THE PRICE AND PURITY OF ILLICIT DRUGS IN OREGON AND THE PORTLAND METROPOLITAN AREA

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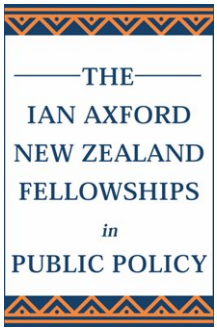
A REPORT FOR THE LOCAL PUBLIC SAFETY COORDINATING COUNCIL OF MULTNOMAH COUNTY, OREGON AND TO MEET REQUIREMENTS FOR THE IAN AXFORD NEW ZEALAND FELLOWSHIP IN PUBLIC POLICY

MATT NICE
IAN AXFORD NEW ZEALAND FELLOW IN PUBLIC POLICY



THE PRICE AND PURITY OF ILLICIT DRUGS IN OREGON AND THE PORTLAND METROPOLITAN AREA

EXECUTIVE SUMMARY

An examination of historical *Drug Enforcement Agency* data for Oregon and the Portland Metropolitan areas since 1993 was performed to determine changes in purity and price per pure gram of various illicit drug markets, with increased emphasis on methamphetamine. The analysis was performed as part of comparative examination of outcomes of methamphetamine markets through an *Ian Axford New Zealand Fellowship in Public Policy*.[1]

Overall, the results at the state and local level mirror those at the national level. In general, cocaine and heroin market purity appeared more stable than the methamphetamine markets. In general, the trends for methamphetamine and cocaine suggest greater purity over the last thirteen years and lower prices per pure gram as the markets adapted to restrictions to meet demand.

Changes in cocaine and heroin market availability reflected substantial changes in countries outside the United States. Methamphetamine volatility appeared to reflect federal and local regulatory and legislative precursor controls changes. Typically a drop of around 20% in methamphetamine purity (and increase in price) was followed by a market rebound of approximately 9% the following year. Overall, the market adapted and surpassed these levels after two to three years to meet demand.

Past research suggests that entrenched, mature markets appear to be better impacted through demand-side strategies that reduced use. Given that many high-risk addicts are readily identifiable by law enforcement through their criminality and are often high volume users, law enforcements' role in demand-side reduction is critical. Additionally, traditional law enforcement efforts appear most successful when drug markets are emerging and vulnerable to law enforcement disruptions.

Local synthetic drug production unconstrained by geography will continue to be the future of the drug threat. It is critical for policy makers and law enforcement personnel to be prepared for the next emerging drug. Law enforcement must have the capability to quickly identify, respond to, and quantify their results before a new market has a chance to take hold. Early law enforcement intervention can destabilize a new emerging market, while their role in demand-reduction can diminish a mature existing market.

DISCLAIMER

The opinions expressed herein are the views of the author and do not necessarily reflect the official policy of Multnomah County, the Local Public Safety Coordinating Council of Multnomah County, the State of Oregon, the Ian Axford New Zealand Fellowship in Public Policy, or Fulbright, New Zealand.

[1] The Ian Axford New Zealand Fellowship in Public Policy enables policy professionals from the United States to come to New Zealand and work on a range of projects. Matt Nice (on temporary leave) manages the Multnomah County (Oregon), Budget Office Evaluation Unit, carrying out program evaluation, performance measurement and policy analysis. His specialty is public safety, crime and drug policy research.

BACKGROUND

People obtain drugs through illicit markets much in the same way legal goods are obtained in open markets.[2] However, due to the clandestine nature of the illegal drug market price, and quality information are not readily available. Both the purity and price of illicit drugs are reasonable proxy outcome indicators of market availability. These are important indicators that are more indicative of control efforts, versus the more commonly reported output measures such as arrests made, labs found, or amounts seized. Output measures such as these are also important, but are often a better reflections of activities and not the results of those activities. Generally from a supply-side drug control policy perspective, the greater the amount available, the lower the product price and the greater the product quality, measured as purity.[3]

To understand market outcomes, purity and price should be tracked and reported together because they work in tandem. For example, a standard street drug-buy may be the ubiquitous 'dime-bag'; a name reflecting the $10 value of the purchase.[4] While the value of the bag may remain constant over time, the amount and purity of the drug in the bag can fluctuate. An analogy would be the ever shrinking candy-bar, that still costs only $0.40. Without proper analysis of purity and price, it is difficult to determine changing market dynamics.

Previous reports on purity and price data have typically examined national data sets, with few examinations of local trends. Past research has shown that illicit drug markets can vary considerably geographically--even by neighbourhood-- and as such analysis should occur in communities where reliable data are available.[5] To that end, this report is designed to provide an initial up-to-date estimate of trends in the purity and price per pure gram of drugs in Oregon and the Portland Metropolitan area.

The information herein will be used as a basis for a comparative examination of methamphetamine market trends in New Zealand, as part of an *Ian Axford (New Zealand) Fellowship in Public Policy*, and is made available for researchers and policy makers of Multnomah County, Oregon, and the Local Public Safety Coordinating Council. Oregon and Portland Metropolitan detail have been reported annually since 1993.

METHODS

Data from the *Drug Enforcement Administration's* (DEA's) *System to Retrieve Information from Drug Evidence* (STRIDE) database were obtained to as the source of the purity and price data.[6] These data reflect all DEA lab tested results nationally for all drug types since 1981. It must be noted that these data, like all data, are simply one set of data with inherent limitations. A future

[2] Reuter & Caulkins, 2004.
[3] A comprehensive drug policy addresses supply-control interventions (i.e., interdiction and enforcement), demand-side interventions (i.e., treatment of users), and effective prevention programs. Some interventions are more or less effective depending on the market maturity (see Caulkins, 2003).
[4] To reduce time of a deal and risk of apprehension, drug-buys are often priced conventionally in round dollar amounts (see Caulkins & Reuter, 2006; Caulkins, (Forthcoming))
[5] Ibid.
[6] STRIDE data were obtained via a *Freedom of Information Act* request and included all open and closed cases from 1981 to January 16, 2007. A total of 959,037 cases were received.

comprehensive analysis of various data are needed for a more robust understanding of illicit market drug dynamics.

Criteria. Selection criteria included cases from Oregon where the substance sample was obtained through either a purchase or seizure. Amounts were reported in grams (versus tablets, capsules, or liquids); reported purity was greater than zero purity; reported in net amount of at least 0.1 gram; and where the raw price per pure gram was between $3 and $3,000 for cocaine and methamphetamine and $7.50 and $10,000 for heroin. These criteria are consistent with those outlined in the *Technical Report for the Price and Purity of Illicit Drugs: 1981 Through the Second Quarter of 2003*, pg 2-11.[7]

The estimates for price per pure gram are based on observations in STRIDE, that include drug quantity, quality, and transaction price. All price data are adjusted for inflation and reported in 2006 dollars, based on Portland-Salem area CPI.

Limitations. Drug acquisitions sent to a DEA laboratory for analysis are tracked in STRIDE. One limitation to the analysis of this data are the fact that the reported observation are not random. They represent a specific subset of drug transactions; notably only those cases where law enforcement personnel are directly involved and only those cases which are raised to the attention of the federal government. Therefore, the majority of drug transactions (i.e., local and state police transactions) are not represented in the data. Nonetheless, the data are valuable as the only consistent indicator of the purity and price of illicit drugs and are used by researchers and policy makers to track market dynamics.[8]

While care was taken to remain consistent with prior analysis of STRIDE data, methodological and sample size changes and limitations occurred as part of the analysis of Oregon and Portland Metropolitan samples. Note that this differs from previous reports examining national price estimates.[9] Additionally, because previously restricted STRIDE cases have since been added to the STRIDE data set, results may differ from values previously reported.

RESULTS: OREGON PRICE AND PURITY TRENDS

There was a total of 9,994 observations for Oregon for all drug types, amounts, and years in this analysis. There are often several isotopes of each type of drug. For simplicity, these are categorized and reported in Table 1.

[7] Washington DC: Executive Office of the President (Publication Number NCJ 207769).
[8] Ibid.
[9] In previous national reports, amounts reported were weighted for population and reported at various quantities to control for volume discounts. National data reported herein are unweighted and include all purchase observation regardless of quantity. These should be used only as general indicators of trends and not for the specific values.

Table 1. STRIDE Observations for Oregon Since 1981 (All Types)

Drug Category (All Types)	N	%
Methamphetamine	3210	32%
Cocaine	2479	25%
Cannabis	2207	22%
Heroin	1322	13%
Other	776	8%
Total	**9994**	**100%**

After applying the appropriate criteria (see 'Methods' section above) and limiting data to cases seized since 1993, the final count was 4,915. The following substances were analyzed and reported: d-methamphetamine (n=2,497), heroin (tar/ salt; n=971), and powder cocaine which excludes crack (n=1447). Appendix A shows the frequency of drug types for Oregon.[10]

There are several ways to examine and report illicit purity and price data. Depending on the methodology, the amounts of both purity and price per gram can vary. In all of the following analyses, figures are included to show the purity levels for all observations and for all purchase observations (i.e., drug buys), separately. While big picture trends are reasonably similar regardless of methods, the differences can be notable with the smaller samples. Values for Oregon are reported in tables in Appendix B and for the Portland Metropolitan area in Appendix C.

Methamphetamine. The STRIDE data included methamphetamine observations for the substances dl-methamphetamine, l-methamphetamine, and d-methamphetamine. The d-methamphetamine substance had the greatest number of observations and was selected separately for analysis in previous research. The following analyses will only apply to those cases with d-methamphetamine. Between 1993 and 2006, there were 2,176 total observations in the State of Oregon. The Portland Metropolitan area accounted for 502 or 23% of Oregon's observations, likely reflecting the availability of drugs in both urban and rural settings. Additionally, unlike many other states, Oregon is both an importer of methamphetamine and a domestic producer. Appendix B lists the values of the analysis.

Figure 1 shows that Oregon's methamphetamine purity has fluctuated greatly over time, from 21% (1998) to 73% (2005) in all observations (M 46%, SD 17%). There is a high correlation between the purity levels for all observations and for only those observations that included purchase data.[11] These results are consistent with albeit slightly more pronounced than national methamphetamine trends (see Appendix D, Figure 16).

[10] This is for all years of data, since 1981.
[11] $r = .96$

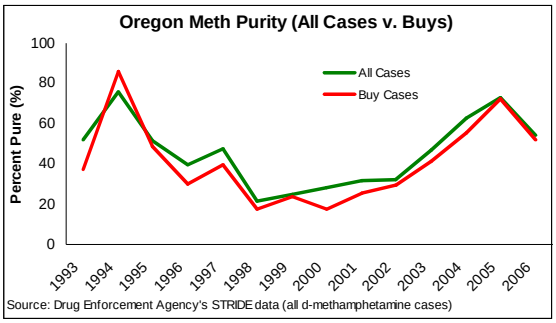


Figure 1. Oregon Methamphetamine Purity Trends

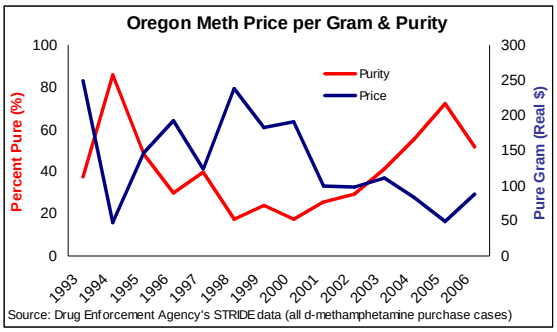


Figure 2. Oregon Methamphetamine Price per Pure Gram Trends

The price per pure gram has also fluctuated greatly from $47 (1994) to $237 (1998), with an average of $135 (SD=$65). There is an inverse relationship between purity and price per pure gram (see Figure 2).[12] As the purity levels increase price per pure gram decreases. Lower prices and higher purity point to great market availability. The greater the volatility in price or purity, the less stable the product availability. Stable markets point to greater market maturity and lower effectiveness of supply-side interventions.

Overall, decreases in methamphetamine availability (measured in deceased purity and increased price) in Oregon have been associated with precursor controls (both State and Federal). For example, in 1995 the Federal government enacted ephedrine regulations nationally. Shortly after that, Oregon's purity dropped by approximately 18%. In late 1997, similar regulations were enacted nationally for pseudo-ephedrine. Again, Oregon data showed a drop in purity of approximately 22%.

However, researchers find that like legal markets, disruptions in illicit drug markets lead to adaptation to meet ongoing demand.[13] One year after each restriction, Oregon's market purity levels rebounded approximately 10% and 7%, respectively. Within three years the markets returned to and then exceeded previous levels in purity.

Until 2005, cold medicines containing pseudo-ephedrine that could be diverted as methamphetamine precursors were readily available in stores. In mid-2005, Oregon enacted legislation which no longer treated cold medicines containing pseudo-ephedrine as over-the-counter (OTC) medication. Several restrictions were enacted such as limited purchase amounts, product placement behind the pharmacy counter, a necessity of a prescription and the requirement of government issued identification to purchase. A less stringent national version of this legislation was passed in 2006.[14] The Oregon data show that purity levels dropped about 20% and price increased, consistent with previous precursor restrictions. Tracking purity and price data over the next year will be critical in assessing the methamphetamine market outcomes and potential rebounds, if any.

[12] The price-per-pure gram (real dollars) and purity correlation between d-methamphetamine for all observations and for purchase observations only was -.64 and -.72, respectively.
[13] Ibid., Reuter & Caulkins, 2006.
[14] Nationally, similar restrictions occurred mid-2006 under the *Combat Meth Act*.

Other methamphetamine tests. Examining purity data by the method of acquisition suggest that the purity levels from lab seized samples were consistently higher than either purchases or types of seizures. It should be noted that the lab seizure samples sizes are relatively low and results should be viewed with caution. Purchase and seizure data appears to be quite similar, as would be expected from the previous figure, with purchase samples reflecting somewhat lower levels of purity.[15]

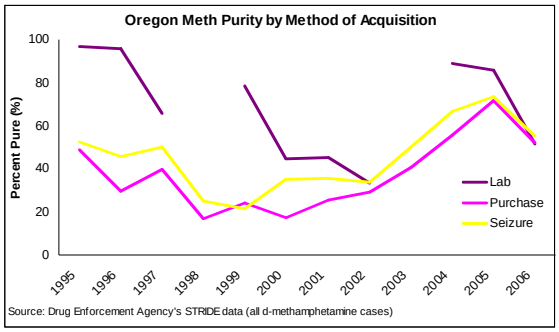


Figure 3. Oregon Methamphetamine Purity by Method of Acquisition

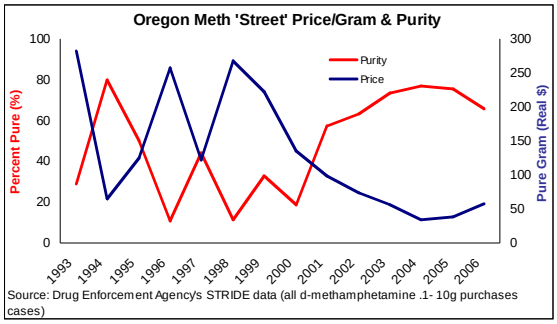


Figure 4. Oregon Methamphetamine 'Street' Price & Purity per Pure Gram

In the study *The Price and Purity of Illicit Drugs* performed for the *Office of National Drug Control Policy* (ONDCP) by the *RAND Corporation*, data were examined at various quantity levels to control for volume discounts in a national price estimate.[16] The study calculated 'street' amounts (.1 to 10 grams), 'retail' amounts (more than 10 to 100 grams), and 'wholesale' amounts (more than 100 grams). Due to the limited number of Oregon cases, only those cases that met the street definition with purchase data were analyzed. Results should be viewed with caution.

As can be seen in the Figure 4, since 2001, the street purity and price suggest a stabilizing market of available methamphetamine. The price consistently dropped, while the purity increased. The price per pure gram suggests some of the lowest recorded levels, while purity levels of those samples are some of the most potent. Research suggests that this situation relates with the likelihood of new user initiation, increased drug treatment admissions, increased methamphetamine-related hospital admissions, and greater likelihood of drug-related criminal behaviours (Caulkins, (Forthcoming); Caulkins & Reuters, 1996; Caulkins & Reuters, 2003; Cunningham, J. & Lui, L. M., 2003).[17]

Cocaine. The STRIDE data included cocaine observations for powder and crack cocaine. Due to the limited nature of the crack cocaine observations, only those for powder cocaine were analyzed. Appendix B lists the values of the analysis. Between 1993 and 2006, there were 780 total observations. Portland Metropolitan accounted for 526 or 67% of Oregon's observations,

[15] These lower purity levels likely reflect the more common diluted street purchased product.
[16] *The Price and Purity of Illicit Drugs: 1981 Through the Second Quarter of 2003*. (2004). Washington DC: Executive Office of the President (Publication Number NCJ 207768).
[17] The cause and effect relationship between illicit drug and crime is debatable. However, simply possessing a scheduled drug is typically a felony offence and therefore, increasing initiation into illicit drug use increases crime.

considerably higher than other drug types. This likely reflects the limited urban market and distribution network for cocaine in Oregon.

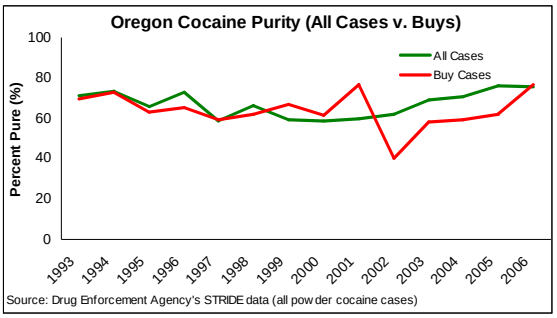


Figure 5. Oregon Powder Cocaine Purity Trends

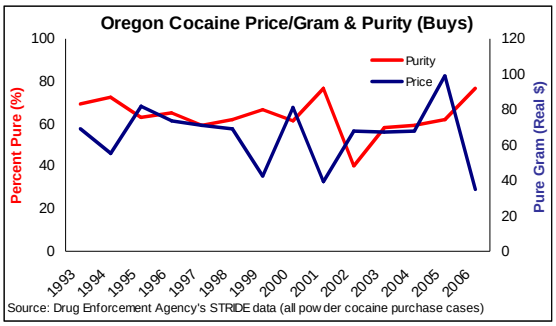


Figure 6. Oregon Powder Cocaine Price per Pure Gram Trends

Figure 5 shows that powder cocaine purity has fluctuated less dramatically when compared to methamphetamine, with variation from 59% to 76% (all observations; M=67%, SD=6%)). The correlation between the purity data of all observations and of purchase observations is substantially lower than for methamphetamine.[18] The only notable change in price and purity for cocaine occurred in 2000, and may be related to the height of large scale fumigation efforts by the Colombian government that saw a reduction in cultivation of about 30% (United Nations, 2003).[19]

The price per pure gram ranged from $35 to $99 with an average of $66 (SD=$18). Showing greater stability than methamphetamine, Oregon's powder cocaine market displays a similar inverted relationship between price per pure gram and purity (r = -.51). The reduced volatility may be due to the fact that cocaine markets are mature, and they are nationally distributed based on an externally sourced global market where nearly all cocaine is produced in Columbia, Peru, and Bolivia.[20] A mature single external source may reduce the market volatility that an added local production market may provide as is the case with methamphetamine. Most recently, data suggest that the price per pure gram has dropped substantially while the purity level has increased in purchase observations (see Figure 6).[21] However, this could also be variance associated with a small sample size.

Heroin. The STRIDE data included heroin observations for heroin hydrochloride, heroin base, heroin salt, and heroin for the Domestic Monitoring Program. Due to the limited number of cases only the heroin (tar and salt) observations were analyzed. This differs from the previous research nationally that had far greater numbers of heroin hydrochloride and heroin base observations than tar nationally. Between 1993 and 2006, there were 485 total observations in the State of Oregon. Portland Metropolitan area accounted for 241 or 50% of Oregon's observations. Appendix B lists the values of the analysis.

[18] r = .29
[19] pg 22.
[20] see *United Nations 2006 World Drug Report (Volume 1): Analysis;* and Caulkins, 2003.
[21] see Walsh, 2007.

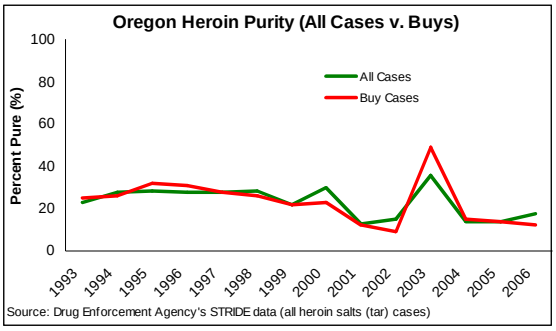


Figure 7. Oregon Heroin (tar/ salt) Purity Trends

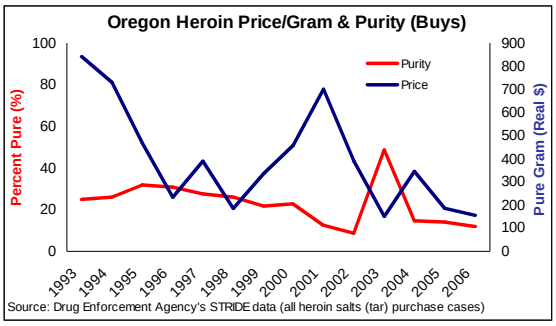


Figure 8. Oregon Heroin (tar/ salt) Price per Pure Gram Trends

Figure 7 shows that Oregon's heroin purity has fluctuated little over time (M=23%, SD=7%), showing a slight decline in purity level. The correlation between the purity data of all observations and of purchase observations is similar to methamphetamine.[22] However, the real (inflation adjusted) price per pure gram has shown dramatic fluctuations over time-- from a high of $841 (1993) to a low of $152 (2003) with an average of $398 (SD=$224).

The heroin market in Oregon appears to have a more standardized level of purity (about 23%) which changes in a much narrower band than other drugs. Those changes in market availability appear more likely to be more reflected in the price per pure gram as availability varies (see Figure 8). There was lower correlation between the price per pure gram and the purity for heroin (r = -.13). Small changes in the purity appear associated with greater changes in heroin price than other drugs.

As with cocaine, heroin production is based in a global market that is sourced to a few key locations (i.e., Afghanistan, Myanmar, and Laos PDR). Because of this, global events that significantly impact supply appear to effect both price and purity in Oregon. For example, the near doubling of price per pure gram in 2001 reflected the world-wide market drop in opium production due to restrictions imposed by the Taliban on Afghanistan poppy cultivation.[23] Production promptly returned to historical rates after the Taliban was overthrown by the United States. Purity levels in Oregon subsequently returned to pre-2001 levels within two to three years, with prices returning somewhat later. For established markets, research suggests that it often takes the synergy of sustained multiple factors such as reduced source supply, geographic isolation, increased enforcement efforts, reduced profit, demand reduction (i.e., treatment), and market shift to other drug production to impact the drug markets long-term (Degenhardt, Reuter, Collins, & Hall, 2005; Roberts, Trace, & Klein, online). Research has found that intercepting even significant amounts of illicit drugs alone, can have little or no measurable effects upon its availability in an established market (Wood, Tyndall, Spittal, Li, Anis, Hogg, Montaner, O'Shaughnessy, & Schechter, 2003).

[22] r = .90

[23] See *Afghanistan ends opium poppy cultivation*. United Nations, 2001; United Nations, 2007. pg 70.

RESULTS: PORTLAND METROPOLITAN PRICE AND PURITY TRENDS

A subset of Oregon data were selected in order to analyze the Portland Metropolitan drug markets. The Portland Metropolitan area consists of acquisitions in Portland, Gresham, Beaverton, Tigard, Troutdale, Hillsboro, Milwaukie, and Lake Oswego. As with the Oregon data, only d-methamphetamine, heroin (tar/ salt), and powder cocaine were examined. The Portland Metropolitan data made up approximately 45% of all of Oregon observations, which varied by drug type. In several cases there were few or no observations, therefore caution should be used in interpretation of the results at this level of detail (see Appendix C for results and sample sizes).

Methamphetamine. Methamphetamine represents the most robust data set for the Portland Metropolitan area. As with the state level data, the methamphetamine markets have fluctuated over the last 13 years and show consistency with national data (see Appendix D, Figure 16). Figure 9 shows that like the overall State results, the purity for all observations in Portland are similar to those of the purchase only cases (r = .93). Additionally, the purity levels and the price per pure gram are highly negatively correlated (r = -.90). As purity levels increased, the price per pure gram decreased. Reduced price per pure gram and increased purity represent increased market stability and greater availability of illicit drugs.

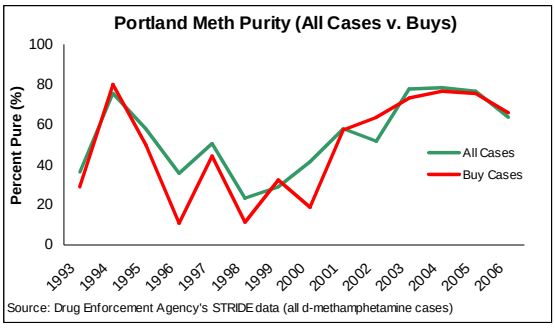


Figure 9. Portland Methamphetamine Purity Trends

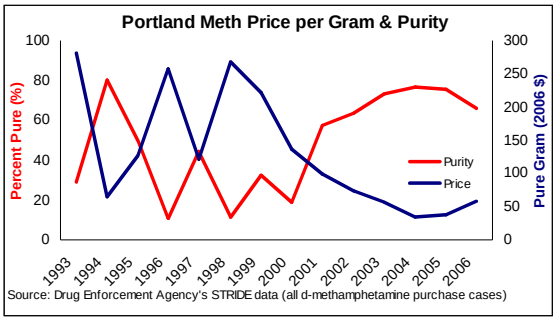


Figure 10. Portland Methamphetamine Price per Pure Gram Trends

As with the state level data, Portland's 2006 market was marked by price increases and purity level decreases consistent with precursor cold medicine legislation (see Figure 10). Purity ranged from 23% to 78%, with an average of 54% (SD=19%). Price per pure gram ranged from $34 to $282 and averaged $131 (SD=$89).

Historically, the markets have shown quick adaptation to changes in regulatory controls on precursors (Caulkins, 2002). Historically, these have rebounded as the market adapted to meet existing demand. It will be important to follow the market purity levels and price for the next year to determine the impact and duration precursor controls had upon the local markets.

Cocaine. Portland Metropolitan are figures are most robust for pre-1999 (see Appendix B, Table 4). Figure 11 shows that powder cocaine purity has fluctuated far less dramatically over time when compared to methamphetamine. Additionally, the correlation between the purity data of all observations and of purchase observations (r =.29) is far lower than for methamphetamine.

The powder cocaine purity in Portland show lower variability compared to methamphetamine, with purity ranging from 56% to 80% pure (M=69%; SD=7%). Price has shown great fluctuations from $31 to $99 (M=$62; SD=$22). However, most recently, data suggest that the price pre pure gram has dropped substantially while the purity level has increased slightly in purchase observations. It will be worth following this trend to determine if it is merely the artefact of a small sample size.

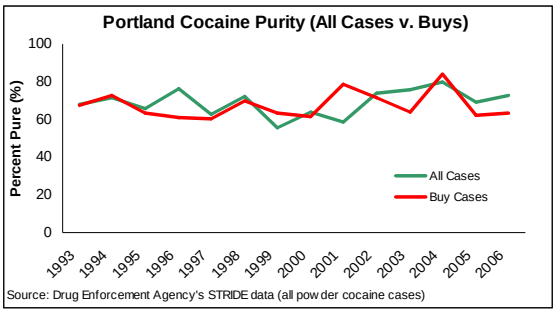


Figure 11. Portland Powder Cocaine Purity Trends

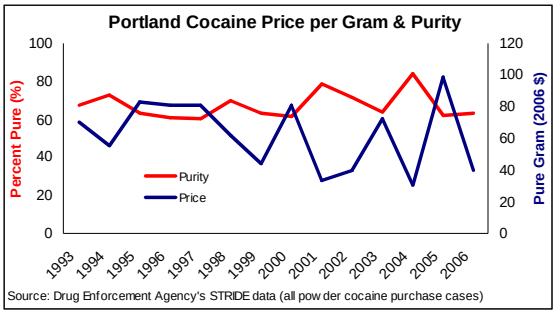


Figure 12. Portland Powder Cocaine Price per Pure Gram Trends

Heroin. The Portland heroin data is reported for far fewer cases than any other set reported herein. Purchase data are missing for 2002 and 2006, and only one case is reported in 2005. Therefore, the heroin market data for Portland Metropolitan should be viewed with extreme caution (see Appendix C for sample sizes).

Portland heroin purity ranged from 14% to 62% (M=30%; SD=13%). Inflation adjusted price per pure gram ranged from $127 to $1079 (M=$439; SD=$281).

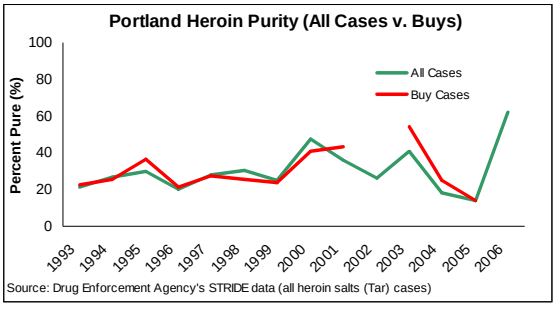


Figure 13. Portland Heroin (tar/ salt) Purity Trends

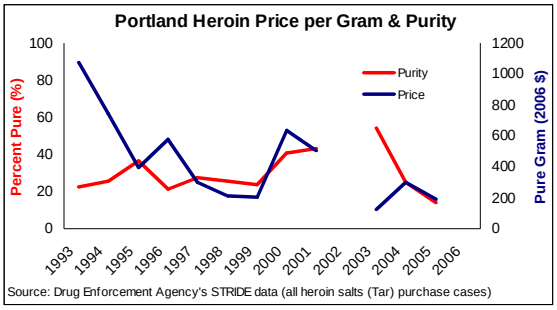


Figure 14. Portland Heroin (tar/ salt) Price per Pure Gram Trends

DISCUSSION

The results presented in this report are a detailed analysis of Oregon and the Portland Metropolitan area purity and price per pure gram data for a variety of illicit drugs. The results for methamphetamine at the state and local level generally mirror those at the national level in general. For all drug types reported, the market reflects changes in availability, as seen in cases where price and purity levels change. For the most part, cocaine and heroin markets appeared more stable in Oregon and the Portland Metropolitan area than did the methamphetamine market.

Changes in market availability of the drugs examined herein reflected substantial changes in national policy both in the United State and internationally. For example, heroin and cocaine market changes reflected global changes in availability, more so than local market dynamics. However, methamphetamine markets appear to reflect volatility due to Federal and local regulatory and legislative changes. It is likely that this difference is due to the nature of a drug market. Unlike heroin and cocaine markets, Oregon's local methamphetamine markets trade in both locally produced and imported product.

Methamphetamine changes generally reflected domestic precursors controls, consistent with previous research findings. Typically a drop of nearly 20% in purity (and the associated increase in price) was followed shortly by a market rebound of approximately 9%. Overall, the market adapted, and surpassed these levels after just two to three years. The most recent domestic precursor controls will be important to follow to determine primarily if any substantial change in availability was achieved and secondarily, how much time it takes before the market adapts.

Data suggest that methamphetamine seized from local labs had generally higher purity levels than other seized drugs or those acquired through purchases. It is important to further examine the relationship between likely uncut lab produced and imported product versus what is sold at the street level. A methamphetamine signature program, similar to those for heroin and cocaine, could be helpful in determining the source region for methamphetamines (e.g., locally produced versus imported). Lower purity is key in achieving outcomes such as reduced methamphetamine-related emergency hospital admissions, fewer treatment admissions, and lower incidents of drug overdose.

Overall, the trends for methamphetamine and cocaine suggest greater purity levels over the last thirteen years and lower prices per pure gram, marked by some temporary reductions in availability. Substantial reductions in the markets availability were marked by large scale interventions on either a national or international scale and not from local law enforcement (e.g., Taliban and heroin; crop eradication in Colombia and cocaine; and methamphetamine and various national precursor controls). Data suggest that in all cases, these changes were short-term as the market adapted to meet demand.

These results suggest that the extensive local law enforcement efforts have had little, if any, short-term or long-term impact upon the outcomes of various drug markets examined herein.[24] Locally, as seen nationally, prices continue to fall and purity levels continue to increase for cocaine and methamphetamine. Experts suggests that entrenched, mature markets appear to be better impacted through demand-side strategies, for instance reduced use. Given that many high-risk addicts are readily identifiable by law enforcement through their criminality and are often high volume users, the law enforcement role in demand-side reduction is critical.

Several strategies have been outlined by former RAND Corporation's Drug Policy Research Center Director Jonathan Caulkins to leverage law enforcement in demand-side reduction policies (2002). For example, law enforcement partnership with treatment through drug courts and working with community parole/ probation efforts to ensure treatment compliance offer an effective carrot and stick approach. These can be applied even in cases where formal drug courts

[24] These results are consistent with other research findings on law enforcement interventions.

do not exist. Using existing law enforcement resources to move addicts into treatment at every opportunity is critical to long-term reduction in demand.[25] Several of these strategies already occur to some degree in the Portland Metropolitan area, and to a lesser degree in Oregon.

Some researchers suggest that traditional law enforcement efforts are most successful when markets are emerging and vulnerable to law enforcement disruptions (Tragler, Caulkins, & Feichtinger, 2001; Caulkins, 2003). To be effective, this means that it is critical for policy makers and law enforcement personnel to be prepared for the next emerging drug market. Law enforcement must have the capability to identify the new emerging threat, they must be able to shift resources to effectively disrupt an emerging distribution network, and must be able to track their success through quality outcome measures.

Synthetic drug production (e.g., ecstasy, fantasy, GHB, BZP, etc.) unconstrained by isolated source geography will continue to be the emerging drug threat. Early law enforcement intervention can destabilize an emerging market, while their role in demand-reduction can diminish a mature existing market.

[25] Research finds that like other chronic diseases, drug addiction often required multiple treatment opportunities and continuous after-care for long-term drug use reduction and abstinence (for a review see McLellan, Lewis, O'Brien, Kleber, 2000).

Appendix A. STRIDE Data Sets for Oregon and Portland Metropolitan Area

Table 2. STRIDE Drug Observations for Selected Drug Types Since 1981

	Oregon		Portland Metropolitan		
Drug Category	N	%	N	%	Portland % of Oregon
d-Methamphetamine	2497	51%	598	27%	24%
Powder Cocaine	1447	29%	969	44%	67%
Heroin (tar/ salt)	971	20%	622	28%	64%
Total	**4915**	**100%**	**2189**	**100%**	**45%**

Appendix B. Oregon Drug Trends

Table 3. Oregon d-Methamphetamine Price and Purity

	All Observations		Purchase Observations (Drug Buys)		
	Cases	Purity (%)	Cases	Purity (%)	Pure Gram ($)*
1993	37	51.86	10	37.3	248.96
1994	78	75.6	19	85.74	47.24
1995	117	51.46	38	48.48	146.53
1996	74	39.45	31	30.02	192.22
1997	137	47.36	53	39.5	123.32
1998	131	21.36	56	17.45	237.47
1999	138	24.68	66	24.01	182.54
2000	182	28.46	74	17.43	190.19
2001	176	31.69	68	25.52	99.60
2002	134	32.37	46	29.42	97.86
2003	228	46.74	87	41.19	110.57
2004	288	62.49	124	55.61	83.09
2005	228	73.09	77	72.43	48.36
2006	228	54.02	80	51.88	88.70

*Price CPI adjusted and reported in real 2006 dollars.

Table 4. Oregon Powder Cocaine Price and Purity

	All Observations		Purchase Observations (Drug Buys)		
	Cases	Purity (%)	Cases	Purity (%)	Pure Gram ($)*
1993	83	71	50	69.44	69.05
1994	110	73.5	60	72.73	55.23
1995	101	65.71	58	63.16	81.85
1996	66	72.85	20	65.1	73.93
1997	66	58.93	31	59.13	71.28
1998	57	66.04	28	61.75	69.21
1999	30	59.5	8	66.75	42.62
2000	23	58.91	4	61.25	81.19
2001	22	59.95	6	76.5	39.59
2002	37	62	13	40	68.13
2003	62	68.77	22	58.05	67.36
2004	42	70.69	8	59.5	67.68
2005	28	76.11	4	62	98.95
2006	53	75.42	12	76.67	34.61

*Price CPI adjusted and reported in real 2006 dollars.

Table 5. Oregon Heroin (tar/ salt) Price and Purity

	All Observations		Purchase Observations (Drug Buys)		
	Cases	Purity (%)	Cases	Purity (%)	Pure Gram ($)*
1993	26	22.8	17	24.92	841.38
1994	76	27.64	44	25.93	731.36
1995	62	28.11	30	32.08	466.46
1996	31	27.84	20	30.7	234.08
1997	54	27.8	27	27.59	389.58
1998	47	28.23	33	25.93	184.88
1999	49	21.6	39	21.88	337.91
2000	40	30.01	24	22.84	458.31
2001	16	12.91	15	12.37	701.96
2002	11	14.65	5	8.86	388.40
2003	36	35.39	16	48.81	152.49
2004	19	13.82	11	14.67	344.13
2005	1	14	1	14	186.97
2006	17	17.65	12	12.11	156.78

*Price CPI adjusted and reported in real 2006 dollars.

Appendix C. Portland Drug Trends

Table 6. Portland Metropolitan d-Methamphetamine Price and Purity

	All Observations		Purchase Observations (Drug Buys)		
	Cases	Purity (%)	Cases	Purity (%)	Pure Gram ($)*
1993	9	36.56	8	28.75	281.83
1994	26	75.46	3	80	64.37
1995	28	57.94	14	49.76	125.62
1996	10	36.06	2	11	256.93
1997	23	50.78	8	44.13	121.59
1998	24	23.49	2	11.5	267.34
1999	23	29.12	16	32.61	221.43
2000	25	41.72	8	18.63	135.93
2001	31	58.11	6	57.5	98.06
2002	28	51.8	8	63.38	73.16
2003	36	78.08	18	73.56	55.79
2004	90	78.28	21	76.81	34.30
2005	74	76.93	26	75.65	38.19
2006	75	63.63	23	65.65	57.30

*Price CPI adjusted and reported in real 2006 dollars.

Table 7. Portland Metropolitan Powder Cocaine Price and Purity

	All Observations		Purchase Observations (Drug Buys)		
	Cases	Purity (%)	Cases	Purity (%)	Pure Gram ($)*
1993	70	68.21	44	67.66	70.38
1994	93	71.77	60	72.73	55.23
1995	90	65.88	56	63.45	83.07
1996	41	76.32	10	60.9	80.89
1997	29	62.72	18	60.44	80.98
1998	26	72.12	17	69.65	62.02
1999	22	55.77	6	63.33	43.97
2000	12	64.08	4	61.25	81.19
2001	16	58.69	4	78.5	33.42
2002	11	74.18	3	71.67	39.88
2003	36	75.78	13	63.92	72.17
2004	26	79.73	4	84.25	30.66
2005	16	69	4	62	98.95
2006	38	73.05	5	63.4	39.68

*Price CPI adjusted and reported in real 2006 dollars.

Table 8. Portland Metropolitan Heroin (tar/ salt) Price and Purity

	All Observations		Purchase Observations (Drug Buys)		
	Cases	Purity (%)	Cases	Purity (%)	Pure Gram ($)*
1993	12	21.23	10	22.27	1079.03
1994	62	26.7	42	25.74	745.16
1995	42	30.14	21	36.73	396.56
1996	4	20	3	21.33	575.00
1997	26	28.35	15	27.6	300.40
1998	24	30.41	17	25.87	213.95
1999	8	25	6	24	205.10
2000	18	47.39	9	40.78	635.17
2001	3	36	2	43.5	501.28
2002	2	26			
2003	27	41	14	54.36	126.51
2004	10	18.14	4	25.05	299.44
2005	1	14	1	14	186.97
2006	2	62.5			

*Price CPI adjusted and reported in real 2006 dollars.

Appendix D. Unadjusted National Purity & Price per Gram Data

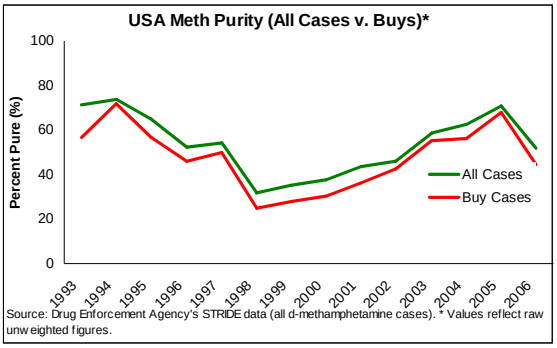


Figure 15. USA Methamphetamine Purity Trends

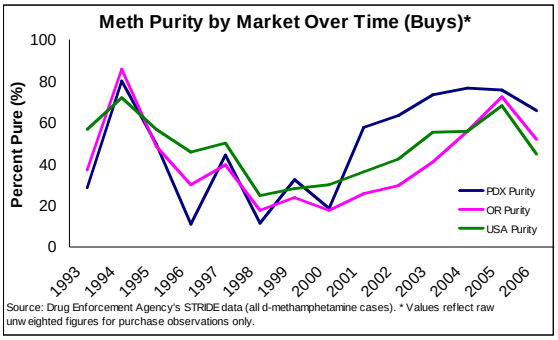


Figure 16. Methamphetamine Purity Trends by Geography

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