort (where the pre slope is assumed constant and estimated from the Pre Model)

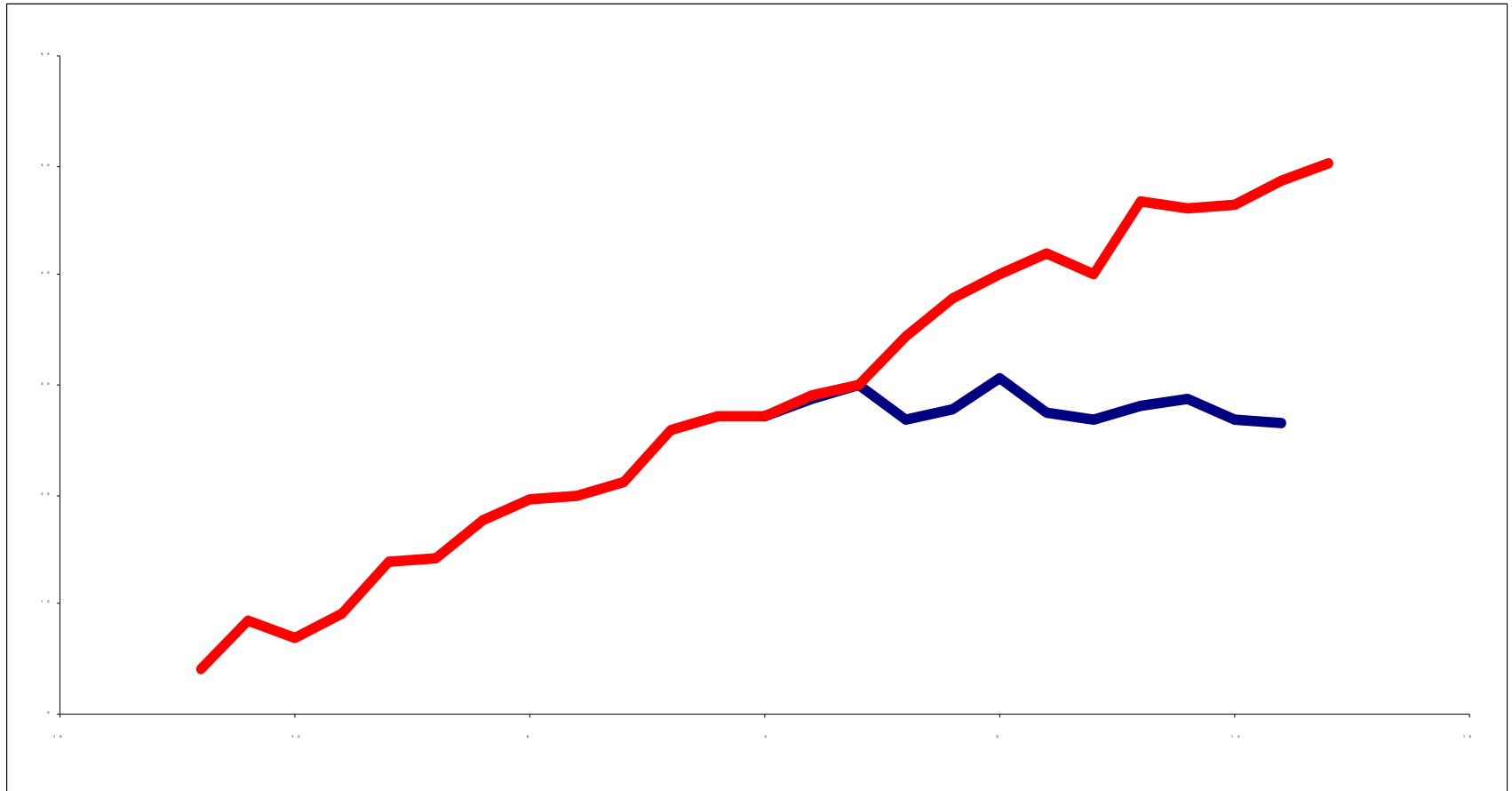
Methodology



Method 2 (based on trends)

$$\left(\begin{array}{c} \text{Pre: } y_{kt} = \beta_o + \beta_1 x_t + \varepsilon_{kt} \\ \text{and} \\ \text{Post: } y_{ijkt} = \beta_{o_i} C_i + \beta_{1_{ij}} C_i I_j x_t + \varepsilon_{ijkt} \end{array} \right)$$

Method 3



Methodology



Method 3 (cell means)

- Based on data from subsequent cohorts which had not yet been intervened using their data prior to their intervention.
- Cell means model using time prior to intervention and accounting for the correlation within a patient was used to estimate cost avoidance.

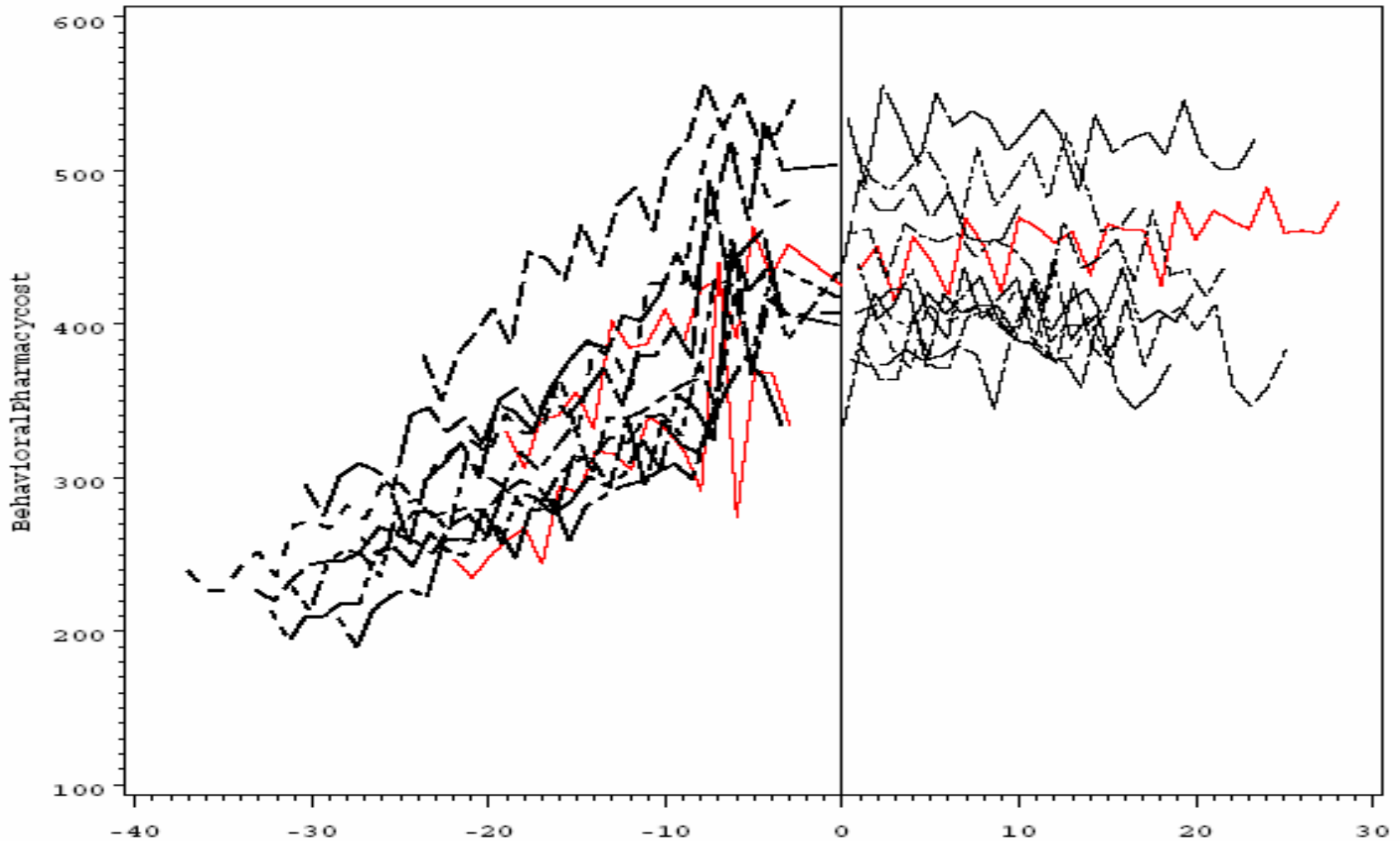
Methodology



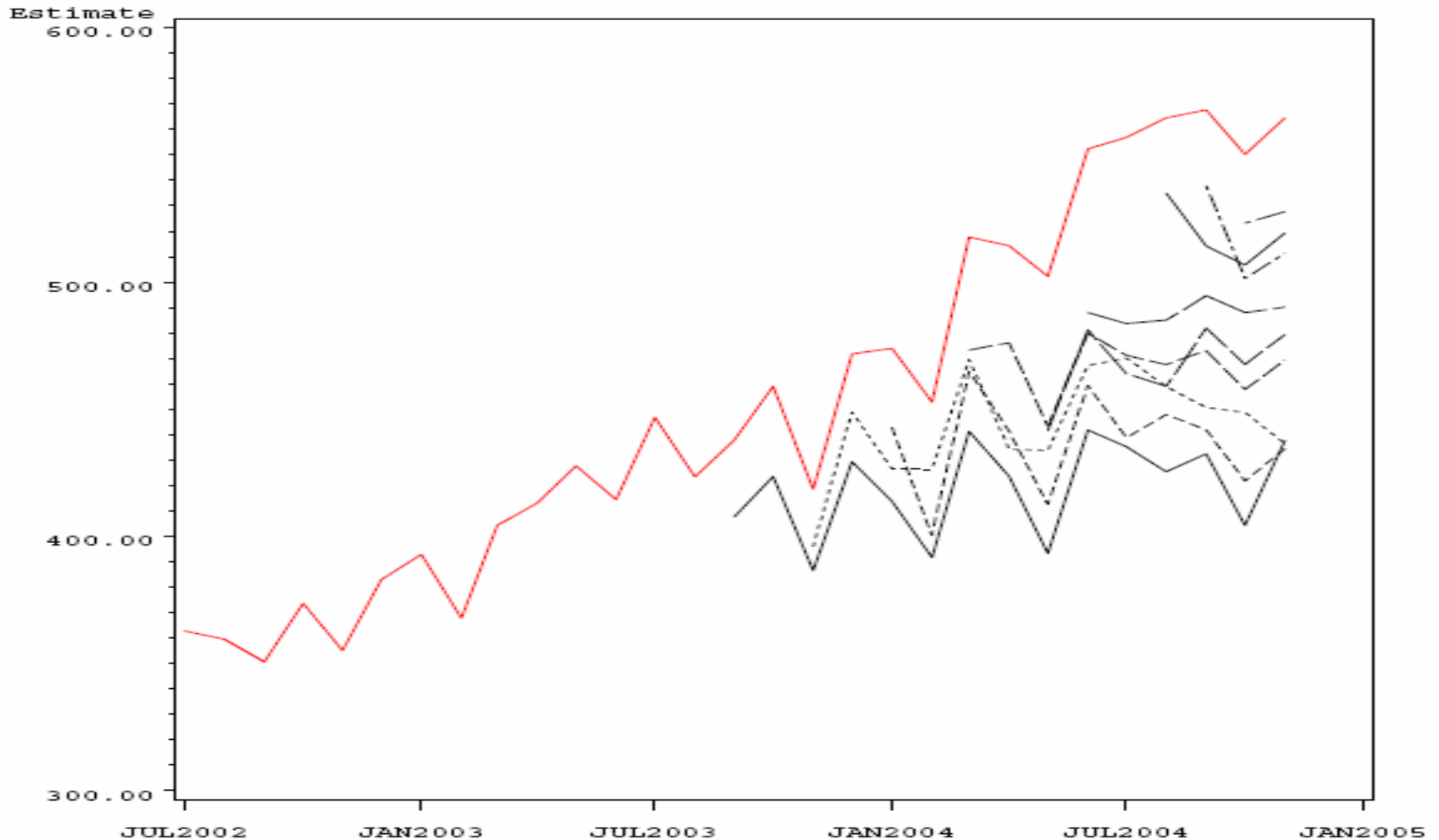
Method 3 (cell means)

$$\left(y_{ijkl} = \beta_{o_{ijt}} C_i I_j T_t + \varepsilon_{ijkl} \right)$$

All Intervened Patients



All Intervened Patients “Pre” prior to mailing



All Intervened Patients



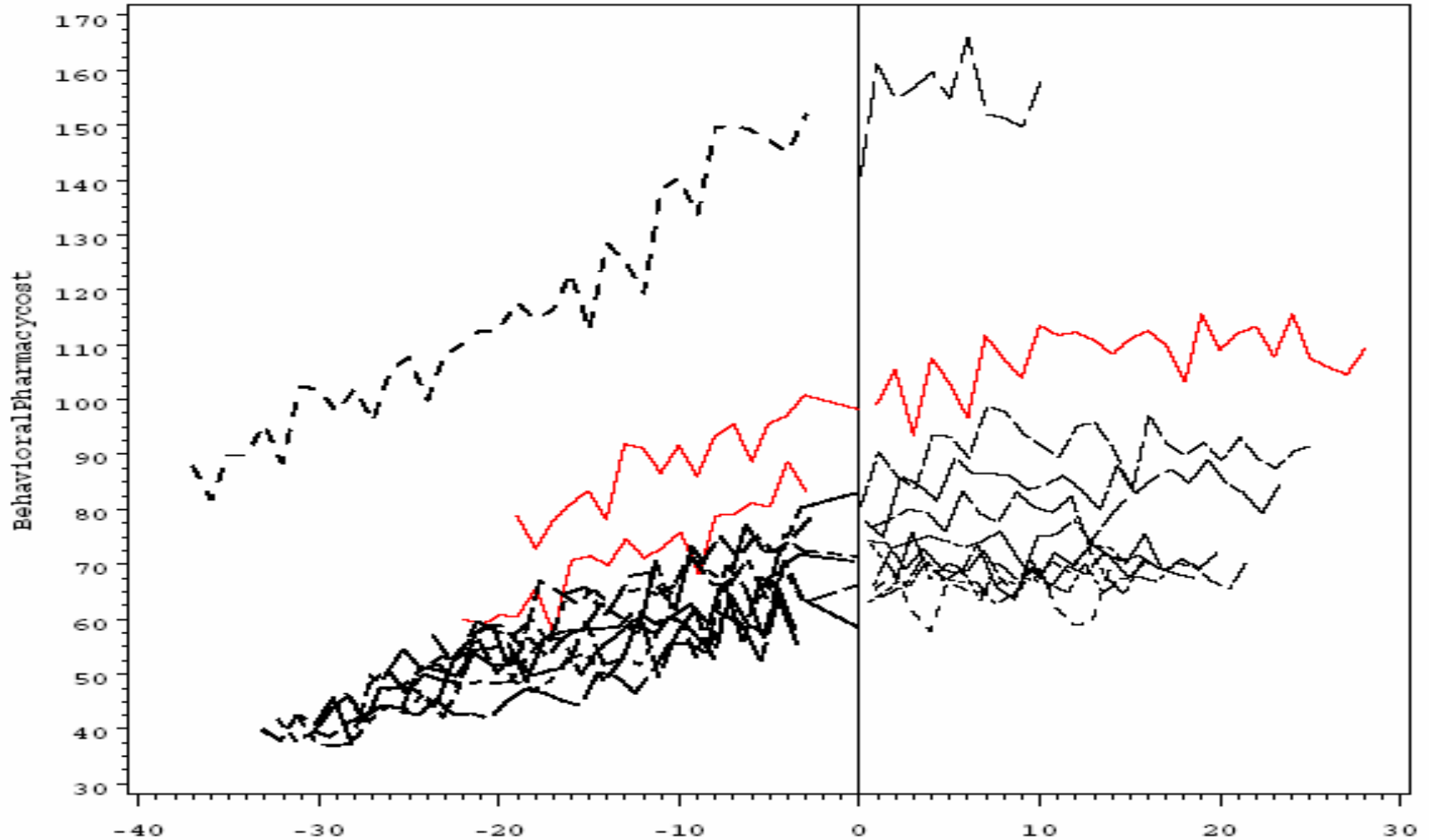
			Decrease in Costs			Decrease in PMPM Costs			
Cohort	Mail Date	N	Method 3	Method 1	Method 2	Months of f/u	Meth 3	Meth 1	Meth 2
1	01JUN2003	2013	\$2,589,435	\$2,020,288	\$2,292,790	15	\$86	\$67	\$76
2	29AUG2003	495	\$454,255	\$173,435	\$286,198	13	\$71	\$27	\$44
3	22OCT2003	5694	\$5,580,878	\$2,671,828	\$3,798,332	11	\$89	\$43	\$61
4	15DEC2003	1939	\$1,316,557	\$1,274,345	\$1,181,841	9	\$75	\$73	\$68
5	05FEB2004	1053	\$614,855	\$323,156	\$356,317	7	\$83	\$44	\$48
6	15MAR2004	653	\$236,647	\$209,678	\$190,621	6	\$60	\$54	\$49
7	11MAY2004	1597	\$227,076	\$479,463	\$427,161	4	\$36	\$75	\$67
8	03JUN2004	717	\$94,555	\$105,733	\$94,458	3	\$44	\$49	\$44
9	09JUL2004	571	\$36,497	\$95,143	\$83,790	2	\$32	\$83	\$73
10	04AUG2004	535	\$25,239	\$26,976	\$25,474	1	\$47	\$50	\$48
Across Cohorts		15267	\$11,175,993	\$7,380,045	\$8,736,982				

All Intervened Patients



			Decrease in Costs			Decrease in PMPM Costs	
Cohort	Mail Date	N	Method 1	Method 2	Months of f/u	Meth 1	Meth 2
1	01JUN2003	2013	\$4,981,344	\$5,903,309	28	\$88	\$105
2	29AUG2003	495	\$643,858	\$1,078,803	26	\$50	\$84
3	22OCT2003	5694	\$10,971,715	\$16,092,186	24	\$80	\$118
4	15DEC2003	1939	\$5,717,816	\$5,197,735	22	\$134	\$122
5	05FEB2004	1053	\$1,776,522	\$2,025,229	20	\$84	\$96
6	15MAR2004	653	\$1,381,858	\$1,209,443	19	\$111	\$97
7	11MAY2004	1597	\$3,777,761	\$2,977,540	17	\$139	\$110
8	03JUN2004	717	\$1,387,473	\$1,131,904	16	\$121	\$99
9	09JUL2004	571	\$1,573,495	\$1,119,352	15	\$184	\$131
10	04AUG2004	535	\$876,653	\$718,944	14	\$117	\$96
11	29NOV2004	1695	\$2,264,728	\$1,987,323	11	\$121	\$107
Across Cohorts		16962	\$35,353,222	\$39,441,769			

Collateral Patients



Collateral Patients



			Decrease in Costs			Decrease in PMPM Costs			
Cohort	Mail Date	N	Method 3	Method 1	Method 2	Months of f/u	Meth 3	Meth 1	Meth 2
1	01JUN2003	18606	\$3,491,362	\$1,254,380	\$2,156,020	15	\$13	\$4	\$8
2	29AUG2003	1457	\$244,544	\$135,540	\$158,061	13	\$13	\$7	\$8
3	22OCT2003	6819	\$1,084,420	\$-5,822	\$261,192	11	\$14	\$-0	\$3
4	15DEC2003	675	\$116,126	\$9,605	\$27,405	9	\$19	\$2	\$5
5	05FEB2004	1486	\$252,018	\$14,454	\$54,166	7	\$24	\$1	\$5
6	15MAR2004	911	\$98,100	\$9,009	\$22,184	6	\$18	\$2	\$4
7	11MAY2004	1268	\$85,915	\$35,838	\$44,094	4	\$17	\$7	\$9
8	03JUN2004	459	\$22,595	\$770	\$2,498	3	\$16	\$1	\$2
9	09JUL2004	441	\$13,706	\$5,610	\$5,377	2	\$16	\$6	\$6
10	04AUG2004	349	\$7,927	\$1,190	\$1,424	1	\$23	\$3	\$4
Across Cohorts		32471	\$5,416,714	\$1,460,574	\$2,732,421				

Collateral Patients

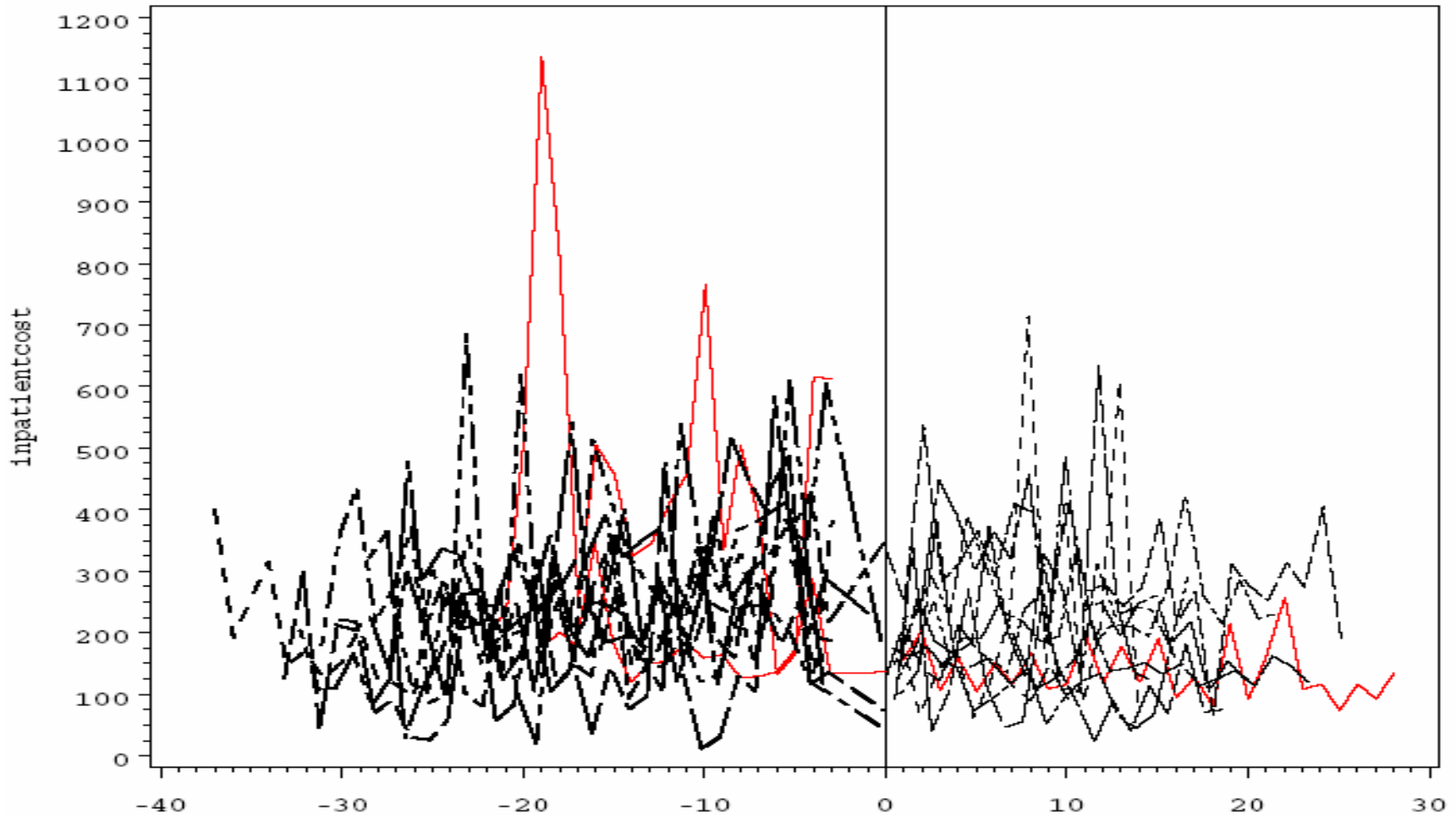


			Decrease in Costs			Decrease in PMPM Costs	
Cohort	Mail Date	N	Method 1	Method 2	Months of f/u	Meth 1	Meth 2
1	01JUN2003	18606	\$938,164	\$3,988,712	28	\$2	\$8
2	29AUG2003	1457	\$461,687	\$548,555	26	\$12	\$14
3	22OCT2003	6819	\$1,162,273	\$2,375,973	24	\$7	\$15
4	15DEC2003	675	\$128,499	\$228,574	22	\$9	\$15
5	05FEB2004	1486	\$251,401	\$549,242	20	\$8	\$18
6	15MAR2004	911	\$165,560	\$284,765	19	\$10	\$16
7	11MAY2004	1268	\$233,708	\$360,022	17	\$11	\$17
8	03JUN2004	459	\$27,441	\$66,607	16	\$4	\$9
9	09JUL2004	441	\$123,419	\$114,105	15	\$19	\$17
10	04AUG2004	349	\$49,443	\$73,997	14	\$10	\$15
11	29NOV2004	10489	\$2,264,087	\$1,652,808	11	\$20	\$14
Across Cohorts		42960	\$5,805,682	\$10,243,360			

Patients with Schizophrenia



(inpatient costs)



Patients with Schizophrenia



Cohort	Mail Date	N	Decrease in Costs			Months of f/u	Decrease in PMPM Costs		
			Method 3	Method 1	Method 2		Meth 3	Meth 1	Meth 2
1	01JUN2003	804	\$706,059	\$540,648	\$484,176	15	\$59	\$45	\$40
2	29AUG2003	209	\$129,582	\$225,851	\$236,504	13	\$48	\$83	\$87
3	22OCT2003	2465	\$2,304,890	\$420,774	\$785,394	11	\$85	\$16	\$29
4	15DEC2003	742	\$564,361	\$-439,588	\$-92,490	9	\$85	\$-66	\$-14
5	05FEB2004	319	\$192,078	\$-116,543	\$-79,672	7	\$86	\$-52	\$-36
6	15MAR2004	137	\$55,972	\$64,043	\$80,603	6	\$68	\$78	\$98
7	11MAY2004	564	\$153,645	\$407,148	\$376,233	4	\$68	\$180	\$167
8	03JUN2004	229	\$7,547	\$-100,947	\$-97,871	3	\$11	\$-147	\$-142
9	09JUL2004	166	\$30,983	\$99,912	\$93,176	2	\$93	\$301	\$281
10	04AUG2004	154	\$20,830	\$14,919	\$15,569	1	\$135	\$97	\$101
Across Cohorts		5789	\$4,165,947	\$1,116,217	\$1,801,623				

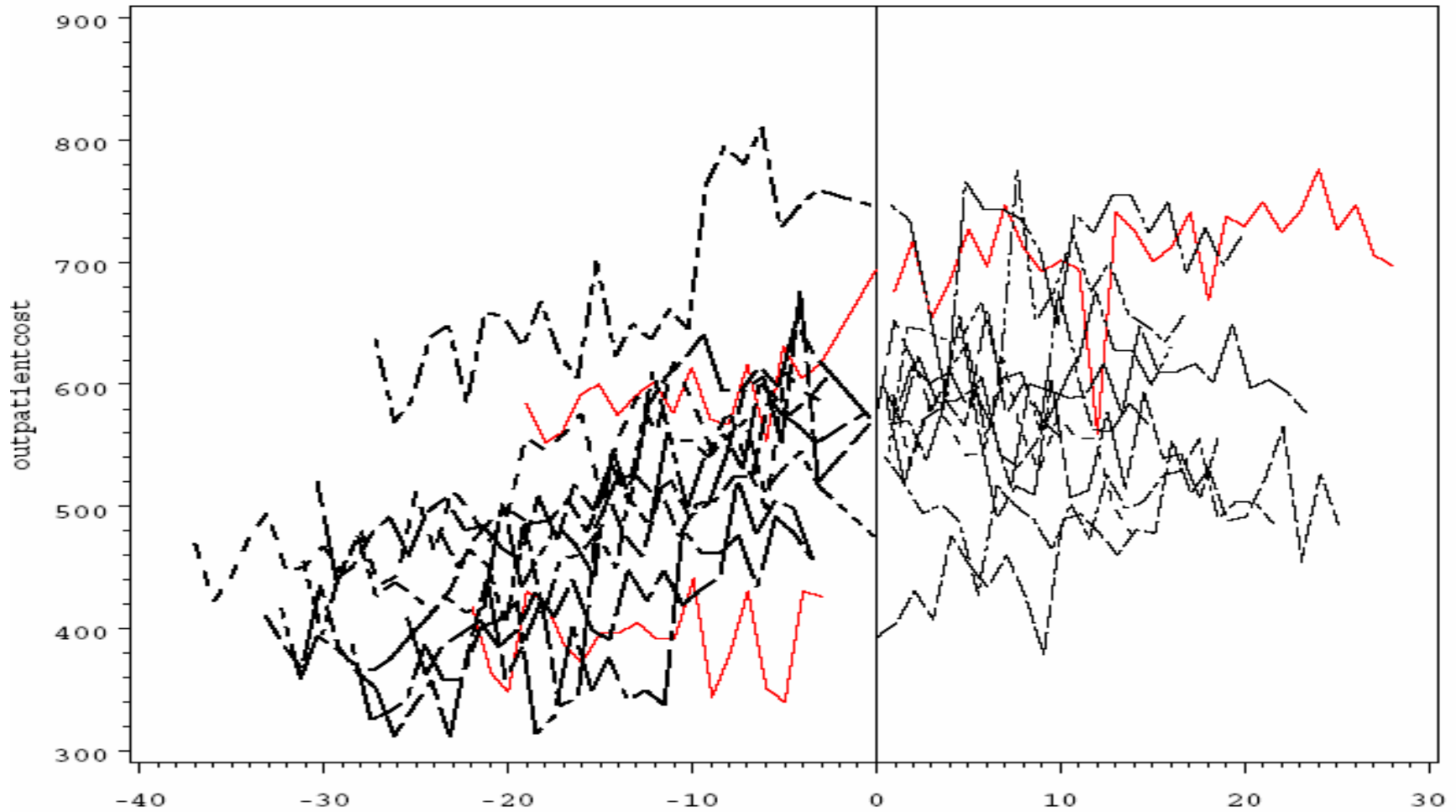
Patients with Schizophrenia



(Inpatient Costs)

Cohort	Mail Date	N	Decrease in Costs		Months of f/u	Decrease in PMPM Costs	
			Method 1	Method 2		Meth 1	Meth 2
1	01JUN2003	804	\$843,779	\$652,716	28	\$37	\$29
2	29AUG2003	209	\$829,515	\$870,604	26	\$153	\$160
3	22OCT2003	2465	\$1,285,425	\$2,942,787	24	\$22	\$50
4	15DEC2003	742	\$-1,153,673	\$797,789	22	\$-71	\$49
5	05FEB2004	319	\$122,384	\$398,919	20	\$19	\$63
6	15MAR2004	137	\$175,915	\$325,748	19	\$68	\$125
7	11MAY2004	564	\$1,840,482	\$1,367,492	17	\$192	\$143
8	03JUN2004	229	\$-159,516	\$-89,777	16	\$-44	\$-25
9	09JUL2004	166	\$688,668	\$419,212	15	\$277	\$168
10	04AUG2004	154	\$-233,804	\$-165,580	14	\$-108	\$-77
11	29NOV2004	521	\$985,242	\$890,737	11	\$172	\$155
Across Cohorts		6310	\$5,224,417	\$8,410,648			

Patients with Schizophrenia



Patients with Schizophrenia (Outpatient Costs)



Cohort	Mail Date	N	Decrease in Costs			Months of f/u	Decrease in PMPM Costs		
			Method 3	Method 1	Method 2		Meth 3	Meth 1	Meth 2
1	01JUN2003	804	\$20,336	\$72,775	\$20,320	15	\$2	\$6	\$2
2	29AUG2003	209	\$96,172	\$518	\$38,227	13	\$35	\$0	\$14
3	22OCT2003	2465	\$505,803	\$2,081,682	\$1,321,063	11	\$19	\$77	\$49
4	15DEC2003	742	\$193,855	\$482,681	\$410,316	9	\$29	\$72	\$61
5	05FEB2004	319	\$102,477	\$352,338	\$310,041	7	\$46	\$158	\$139
6	15MAR2004	137	-\$68,329	-\$3,876	-\$20,657	6	-\$83	-\$5	-\$25
7	11MAY2004	564	-\$14,693	-\$43,276	-\$18,041	4	-\$7	-\$19	-\$8
8	03JUN2004	229	-\$13,493	-\$74,653	-\$57,441	3	-\$20	-\$109	-\$84
9	09JUL2004	166	\$224	\$5,338	\$6,230	2	\$1	\$16	\$19
10	04AUG2004	154	-\$9,731	\$2,697	\$2,470	1	-\$63	\$18	\$16
Across Cohorts		5789	\$812,620	\$2,876,224	\$2,012,526				

Patients with Schizophrenia



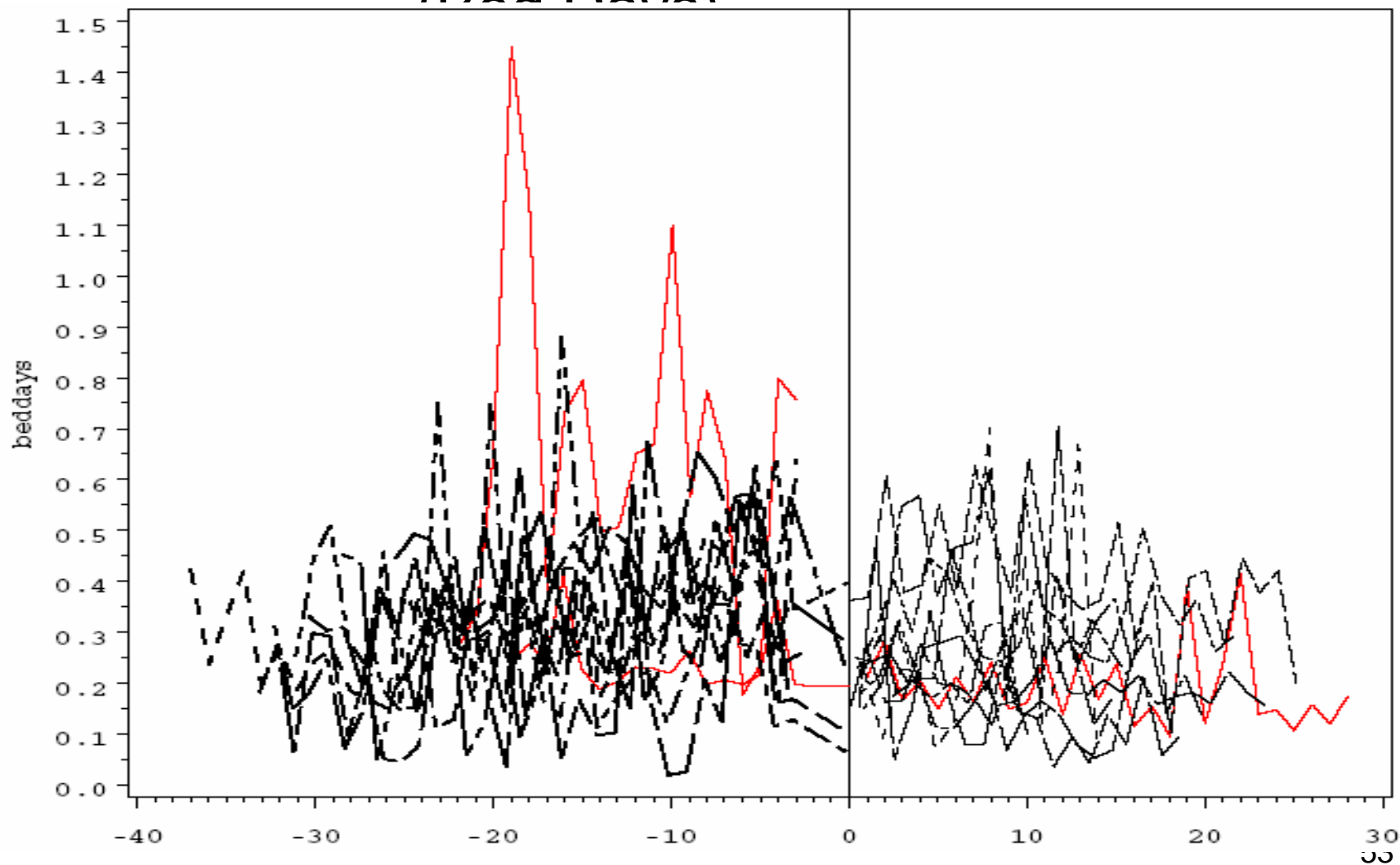
(Outpatient Costs)

Cohort	Mail Date	N	Decrease in Costs		Months of f/u	Decrease in PMPM Costs	
			Method 1	Method 2		Meth 1	Meth 2
1	01JUN2003	804	\$1,835,870	\$1,658,395	28	\$82	\$74
2	29AUG2003	209	\$-33,371	\$112,079	26	\$-6	\$21
3	22OCT2003	2465	\$8,266,621	\$4,809,259	24	\$140	\$81
4	15DEC2003	742	\$1,839,519	\$1,432,663	22	\$113	\$88
5	05FEB2004	319	\$1,164,657	\$847,426	20	\$183	\$133
6	15MAR2004	137	\$266,713	\$114,885	19	\$102	\$44
7	11MAY2004	564	\$-554,499	\$-168,401	17	\$-58	\$-18
8	03JUN2004	229	\$-687,366	\$-297,221	16	\$-188	\$-81
9	09JUL2004	166	\$76,239	\$111,896	15	\$31	\$45
10	04AUG2004	154	\$191,520	\$167,675	14	\$89	\$78
11	29NOV2004	521	\$87,398	\$190,127	11	\$15	\$33
Across Cohorts		6310	\$12,453,299	\$8,978,783			

Patients with Schizophrenia



(Red Days)



Patients with Schizophrenia



(Red Days)

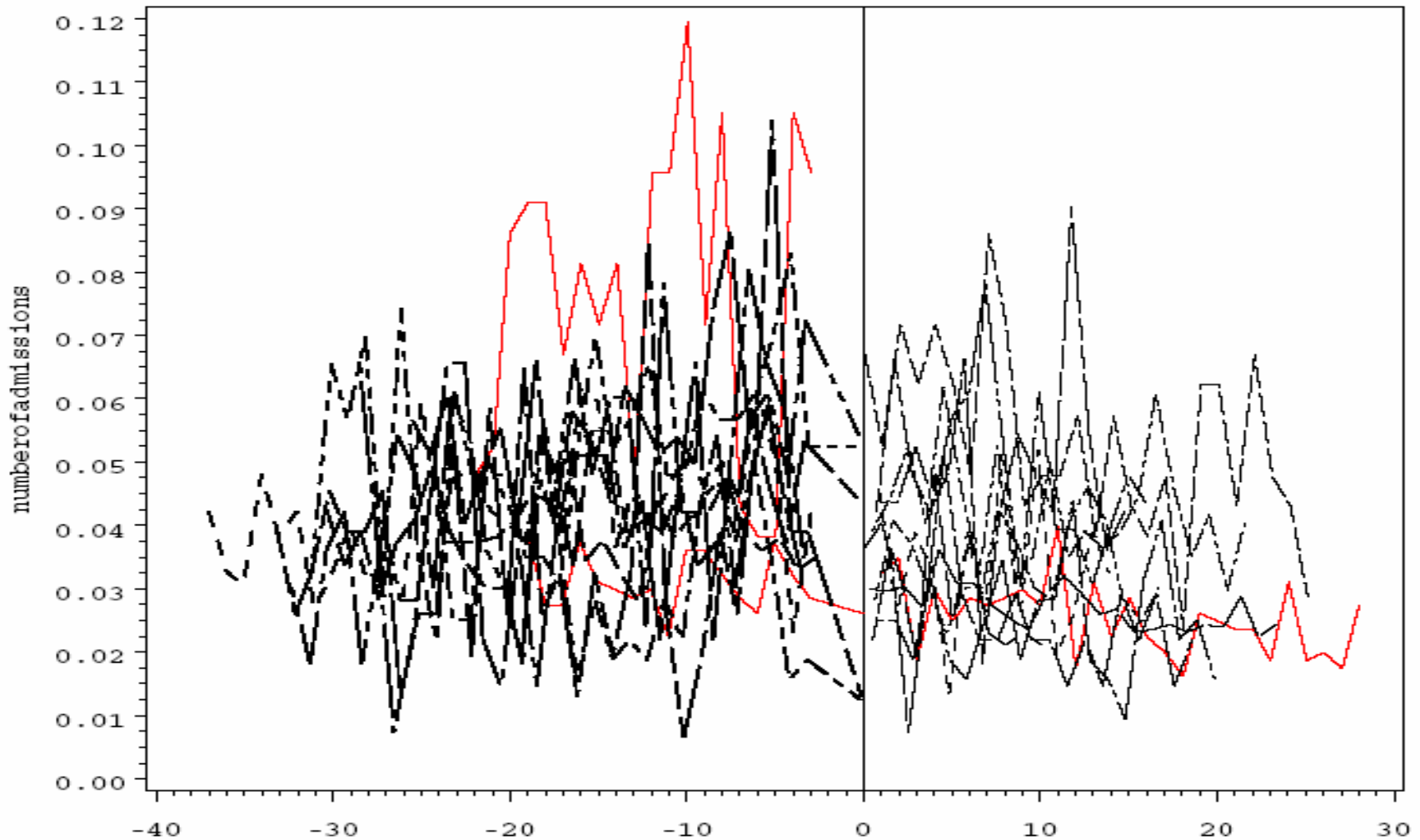
Cohort	Mail Date	N	Decrease in Days			Months of f/u	Decrease in PMPM Days		
			Method 3	Method 1	Method 2		Meth 3	Meth 1	Meth 2
1	01JUN2003	804	941	644	653	15	0.078	0.053	0.054
2	29AUG2003	209	230	25	218	13	0.085	0.009	0.080
3	22OCT2003	2465	3088	1022	1426	11	0.114	0.038	0.053
4	15DEC2003	742	850	-253	135	9	0.127	-0.038	0.020
5	05FEB2004	319	271	-83	-33	7	0.122	-0.037	-0.015
6	15MAR2004	137	77	53	85	6	0.094	0.065	0.103
7	11MAY2004	564	296	431	426	4	0.131	0.191	0.189
8	03JUN2004	229	58	-86	-93	3	0.084	-0.125	-0.135
9	09JUL2004	166	61	89	87	2	0.184	0.268	0.262
10	04AUG2004	154	53	10	11	1	0.346	0.062	0.069
Across Cohorts		5789	5925	1853	2914				

Patients with Schizophrenia



Cohort	Mail Date	N	Decrease in Days		Months of f/u	Decrease in PMPM Days	
			Method 1	Method 2		Meth 1	Meth 2
1	01JUN2003	804	1265	1297	28	0.056	0.058
2	29AUG2003	209	-150	594	26	-0.028	0.109
3	22OCT2003	2465	3635	5473	24	0.061	0.093
4	15DEC2003	742	-602	1577	22	-0.037	0.097
5	05FEB2004	319	94	463	20	0.015	0.072
6	15MAR2004	137	114	399	19	0.044	0.153
7	11MAY2004	564	1683	1597	17	0.176	0.167
8	03JUN2004	229	253	95	16	0.069	0.026
9	09JUL2004	166	457	379	15	0.184	0.152
10	04AUG2004	154	-318	-208	14	-0.148	-0.096
11	29NOV2004	521	1556	1335	11	0.271	0.233
Across Cohorts		6310	7987	13003			

Patients with Schizophrenia



Patients with Schizophrenia



(Number of Admissions)

Cohort	Mail Date	N	Decrease in Admits			Months of f/u	Decrease in PMPM Admits		
			Method 3	Method 1	Method 2		Meth 3	Meth 1	Meth 2
1	01JUN2003	804	44	-26	10	15	0.004	-0.002	0.001
2	29AUG2003	209	24	-4	20	13	0.009	-0.001	0.007
3	22OCT2003	2465	258	-1	105	11	0.010	-0.000	0.004
4	15DEC2003	742	56	-53	-6	9	0.008	-0.008	-0.001
5	05FEB2004	319	23	2	9	7	0.010	0.001	0.004
6	15MAR2004	137	8	14	15	6	0.009	0.017	0.018
7	11MAY2004	564	-0	35	34	4	-0.000	0.015	0.015
8	03JUN2004	229	-1	-6	-5	3	-0.002	-0.009	-0.008
9	09JUL2004	166	-6	6	5	2	-0.018	0.017	0.016
10	04AUG2004	154	-1	3	3	1	-0.009	0.018	0.017
Across Cohorts		5789	405	-31	189				

Patients with Schizophrenia



Cohort	Mail Date	N	Decrease in Admits		Months of f/u	Decrease in PMPM Admits	
			Method 1	Method 2		Meth 1	Meth 2
1	01JUN2003	804	-163	-39	28	-0.007	-0.002
2	29AUG2003	209	20	111	26	0.004	0.020
3	22OCT2003	2465	-137	348	24	-0.002	0.006
4	15DEC2003	742	-131	135	22	-0.008	0.008
5	05FEB2004	319	-57	-10	20	-0.009	-0.002
6	15MAR2004	137	56	60	19	0.022	0.023
7	11MAY2004	564	99	85	17	0.010	0.009
8	03JUN2004	229	6	22	16	0.002	0.006
9	09JUL2004	166	25	11	15	0.010	0.004
10	04AUG2004	154	47	35	14	0.022	0.016
11	29NOV2004	521	61	80	11	0.011	0.014
Across Cohorts		6310	-173	837			

Potential Problems



- The limitation of inference is only to those patients who have been continuously eligible over the 2002-05 timeframe.
- Lack of true control group. As a result, any post-intervention temporal effect is confounded with the intervention effects.
- Skewed data and some months having zero costs.
- Non-homogeneous cohorts

Outline

Discussion and Perspective

Joseph J. Parks, M.D.

Director, Div. of Comprehensive Psychiatric Services

Missouri Department Mental Health

Department of Psychiatry, University of Missouri

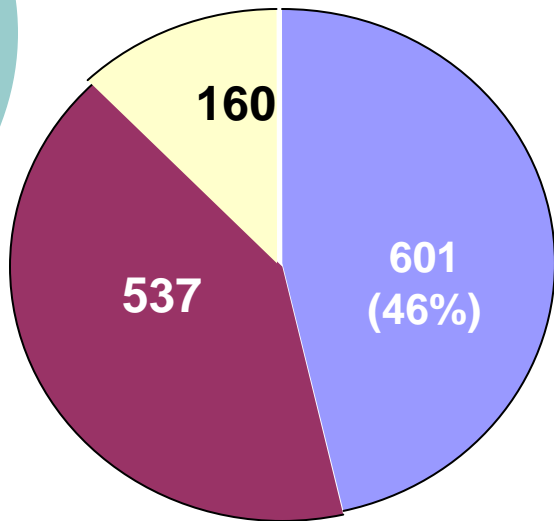


BPMS Outcomes

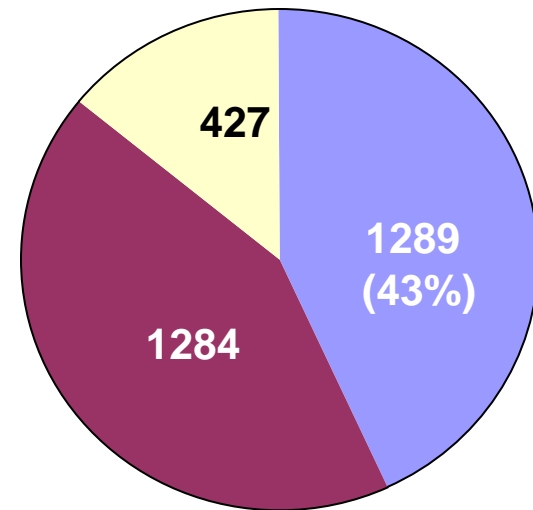
- Mercer Analysis
- Impact on ER, Hospital and overall care
- Savings from Trend




Targeted Prescribers & Their Patients: 3 or more Psychotropics to Children under 18 Years Old

Providers Prescribing Three or More Psychotropics to Children Under Age 18



Children Under Age 18 on Three or More Psychotropics



-  Prescribers No Longer Flagged
-  Prescribers Still Flagged on Report
-  New Prescribers Latest Month

-  Patients No Longer Flagged
-  Patients Still Flagged
-  New Patients Latest Month

MISSOURI DMS (MEDICAID)

BEHAVIORAL HEALTH SPENDING TRENDS (Slide 1 of 2)

(Presented by Dr. George Oestreich, DMS Pharmacy Director
at SAMHSA Meeting, Oct. 6, 2004)

Missouri's Division of Medical Services (DMS: Medicaid) initiated strategies to contain the growth of Medicaid behavioral pharmacy spending in 2003-2004. BPMS was the major strategy.

- DMS did not restrict access to behavioral health (BH) drugs through prior authorization, Fail-First or other "hard edit" strategies.
- Mercer assisted in an independent evaluation of the impact of DMS initiatives on Medicaid BH pharmacy cost containment.

MISSOURI DMS (MEDICAID)

BEHAVIORAL HEALTH SPENDING TRENDS (Slide 2 of 2)

(Presented by Dr. George Oestreich, DMS Pharmacy Director
at SAMHSA Meeting, Oct. 6, 2004)

Prior to April 2003, Missouri behavioral pharmacy spending growth rate: 2.4% per month. Since April 2003, Missouri behavioral pharmacy spending growth rate: = 1.18% per month.

- DMS conservatively projected savings off trend = \$7.7 million.

Population Characteristics

- **Average Age - 38 years old**
- **58 % female**
- **86 % white**
- **8 % MR/DD**
- **58 % Dual Eligible – Medicare/Medicaid**

BPMS Impact on Healthcare Utilization Sample

- Patients whose prescriber received a BPMS mailing on at least one indicator between 1/04 – 3/04
- Nursing home patients excluded
- All had Medicaid claims for 6 months before and after mailing BPMS
- Patients of physicians receiving a prior mailing were excluded

BPMS Impact on Healthcare Utilization

N = 1911

	6 months pre-mailing	6 months post mailing
Percent patients hospitalized	16.8%	9.5%
Average number hospital days	0.31	0.16
Total hospital days	3494	1681
Average total costs per patient	\$6347	\$5109

Behavioral Pharmacy

Group	Pre	Post	Difference
Change	\$2064	\$1650	-\$414
No Change	\$3427	\$3663	+ \$236
No intervention	\$2264	\$2429	+ \$165

Total Pharmacy Utilization

Group	Pre- Intervention	Post- Intervention	Difference
Changed prescribing	\$3835 (49.5 scripts)	\$3120 (40.2 scripts)	- \$715 (-9.3 scripts)
Didn't change	\$5208 (53.8 scripts)	\$5413 (54.3 scripts)	+\$205 (+0.5 scripts)

Hospital Admissions

Group	Pre-intervention	Post-intervention
Changed prescribing	0.31	0.20
Didn't change	0.43	0.29
No intervention	0.32	0.30

Non-pharmacy Costs

Group	Pre-intervention	Post-intervention	Difference
Changed prescribing	\$7620	\$65.70	-\$1050 -(13.8%)
Didn't change	\$8571	\$8089	-\$482 -(5.6%)
No intervention	\$5946	\$5634	-\$312 -(5.2%)

All Intervened Patients: Behavioral Pharmacy costs, by month, pre- and post-first mailed intervention,

