

United States Department of Justice  
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# Performance Indicators for Prescription Drug Monitoring Programs: Doctor Shopping

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Simeone Associates, Inc.  
Carnevale Associates, LLC

Review

## Review

Several years ago the Bureau of Justice Assistance (BJA) partnered with Simeone Associates, Inc. (SAI) to conduct an evaluation of Prescription Drug Monitoring Programs (PDMPs).

Findings from that study suggested that when population characteristics were held constant PDMPs that made use of unsolicited reporting:

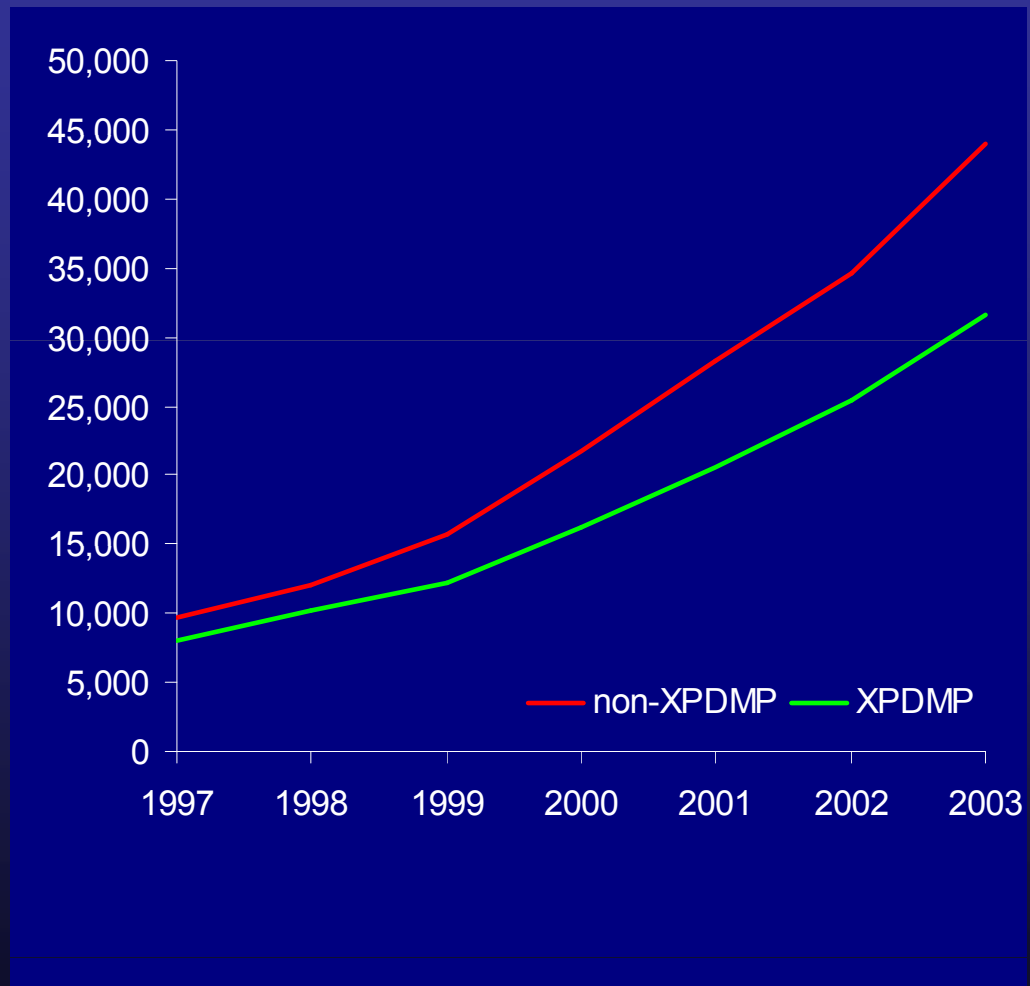
- Lowered the trajectory of prescription drug availability (as measured by milligrams per capita); and
- That this reduction in availability contributed to a reduction in prescription drug abuse (as measured by drug treatment admissions).

## Review

The first point is demonstrated when we look at growth in milligrams per capita over time for a composite morphine-equivalent measure of opioid analgesics, for oxycodone and for methadone. These differences persist when we incorporate information on population risk factors.

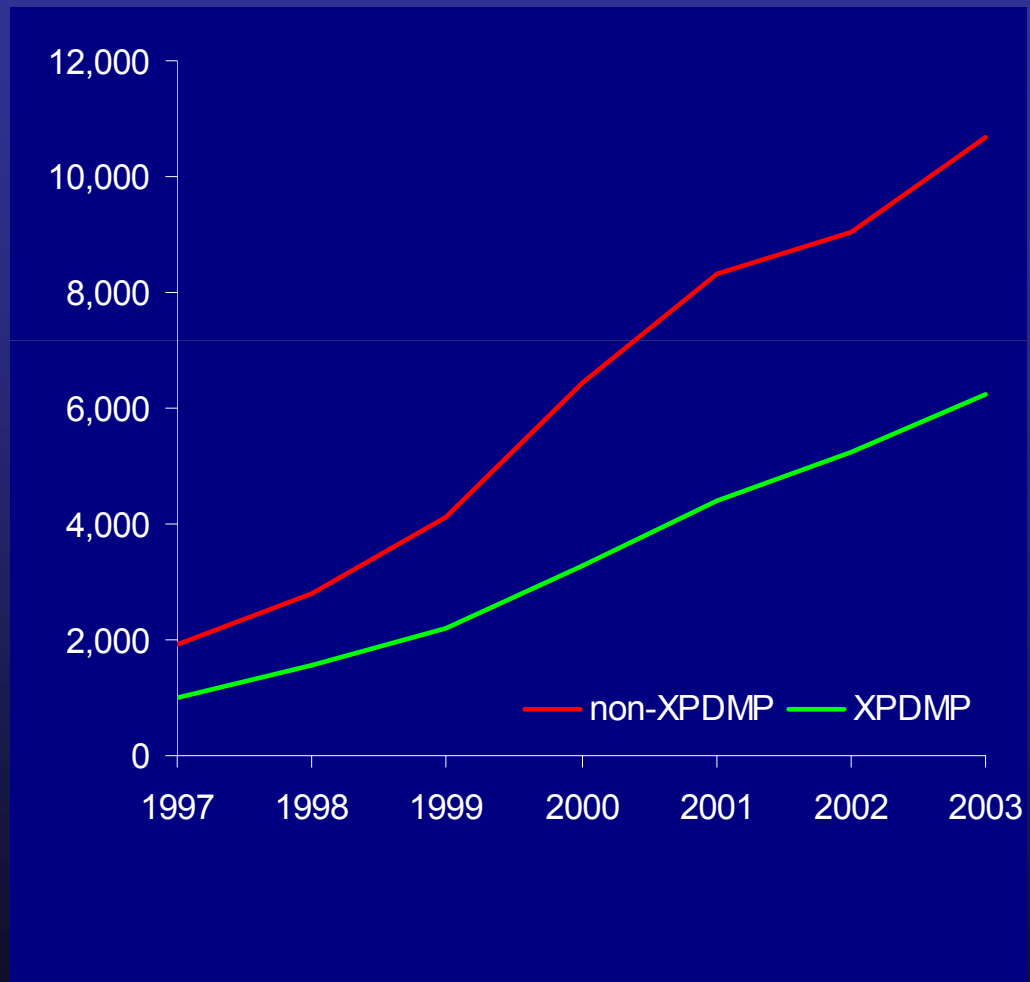
# Review

## PR Composite



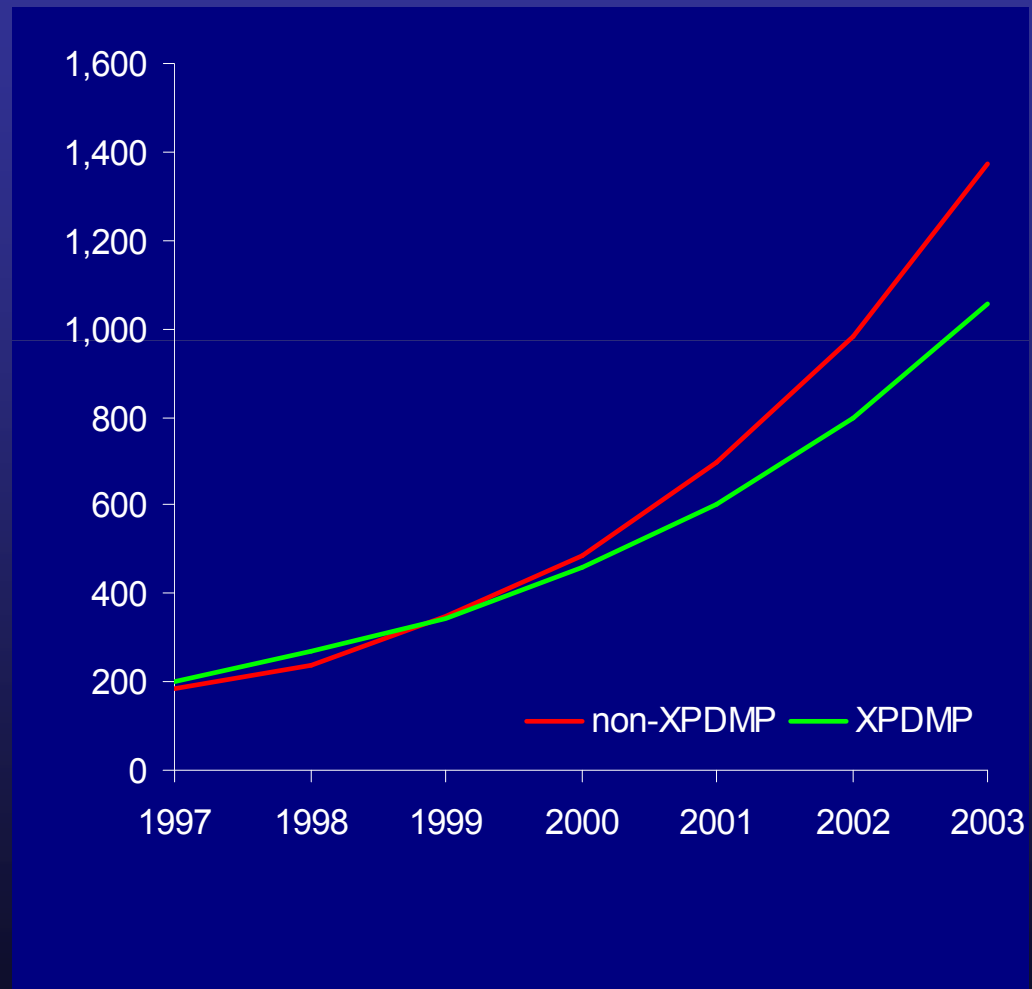
# Review

## Oxycodone



# Review

## Methadone



## Review

The study has some limitations:

- It focused on Schedule II drugs only;
- It did not deal fully with population risk factors;
- It did not deal fully with the statistical problem of simultaneity;  
and
- The findings are now dated.

We hope to address these issues when the evaluation is revisited later this year.

## Review

In conjunction with the evaluation study BJA also began work on the development of performance indicators for PDMPs. The indicators included measures for:

- Inputs (which were largely related to formal and informal training);
- Outputs (which involved the generation of solicited and unsolicited reports);
- Outcomes (which focused on doctor shopping); and
- Impacts (which were defined by the rate of treatment admission and the population prevalence of non-medical prescription drug use).

## Review

Doctor shopping is of particular interest to us because it is so closely related to prescription drug abuse. But it is not the only outcome that might be sought by PDMPs. The identification of doctors (or pharmacies) operating outside the law are also outcomes that would affect prescription drug abuse.

## Review

During calendar year 2008 recipients of BJA grant monies reported on several measures of doctor shopping. These measures:

- Were provided for the first and second halves of the year;
- Made use of three possible thresholds (5 prescribers and 5 dispensers, 10 prescribers and 10 dispensers, and 15 prescribers and 15 dispensers); and
- Were applied separately to Schedule II, Schedule II or III, and Schedule II, III or IV drugs;
- Yielding estimates for pain relievers, tranquilizers, stimulants and sedatives in a manner consistent with NSDUH conventions.

What Are The Findings

## What Are The Findings

Some cautionary notes on doctor shopping measures are in order before proceeding:

- As mentioned earlier a reduction in doctor shopping is not the only possible outcome that might reasonably be pursued by PDMPs.
- The doctor shopping measures presented here are not adjusted for population risk and therefore it may not be appropriate to compare rates across states; but
- Such measures may nonetheless be useful to states in monitoring their own progress over time.

## What Are The Findings

Some things to watch for:

- Generally as the threshold is raised the number of individuals qualifying as doctor shoppers will decline.
- As more Schedules are added the number of individuals qualifying as doctor shoppers will increase.
- But some variability between states and within states over time is known to be attributable to measurement error; and
- Given what we have found we may want to consider lower (or different) thresholds for doctor shopping.

## Threshold Behavior: Schedule II (Period 1)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>5 Prescribers and 5 Dispensers</b>						
Alabama	319735	50194574	1350	0.422225	377799	0.752669
Hawaii	41938	1651547	43	0.102532	49370	2.989319
Indiana	383975	56121020	100	0.026043	1461580	2.604336
Kentucky	257650	47622561	468	0.181642	595285	1.250006
Maine	119936	24388485	7	0.005836	8030	0.032925
Massachusetts	741413	86184128	1515	0.204340	670554	0.778048
New York	687797	0	1216	0.176796	0	0.000000
North Carolina	714304	114139084	2341	0.327732	193988	0.169958
North Dakota	33825	2749026	204	0.603104	92021	3.347404
Ohio	712092	149698699	2087	0.293080	1804405	1.205358
Oklahoma	308809	34175692	118	0.038211	115248	0.337222
Tennessee	0	0	0	0.000000	0	0.000000
Virginia	525505	1392375	1118	0.212748	17945	1.288805
Mean (all)				0.216191		1.341459
Mean (solicited)				0.209426		1.002542
Mean (unsolicited)				0.222955		1.748160

# Threshold Behavior: Schedule II (Period 1)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>10 Prescribers and 10 Dispensers</b>						
Alabama	319735	50194574	83	0.025959	18652	0.037159
Hawaii	41938	1651547	6	0.014307	7486	0.453272
Indiana	383975	56121020	0	0.000000	0	0.000000
Kentucky	257650	47622561	27	0.010479	197396	0.414501
Maine	119936	24388485	0	0.000000	0	0.000000
Massachusetts	741413	86184128	94	0.012678	49098	0.056969
New York	687797	0	74	0.010759	0	0.000000
North Carolina	714304	114139084	148	0.020719	72392	0.063424
North Dakota	33825	2749026	9	0.026608	3450	0.125499
Ohio	712092	149698699	82	0.011515	96438	0.064421
Oklahoma	308809	34175692	3	0.000971	2036	0.005957
Tennessee	0	0	0	0.000000	0	0.000000
Virginia	525505	1392375	88	0.016746	2606	0.187162
Mean (all)				0.012562		0.128033
Mean (solicited)				0.011446		0.096584
Mean (unsolicited)				0.013678		0.165772

## Threshold Behavior: Schedule II (Period 1)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>15 Prescribers and 15 Dispensers</b>						
Alabama	319735	50194574	18	0.005630	6608	0.013165
Hawaii	41938	1651547	0	0.000000	0	0.000000
Indiana	383975	56121020	0	0.000000	0	0.000000
Kentucky	257650	47622561	9	0.003493	169985	0.356942
Maine	119936	24388485	0	0.000000	0	0.000000
Massachusetts	741413	86184128	28	0.003777	15893	0.018441
New York	687797	0	18	0.002617	0	0.000000
North Carolina	714304	114139084	33	0.004620	18062	0.015825
North Dakota	33825	2749026	1	0.002956	5	0.000182
Ohio	712092	149698699	11	0.001545	13647	0.009116
Oklahoma	308809	34175692	0	0.000000	0	0.000000
Tennessee	0	0	0	0.000000	0	0.000000
Virginia	525505	1392375	21	0.003996	833	0.059826
Mean (all)				0.002386		0.043045
Mean (solicited)				0.002548		0.065841
Mean (unsolicited)				0.002224		0.015690

## Threshold Behavior: Schedule II-III (Period 1)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>5 Prescribers and 5 Dispensers</b>						
Alabama	1395786	145610482	3593	0.257418	1411337	0.969255
Hawaii	139421	6426806	205	0.147037	245378	3.818040
Indiana	1189069	198390604	1092	0.091837	18219509	9.183655
Kentucky	923868	141598970	2427	0.262700	2310907	1.632008
Maine	251687	39128397	22	0.008741	16923	0.043250
Massachusetts	0	0	0	0.000000	0	0.000000
New York	1861991	0	3765	0.202203	0	0.000000
North Carolina	1917767	202340297	4811	0.250865	1912209	0.945046
North Dakota	91680	10270569	23	0.025087	175781	1.711502
Ohio	1772104	296700905	7787	0.439421	6175961	2.081544
Oklahoma	1142084	101839666	1748	0.153054	1519550	1.492100
Tennessee	0	0	0	0.000000	0	0.000000
Virginia	1268028	2891646	3299	0.260168	58186	2.012210
Mean (all)				0.190775		2.388861
Mean (solicited)				0.218497		2.475793
Mean (unsolicited)				0.157510		1.830588

## Threshold Behavior: Schedule II-III (Period 1)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>10 Prescribers and 10 Dispensers</b>						
Alabama	1395786	145610482	207	0.014830	117202	0.080490
Hawaii	139421	6426806	38	0.027256	57409	0.893274
Indiana	1189069	198390604	45	0.003784	750804	0.378447
Kentucky	923868	141598970	150	0.016236	747679	0.528026
Maine	251687	39128397	1	0.000397	557	0.001424
Massachusetts	0	0	0	0.000000	0	0.000000
New York	1861991	0	281	0.015091	0	0.000000
North Carolina	1917767	202340297	308	0.016060	153823	0.076022
North Dakota	91680	10270569	19	0.020724	9560	0.093082
Ohio	1772104	296700905	442	0.024942	466520	0.157236
Oklahoma	1142084	101839666	152	0.013309	194478	0.190965
Tennessee	0	0	0	0.000000	0	0.000000
Virginia	1268028	2891646	320	0.025236	9786	0.338423
Mean (all)				0.016170		0.273739
Mean (solicited)				0.012708		0.203607
Mean (unsolicited)				0.020323		0.355666

## Threshold Behavior: Schedule II-III (Period 1)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>15 Prescribers and 15 Dispensers</b>						
Alabama	1395786	145610482	41	0.002937	27920	0.019174
Hawaii	139421	6426806	8	0.005738	15690	0.244134
Indiana	1189069	198390604	11	0.000925	183530	0.092509
Kentucky	923868	141598970	43	0.004654	606456	0.428291
Maine	251687	39128397	1	0.000397	557	0.001424
Massachusetts	0	0	0	0.000000	0	0.000000
New York	1861991	0	73	0.003921	0	0.000000
North Carolina	1917767	202340297	67	0.003494	39853	0.019696
North Dakota	91680	10270569	2	0.002182	337	0.003281
Ohio	1772104	296700905	86	0.004853	106202	0.035794
Oklahoma	1142084	101839666	31	0.002714	60044	0.058959
Tennessee	0	0	0	0.000000	0	0.000000
Virginia	1268028	2891646	89	0.007019	3480	0.120347
Mean (all)				0.003530		0.102361
Mean (solicited)				0.002877		0.099482
Mean (unsolicited)				0.004315		0.105860

## Threshold Behavior: Schedule II-IV (Period 1)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>5 Prescribers and 5 Dispensers</b>						
Alabama	2147614	218820057	5527	0.257355	1838204	0.840053
Hawaii	174366	9203421	314	0.180081	448767	4.876089
Indiana	1638791	302075659	1625	0.099158	29953359	9.915847
Kentucky	1444278	223756956	2825	0.195600	2819592	1.260114
Maine	359917	60335916	29	0.008057	16923	0.028048
Massachusetts	0	0	0	0.000000	0	0.000000
New York	2761760	0	5504	0.199293	0	0.000000
North Carolina	3026045	304762331	6960	0.230003	2338130	0.767198
North Dakota	146393	16115293	633	0.432398	221810	1.376395
Ohio	2429010	488666522	11707	0.481966	11171827	2.286186
Oklahoma	1836151	140710879	2487	0.135446	2834539	2.014442
Tennessee	0	0	0	0.000000	0	0.000000
Virginia	1723718	5186685	4476	0.259671	94017	1.812661
Mean (all)				0.225366		2.517703
Mean (solicited)				0.212023		2.516241
Mean (unsolicited)				0.241378		2.175798

## Threshold Behavior: Schedule II-IV (Period 1)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>10 Prescribers and 10 Dispensers</b>						
Alabama	2147614	218820057	311	0.014481	151913	0.069424
Hawaii	174366	9203421	54	0.030969	91989	0.999509
Indiana	1638791	302075659	58	0.003539	1069104	0.353919
Kentucky	1444278	223756956	200	0.013848	1088370	0.486407
Maine	359917	60335916	1	0.000278	557	0.000923
Massachusetts	0	0	0	0.000000	0	0.000000
New York	2761760	0	387	0.014013	0	0.000000
North Carolina	3026045	304762331	438	0.014474	40902	0.013421
North Dakota	146393	16115293	28	0.019127	11235	0.069716
Ohio	2429010	488666522	742	0.030547	764913	0.156531
Oklahoma	1836151	140710879	187	0.010184	273834	0.194608
Tennessee	0	0	0	0.000000	0	0.000000
Virginia	1723718	5186685	393	0.022800	13924	0.268457
Mean (all)				0.015842		0.261291
Mean (solicited)				0.012861		0.180104
Mean (unsolicited)				0.019419		0.365643

## Threshold Behavior: Schedule II-IV (Period 1)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>15 Prescribers and 15 Dispensers</b>						
Alabama	2147614	218820057	58	0.002701	33086	0.015120
Hawaii	174366	9203421	12	0.006882	23697	0.257480
Indiana	1638791	302075659	13	0.000793	239626	0.079326
Kentucky	1444278	223756956	62	0.004293	905307	0.404594
Maine	359917	60335916	1	0.000278	557	0.000923
Massachusetts	0	0	0	0.000000	0	0.000000
New York	2761760	0	91	0.003295	0	0.000000
North Carolina	3026045	304762331	97	0.003206	52196	0.017127
North Dakota	146393	16115293	3	0.002049	357	0.002215
Ohio	2429010	488666522	122	0.005023	160548	0.032854
Oklahoma	1836151	140710879	48	0.002614	91087	0.064733
Tennessee	0	0	0	0.000000	0	0.000000
Virginia	1723718	5186685	107	0.006208	4611	0.088901
Mean (all)				0.003395		0.096327
Mean (solicited)				0.002715		0.091657
Mean (unsolicited)				0.004210		0.102779

## Threshold Behavior: Schedule II (Period 2)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>5 Prescribers and 5 Dispensers</b>						
Alabama	175184	51231139	75	0.042812	59868	0.116859
Hawaii	49872	8506809	69	0.138354	75636	0.889123
Indiana	281371	53200574	234	0.083164	208743	0.392370
Kentucky	270768	35807828	542	0.200171	427837	1.194814
Maine	149580	24177804	4	0.002674	1201	0.004967
Massachusetts	654316	84814340	1323	0.202196	533378	0.628877
New York	750851	0	1551	0.206566	0	0.000000
North Carolina	410685	111386328	501	0.121991	403849	0.362566
North Dakota	22190	6040723	36	0.162235	33330	0.551755
Ohio	749310	162099444	2564	0.342182	13488076	8.320865
Oklahoma	261324	35992483	172	0.065819	183037	0.508542
Tennessee	446543	0	649	0.145339	0	0.000000
Virginia	550552	1466217	1341	0.243574	21801	1.486888
Mean (all)				0.150544		1.314330
Mean (solicited)				0.134048		1.732073
Mean (unsolicited)				0.169791		0.813037

## Threshold Behavior: Schedule II (Period 2)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>10 Prescribers and 10 Dispensers</b>						
Alabama	175184	51231139	2	0.001142	1693	0.003305
Hawaii	49872	8506809	17	0.034087	25338	0.297856
Indiana	281371	53200574	3	0.001066	3111	0.005848
Kentucky	270768	35807828	27	0.009972	190355	0.531602
Maine	149580	24177804	0	0.000000	0	0.000000
Massachusetts	654316	84814340	75	0.011462	31414	0.037039
New York	750851	0	90	0.011986	0	0.000000
North Carolina	410685	111386328	21	0.005113	20927	0.018788
North Dakota	22190	6040723	0	0.000000	0	0.000000
Ohio	749310	162099444	72	0.009609	40081	0.024726
Oklahoma	261324	35992483	2	0.000765	1342	0.003729
Tennessee	446543	0	14	0.003135	0	0.000000
Virginia	550552	1466217	113	0.020525	3060	0.208700
Mean (all)				0.008374		0.102872
Mean (solicited)				0.004291		0.097378
Mean (unsolicited)				0.013138		0.109465

## Threshold Behavior: Schedule II (Period 2)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>15 Prescribers and 15 Dispensers</b>						
Alabama	175184	51231139	0	0.000000	120	0.000234
Hawaii	49872	8506809	4	0.008021	4159	0.048890
Indiana	281371	53200574	0	0.000000	0	0.000000
Kentucky	270768	35807828	12	0.004432	166790	0.465792
Maine	149580	24177804	0	0.000000	0	0.000000
Massachusetts	654316	84814340	21	0.003209	10450	0.012321
New York	750851	0	20	0.002664	0	0.000000
North Carolina	410685	111386328	2	0.000487	2767	0.002484
North Dakota	22190	6040723	0	0.000000	0	0.000000
Ohio	749310	162099444	7	0.000934	5556	0.003428
Oklahoma	261324	35992483	0	0.000000	0	0.000000
Tennessee	446543	0	0	0.000000	0	0.000000
Virginia	550552	1466217	30	0.005449	1146	0.078160
Mean (all)				0.001938		0.055574
Mean (solicited)				0.000836		0.078656
Mean (unsolicited)				0.003224		0.027874

## Threshold Behavior: Schedule II-III (Period 2)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>5 Prescribers and 5 Dispensers</b>						
Alabama	175184	148857234	1235	0.704973	834129	0.560355
Hawaii	152505	12153104	327	0.214419	402058	3.308274
Indiana	747446	103843812	1475	0.197339	836737	0.805765
Kentucky	1031987	133859476	2817	0.272969	2376044	1.775029
Maine	298573	39808360	9	0.003014	5232	0.013143
Massachusetts	0	0	0	0.000000	0	0.000000
New York	1893867	0	4788	0.252816	0	0.000000
North Carolina	1161975	196435034	1708	0.146991	1228079	0.625183
North Dakota	69309	10915918	192	0.277020	121748	1.115325
Ohio	1764220	305393546	8774	0.497330	4279417	1.401279
Oklahoma	943888	109467214	1909	0.202249	1520239	1.388762
Tennessee	1234568	0	4760	0.385560	0	0.000000
Virginia	1242179	3039453	3770	0.303499	67437	2.218722
Mean (all)				0.288182		1.321184
Mean (solicited)				0.315454		0.863459
Mean (unsolicited)				0.250001		1.728940

## Threshold Behavior: Schedule II-III (Period 2)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>10 Prescribers and 10 Dispensers</b>						
Alabama	175184	148857234	50	0.028541	42818	0.028764
Hawaii	152505	12153104	58	0.038032	87199	0.717504
Indiana	747446	103843812	74	0.009900	60616	0.058372
Kentucky	1031987	133859476	163	0.015795	880041	0.657436
Maine	298573	39808360	0	0.000000	0	0.000000
Massachusetts	0	0	0	0.000000	0	0.000000
New York	1893867	0	349	0.018428	0	0.000000
North Carolina	1161975	196435034	88	0.007573	78242	0.039831
North Dakota	69309	10915918	9	0.012985	6708	0.061452
Ohio	1764220	305393546	421	0.023863	219072	0.071734
Oklahoma	943888	109467214	141	0.014938	148103	0.135294
Tennessee	1234568	0	178	0.014418	0	0.000000
Virginia	1242179	3039453	336	0.027049	10397	0.342068
Mean (all)				0.017627		0.211246
Mean (solicited)				0.014299		0.142690
Mean (unsolicited)				0.022286		0.298717

## Threshold Behavior: Schedule II-III (Period 2)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>15 Prescribers and 15 Dispensers</b>						
Alabama	175184	148857234	11	0.006279	15475	0.010396
Hawaii	152505	12153104	21	0.013770	38957	0.320552
Indiana	747446	103843812	2	0.000268	2903	0.002796
Kentucky	1031987	133859476	55	0.005330	716595	0.535334
Maine	298573	39808360	0	0.000000	0	0.000000
Massachusetts	0	0	0	0.000000	0	0.000000
New York	1893867	0	81	0.004277	0	0.000000
North Carolina	1161975	196435034	15	0.001291	13602	0.006924
North Dakota	69309	10915918	2	0.002886	1221	0.011186
Ohio	1764220	305393546	59	0.003344	38112	0.012480
Oklahoma	943888	109467214	26	0.002755	31587	0.028855
Tennessee	1234568	0	22	0.001782	0	0.000000
Virginia	1242179	3039453	89	0.007165	3793	0.124792
Mean (all)				0.004095		0.105331
Mean (solicited)				0.002613		0.094655
Mean (unsolicited)				0.006170		0.118550

## Threshold Behavior: Schedule II-IV (Period 2)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>5 Prescribers and 5 Dispensers</b>						
Alabama	1577492	222547093	1847	0.117085	1436909	0.645665
Hawaii	199105	20972768	483	0.242586	652212	3.109804
Indiana	658742	106905495	106	0.016091	63127	0.059049
Kentucky	1928215	219960599	3369	0.174721	3005791	1.366513
Maine	449725	61108712	10	0.002224	5232	0.008562
Massachusetts	0	0	0	0.000000	0	0.000000
New York	2820072	0	6974	0.247299	0	0.000000
North Carolina	2244733	293837945	2391	0.106516	1885551	0.641698
North Dakota	126101	17209911	278	0.220458	210567	1.223522
Ohio	2424339	496711031	12326	0.508427	7522633	1.514489
Oklahoma	1458880	151143118	2712	0.185896	3004208	1.987658
Tennessee	1689820	0	27284	1.614610	0	0.000000
Virginia	1737051	5480194	5111	0.294234	110156	2.010075
Mean (all)				0.310846		1.256703
Mean (solicited)				0.362811		0.705996
Mean (unsolicited)				0.238095		1.776884

## Threshold Behavior: Schedule II-IV (Period 2)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>10 Prescribers and 10 Dispensers</b>						
Alabama	1577492	222547093	82	0.005198	85667	0.038494
Hawaii	199105	20972768	98	0.049220	153208	0.730509
Indiana	658742	106905495	2	0.000304	880	0.000823
Kentucky	1928215	219960599	226	0.011721	1315994	0.598286
Maine	449725	61108712	0	0.000000	0	0.000000
Massachusetts	0	0	0	0.000000	0	0.000000
New York	2820072	0	464	0.016453	0	0.000000
North Carolina	2244733	293837945	126	0.005613	135216	0.046017
North Dakota	126101	17209911	10	0.007930	8327	0.048385
Ohio	2424339	496711031	613	0.025285	365485	0.073581
Oklahoma	1458880	151143118	176	0.012064	214793	0.142112
Tennessee	1689820	0	1836	0.108651	0	0.000000
Virginia	1737051	5480194	429	0.024697	15552	0.283786
Mean (all)				0.022261		0.196199
Mean (solicited)				0.022396		0.126200
Mean (unsolicited)				0.022073		0.289102

## Threshold Behavior: Schedule II-IV (Period 2)

State	Individuals	Doses	Individuals (threshold)	Individuals (rate)	Doses (threshold)	Doses (rate)
<b>15 Prescribers and 15 Dispensers</b>						
Alabama	1577492	222547093	15	0.000951	22583	0.010148
Hawaii	199105	20972768	29	0.014565	54189	0.258378
Indiana	658742	106905495	0	0.000000	0	0.000000
Kentucky	1928215	219960599	77	0.003993	1113409	0.506186
Maine	449725	61108712	0	0.000000	0	0.000000
Massachusetts	0	0	0	0.000000	0	0.000000
New York	2820072	0	102	0.003617	0	0.000000
North Carolina	2244733	293837945	19	0.000846	22360	0.007610
North Dakota	126101	17209911	2	0.001586	1321	0.007676
Ohio	2424339	496711031	87	0.003589	61203	0.012322
Oklahoma	1458880	151143118	31	0.002125	46260	0.030607
Tennessee	1689820	0	325	0.019233	0	0.000000
Virginia	1737051	5480194	104	0.005987	5304	0.096785
Mean (all)				0.004708		0.092971
Mean (solicited)				0.004087		0.089377
Mean (unsolicited)				0.005576		0.096442

What Do The Findings Tell Us

## What Do The Findings Tell Us

- Doctor shopping at the thresholds that we have established and given current detection capabilities is a relatively uncommon behavior; therefore
- We may want to consider using lower or different thresholds.
- Doctor shoppers would in any case appear to receive a disproportionate number of doses. Keep in mind that
- We know little about sources of variability in the measures and the extent to which variability may be attributable to reporting error; and thus
- Comparisons across states must be made with caution; considering variability in population risk factors and in the ability of PDMP systems to detect suspicious behavior.

Next Steps

## Next Steps

- Increased standardization of measures
- Development of vendor-based user groups
- Increased sharing of data definitions and code
- Simplification of reporting procedures
- Validation of doctor shopping measures
- Re-evaluation of PDMP impact

# Discussion