

# Supplementary Appendix 1

This appendix has been provided by the authors to give readers additional information about their work.

Supplement to: Fischer MA, Schneeweiss S, Avorn J, Solomon DH. Medicaid prior-authorization programs and the use of cyclooxygenase-2 inhibitors. *N Engl J Med* 2004;351:2187-94.

## Supplementary Appendix

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### Specification of the Linear Regression Model and Table of Results

$$\text{Coxib}\% = \beta_0 + \beta_1 \text{time} + \beta_2 \text{PA\_indicator} + \beta_3 \text{Post\_indicator} + \beta_4 \text{Post\_trend} + \beta_5 \text{PA\_indicator} * \text{Post\_indicator} + \beta_6 \text{PA\_indicator} * \text{Post\_trend} + \varepsilon$$

### Explanation of Terms

Time: Time variable to measure secular trend throughout the study period (0 to 12)

PA\_indicator: Indicator variable for states with prior authorization (1 vs. 0)

Post\_indicator: Indicator variable for quarter falling after intervention (1 vs. 0)

Post\_trend: Time variable measuring trend after intervention (1 to 6)

PA\_indicator\*Post\_indicator: Interaction term, measures the level effect of intervention adjusted for utilization time trends for the states without prior authorization

PA\_indicator\*Post\_trend: Interaction term, measures the slope effect of intervention adjusted for utilization time trends for the states without prior authorization

Parameter	Coefficient	Standard Error*	z-score	P-value	95% Confidence Interval	
Time	.0120	.00323	3.73	0.000	.00571	.01836
PA_ind	-.0517	.02161	-2.39	0.017	-.09401	-.00930
Post_ind	.0223	.01516	1.47	0.141	-.00737	.05204
Post_trend	-.0182	.00671	-2.71	0.007	-.03134	-.00503
PA_ind_x Post ind	<b>-.1501</b>	.02122	-7.08	0.000	-.19174	-.10856
PA_ind_x Post trend	<b>.0162</b>	.00747	2.16	0.030	.00153	.03081

\* Generalized estimating equation estimates assuming an autoregressive correlation structure

**Table 1 (Expanded): Trends in NSAID and coxib utilization and spending in Medicaid, 1999-2003, by calendar quarter\***

Year, quarter	Number of states	Total NSAID prescriptions	Total NSAID DDD's	% coxib DDD's	Total enrollment†	Elderly enrollment†	Total NSAID spending	Coxib spending
1999,1	43	2,435,824	82,850,359	4%	32,800,000	3,800,000	\$ 68,831,169	\$ 8,959,602
1999,2	43	2,514,794	85,830,703	17%			\$ 86,323,687	\$ 34,592,785
1999,3	41	2,596,052	88,480,226	26%			\$ 101,049,558	\$ 55,837,376
1999,4	42	2,929,463	99,411,058	33%			\$ 130,093,387	\$ 81,574,154
2000,1	40	3,075,587	104,573,767	39%	34,000,000	3,900,000	\$ 147,204,639	\$ 100,399,073
2000,2	43	3,288,027	113,394,034	45%			\$ 169,857,362	\$ 124,398,851
2000,3	46	3,619,018	125,411,291	48%			\$ 191,048,535	\$ 144,228,512
2000,4	48	3,875,212	134,800,344	50%			\$ 206,333,414	\$ 158,883,317
2001,1	48	3,931,652	135,613,264	51%	37,700,000	4,000,000	\$ 210,420,381	\$ 168,523,921
2001,2	49	4,058,119	141,981,412	52%			\$ 222,900,819	\$ 180,286,340
2001,3	49	4,064,012	141,203,647	53%			\$ 222,971,280	\$ 180,096,441
2001,4	47	4,177,580	144,342,441	52%			\$ 230,704,123	\$ 185,773,824
2002,1	50	4,093,701	140,991,154	52%	39,900,000	4,200,000	\$ 230,081,448	\$ 187,259,894
2002,2	50	4,151,630	143,772,789	53%			\$ 235,432,543	\$ 192,801,712
2002,3	50	4,393,086	154,606,911	52%			\$ 248,422,006	\$ 202,342,070
2002,4	50	4,388,890	155,238,710	53%			\$ 248,759,212	\$ 203,763,021
2003,1	49	4,146,673	146,726,366	52%	41,400,000	4,300,000	\$ 237,409,007	\$ 195,176,533
2003,2	50	4,353,754	155,513,965	50%			\$ 245,749,778	\$ 198,948,300
2003,3	50	4,649,853	166,158,128	49%			\$ 261,246,051	\$ 210,341,258
2003,4	50	4,806,690	170,721,953	47%			\$ 262,856,695	\$ 208,758,593

\*No data were provided for Mississippi and Texas in 1999 and for Rhode Island in 2000. Arizona did not provide data in any years.

†Enrollment data refer to person-years of enrollment and are projections for the fiscal years listed, prepared by the Office of the Actuary for the President's fiscal year 2004 budget.<sup>17</sup>