

# **An Initiative to Improve Outcomes Among Prolific and Priority Offenders in Six British Columbia Communities: Preliminary Analysis of Recidivism**

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## **Abstract**

There is emerging consensus in correctional literature that a disproportionate amount of crime (particularly property crime) is committed by a minority of offenders. Recognition of this phenomenon has spurred a variety of programs in several countries that emphasize inter-agency collaboration as a means of improving offender outcomes and increasing community safety. Outcome evaluations of these initiatives have been completed in the UK, and provide limited support for their effectiveness in relation to the primary goal of improved public safety. We examined Prolific and Priority Offender Management programs operating in six British Columbia communities (N=197). Using linked administrative data for services administered by health, justice, and social services, we analyzed pre-post changes in offender behaviour. Results indicate that enrolment in the project was associated with a significant decrease in recidivism, alongside significant increases in health and social service use. The magnitude of the reduction in offending was similar to changes reported in previous studies elsewhere. Our results include a preliminary analysis of costs, and the opportunity for future research examining potential cost avoidance through programs of this type. We discuss important limitations of the current research, and emphasize the need for experimental designs.

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## Introduction

There is emerging consensus in correctional literature that a disproportionate amount of crime (particularly property crime) is committed by a minority of offenders (Marlow, 2007; Mawby & Worrall, 2004; Millie & Erol, 2006; Vennard & Pearce, 2004). There is also general agreement among scholars that custody alone is a relatively ineffective method of reducing offending (Moore, Gray, Roberts, Taylor & Merrington, 2006), and that 'getting tough on crime' has been unsuccessful (Andrews & Bonta, 2010). These realizations have spurred a variety of programs in several countries that emphasize inter-agency collaboration as a means of improving offender outcomes and increasing community safety (Mawby and Worrall, 2004). Illustrative programs are predicated on the emerging concept of therapeutic jurisprudence (Public Safety Canada & Alberta Solicitor General, 2010) and growing evidence that successful criminal justice policy requires a focus on evidence-based offender treatment and rehabilitation practices (Andrews & Bonta, 2010).

A central feature of this new approach is targeted and intensive offender surveillance via coordinated police and probation partnerships or "polibation" (see Nash, 1999). These partnerships are further supported by an integrated team of service providers that deliver interventions tailored to local priority and prolific offenders including substance use and mental health treatment, as well as referrals to employment, income assistance and housing programs. This assertive outreach is complemented by a second component of the strategy – prompt apprehension and conviction following re-offending or breaches of sentence conditions (Worrall & Mawby, 2004). Swift response to re-offending is expedited by dedicated Crown Counsel who manage files generated as a result of the targeting and increased supervision of offenders. To date, these strategies have predominantly applied toward chronic property crime offenders (Mawby & Worrall, 2004; Merrington, 2006; Vennard & Pearce, 2004).

By design, these programs give rise to two quite different outcome measurements, each implying possible program success (i.e., a reduction in convictions and timely reconvictions). As a consequence, the clear selection of appropriate measures of effectiveness has important implications for research and evaluation. To date, few peer-reviewed outcome analyses of such programs exist. The majority of published evaluations are based on initiatives in England and Wales (see Roberts, 2005). Variations of the scheme have also been evaluated in Australia, the United States and at the federal level in Canada (Pottruff, K. 2010). While the US has become the world leader in intensive supervision programs (ISP) for adult offenders, it is important to note that there is no standardized ISP model (Moore et al, 2006).

Whereas deterrence is the cornerstone of most US initiatives (which date back to the 1960s), UK projects tend to include a corresponding focus on offender treatment and rehabilitation (Moore et al, 2006). Worrall & Mawby (2004) describe "three generations of intensive supervision" (p.268). These began in the early 1970's with a now infamous project called IMPACT (Intensive Matched Probation and After-Care Treatment), which involved matching offenders to various types of probation interventions. Evaluations reported very unfavourable results, including higher rates of recidivism among program participants than non-participants (Worrall & Mawby, 2004). A number of similar ISPs followed in the 1980's and early 1990's. These also included a focus on surveillance and were primarily targeted at young adults between the ages of 17 and 25 (Moore et al, 2006). While these were also largely unsuccessful at reducing recidivism, evaluations did identify a number of secondary benefits associated with the projects (Worrall, Mawby, Heath & Hope, 2003). Fast tracking of drug assessments and treatments were recognized as particularly valuable (Worrall, 2001).

## PPOM Recidivism

Current (or “third generation”) practices include components of both these earlier models, including “deterrence, incapacitation and rehabilitation” (Worrall & Mawby, 2004, p.270) as well as an important paradigm shift in the definition of ‘success’. As mentioned previously, current models recognize prompt reconvictions as a measure of success. The outcomes of these more recent initiatives are more promising than their earlier counterparts. Notwithstanding this broadened interpretation of success, evaluation of the national Priority and Prolific Offender scheme introduced in the UK in 2004 revealed a 43% drop in recidivism among participants over the first 17 months of the program (see Dawson & Cuppleditch, 2007/08).

A wide range of operational definitions is used throughout correctional literature and many terms are used interchangeably (e.g. chronic/persistent/prolific/priority/habitual offender). In keeping with more recent strategies implemented in the UK, we have chosen to use the term ‘Prolific and Priority Offender’ (PPO), which is often locally defined. In our study, a PPO is defined as an individual with a high offence rate, who is assessed to be at high risk of reoffending following release from custody.

Previous PPO management (hereafter PPOM) evaluations have been criticized for their small sample sizes, inadequate comparison groups and lack of cost-effectiveness analyses (Merrington, 2006; Moore et al, 2006; Vennard & Pearce, 2004). Given these previous methodological limitations and the difficulties of random assignment to such an intervention, investigators have attempted to minimize the impact of confounding variables on outcomes by using a propensity score matching (PSM) method. PSM is a statistically intensive technique used to establish causal inference and limit selection bias in non-experimental group settings (Dehejia & Wahba, 2002).

Unfortunately, due to the complex and heterogeneous nature of PPOs (Dawson & Cuppleditch, 2007/08), and their higher levels of need than non-prolific offenders (Merrington, 2006), divergence between the PPO and “matched” individuals limits the viability of the PSM method. A 2007-2008 evaluation of the national UK PPO program was unsuccessful at establishing a valid counterfactual using PSM (see Dawson & Cuppleditch, 2007/2008). The diversity of risks and needs among PPOs may be so diverse that the only thing they have in common is their volume of crime.

Recent literature indicates that significant reductions in recidivism of up to 35% are associated with treatment programs that adhere to the well established “Risk, Needs, Responsivity” (RNR) model of offender rehabilitation (Bonta, Bourgon, Ruggie, Scott, Yessine, Gutierrez & Li, 2011). Bonta et al refer to this model as a “psychologically informed approach” (2011, p.1128) to correctional treatment. The overall reasoning behind the model is that treatment must be precisely tailored to individual requirements. Specifically, service providers aim to match the level of service given to the level of risk (risk principle); to target offenders’ criminogenic needs (needs principle); and to assign offenders to appropriate forms of treatment – often cognitive-behavioural interventions (Bonta et al, 2011). Furthermore, findings also show that *not* adhering to the RNR approach may actually increase recidivism (Andrews & Bonta, 2010). Fundamental to RNR-based treatment is an understanding of motivation and behaviour change (Andrews & Bonta, 2010), including the Stages of Change Model (see McConaughy, DiClemente, Prochaska & Velicer, 1989). The principles of the RNR model are highly apt and relevant to the design and practice of POM programs. To date, however, we are aware of no studies that examine the formal correspondence, or fidelity, between POM programs and RNR.

In the Canadian context, police-parole partnerships have been established at the municipal (e.g., Vancouver Police Chronic Offender Program) and federal levels, including the Integrated Police-Parole

Initiative (IPPI) (see Axford & Ruddell, 2010). As with the BC PPOM program, the police-parole partnership within the Vancouver Police Chronic Offender Program is further supported by dedicated Crown Counsel, who manage files generated as a result of offender targeting and increased supervision. However there are few published evaluations of these projects. Our findings add to earlier outcome analyses of PPO initiatives, focusing on outcomes from a multi-site initiative in the Province of British Columbia (BC) Canada.

The objectives of this study are to investigate client characteristics and recidivism outcomes associated with the 2008 implementation of a PPOM program in six communities. We examine the volume and types of offences within the cohort. Police contacts are studied in order to assess whether the nature of these contacts varies over time. In addition, we examine whether participants are heavy users of services beyond the justice system (specifically health and social welfare services). Finally, using a pre-post design, we investigate the longitudinal association between program participation and community safety, as indicated by changes in the rate of offending within the cohort. For context we also report changes in costs associated with some of the inter-agency services that were made available for the current analysis.

Our two primary hypotheses are that the BC PPOM project reduces recidivism among participants, and modifies participant uptake of services delivered by multiple participating agencies.

## **Methods**

### ***The Six Pilots***

In February 2008, the PPOM project was launched in six British Columbia communities: Victoria, Kamloops, Nanaimo, Prince George, Surrey and Williams Lake. These sites were selected to reflect a variety of geographic locations and population sizes.

Participants were recruited over a span of two years (from February 1, 2008 to January 13, 2010), and identified by local teams based on a common set of guidelines along with local knowledge of the offender population. Teams were not constrained to identifying participants solely based on number of offences. Participants were then advised of their enrolment by letter.

The project was based on the national PPOM scheme introduced in the UK in 2004 (see Dawson & Cuppleditch, 2007/2008). The key objectives of the project are to reduce the level of recidivism within the cohort and to reduce the volume of crime attributable to PPOs in each community. Modeled on other PPO initiatives, these outcomes are pursued by promoting integration among team members and liaison to appropriate services.

Each local team is composed of representatives from a wide variety of agencies: Police, including RCMP detachments or (where applicable) independent municipal forces, BC Corrections (community and custody), Provincial and Federal Crown Counsel, the Correctional Service of Canada, the Forensic Psychiatric Services Commission, the Ministry of Public Safety and Solicitor General, the Ministry of Social Development, the local Health Authority, the Ministry of Children and Family Development and BC Housing. Teams have the flexibility to tailor their services to individual communities and to add additional team members deemed important to local effectiveness (e.g., Aboriginal agencies).

Additional funding of \$120,000 per year is provided to support the six Team Coordinator roles. Notably, no further funding has been provided for the project – the pilot is being managed within current resources.

## PPOM Recidivism

Cohort size in each community ranges from 14 to 56 participants, depending on available capacity to provide needed services and the size of the community. Offenders in custody, hospital or treatment are considered as potential candidates if they will be returning to the community within the life of the pilot project. Legal status is *not* a criterion for inclusion in the project. Offenders may be removed from the cohort under one of the following conditions:

- a) The offender has been stable and crime free in the community for at least a year and their risk to reoffend has dropped significantly;
- b) The offender has been incarcerated for a period that exceeds the life of the project;
- c) The offender has permanently relocated or died.

In keeping with Risk-Needs-Responsivity principles, relapse and reoffending are expected and built into the BC PPOM treatment plan. The context in which relapses occur is always considered when making decisions regarding new offences or breaches of conditions. Recommendations regarding sentencing and bail are made on a case-by-case basis by Crown Counsel, and based on information provided by the PPOM team.

### **Data Sources**

We examined data from the British Columbia Inter-Ministry Research Initiative (IMRI), which integrates administrative records from publicly funded departments responsible for delivering justice, health and social welfare services to the population of BC. The purpose of this initiative is to develop and maintain an inventory of health and income assistance services used by corrections clientele in British Columbia to support the evaluation of multi-agency programs. Specifically, non-identifying administrative data were obtained from three independent Provincial government ministries: Public Safety and Solicitor General (PSSG); Health Services (MoHS) and Social Development (MSD).

Participants were recruited over a span of two years (from February 1, 2008 to January 13, 2010). The linked data described above were analyzed using a repeated measures design. Student t tests were used to determine the significance of the observed changes in offences (convictions), social assistance, and health care utilization within the cohort. Results are considered significant at the 0.05 level.

Annualized rates of services in the post period were estimated based on participants who had at least one year of post-enrolment follow-up. Annualized rates in the pre-enrolment period were estimated based on the average of two years before enrolment.

This study underwent institutional review and was approved by the Research Ethics Board of Simon Fraser University.

## Results

Table 1 reports socio-demographic variables measured among the six sites. Sample sizes ranged from 14 to 56 participants.

### *Sample Characteristics*

Table 1: Socio-demographic characteristics of study participants (N=198)

		N	%
<b>POM pilot site</b>	Victoria	34	17%
	Nanaimo	31	16%
	Kamloops	56	28%
	Surrey	35	18%
	Prince George	28	14%
	Williams Lake	14	7%
<b>Gender</b>	Male	185	93%
	Female	13	7%
<b>Ethnicity</b>	Caucasian	134	68%
	Aboriginals	46	23%
	Other	18	9%
<b>Education level</b>	Grade 7/8/9	27	14%
	Grade 10/11	96	51%
	Grade 12	49	26%
	Other	16	9%

Mean age at enrolment was 31 years. The majority of participants were Caucasian (68%) and male (93%), and 23% of the cohort was of self-reported Aboriginal<sup>1</sup> ethnicity.

The majority of participants reported having attained an education level of Grade 11 or lower (65%), while a minority reported that they had completed high school (26%) or more advanced education (9%).

### *Pre/Post Changes in Criminal Justice Involvement of Study Participants*

In the following table (and throughout this paper), “offences” are defined as all convicted offences committed by members of the PPO cohort. Our definition does not include the relatively small number of incidents that were resolved through alternate measures or the payment of fines.

<sup>1</sup> Including all indigenous people of Canada (i.e., Status Indians, Non-Status Indians, Métis and Inuit people).

Table 2: History of criminal justice involvement for POM participants (N=192<sup>2</sup>)

Variables	Mean (SD)	P value <sup>3</sup>
<b>Overall Offences</b>		
Number of offences (over all years observed)	30.7 (18.9)	
Number of offences in pre-enrolment (past 5 years)	15.8 (9.9)	
Number of offences per year (pre-enrolment) <sup>4</sup>	3.7 (2.9)	
Number of offences per year (post-enrolment) <sup>5</sup>	2.2 (2.6)	
Change (↓) per year (pre-post)	1.5 (3.4)	<b>&lt;0.001</b>
<b>Violent offences</b>		
Number of offences per year (pre-enrolment)	0.3 (0.6)	
Number of offences per year (post-enrolment)	0.1 (0.4)	
Change (↓) per year (pre-post)	0.2 (0.7)	<b>0.001</b>
<b>Property offences</b>		
Number of offences per year (pre-enrolment)	1.5 (1.8)	
Number of offences per year (post-enrolment)	0.8 (1.5)	
Change (↓) per year (pre-post)	0.7 (2.2)	<b>&lt;0.001</b>
<b>Breach offences<sup>6</sup></b>		
Number of offences per year (pre-enrolment)	1.1 (1.3)	
Number of offences per year (post-enrolment)	0.8 (1.3)	
Change (↓) per year (pre-post)	0.3 (1.5)	<b>0.016</b>
<b>Drug and Alcohol offences</b>		
Number of offences per year (pre-enrolment)	0.4 (0.8)	
Number of offences per year (post-enrolment)	0.2 (0.6)	
Change (↓) per year (pre-post)	0.2 (0.8)	<b>0.006</b>
<b>Custody time</b>		
Number of days per year (pre-enrolment)	126.2 (91.2)	
Number of days per year (post-enrolment)	109.0 (108.0)	
Change (↓) per year (pre-post)	17.2 (115.5)	0.071
<b>Time to first recidivism (in days) in post-enrolment period<sup>7</sup></b>	111.4 (110.2)	-

Over all of the years available for observation in our database (1997 onward), members of the combined PPO cohort recorded over 30 offences per person. Nearly 16 offences per person were recorded in the 5 years prior to enrolment. During the baseline period of two years prior to enrolment in the PPO, participants committed an average of 3.7 offences per person per year. The majority of these were

<sup>2</sup> Annualized rate was estimated based on participants who had at least one year post-enrolment follow up time (N=150)

<sup>3</sup> Paired t test was used to compare offences between pre and post period (N=150)

<sup>4</sup> Annualized rate in pre-enrolment period was estimated based on last two years before enrolment (N=150)

<sup>5</sup> Annualized rate in post-enrolment period was estimated based on one-year period after enrolment (N=150)

<sup>6</sup> A 'breach' offence is committed when an offender fails to meet the conditions and requirements of probation and is subsequently convicted of breaking or violating the terms of the probation contract.

<sup>7</sup> Restricted to participants with at least one offence in the one year post-enrolment period

property offences although breach offences were also common. Violent offences as well as drug and alcohol offences were relatively infrequent among members of the PPO cohort (0.3 and 0.4 respectively). Between the pre and post periods, offending decreased significantly in *each* offence category, contributing to a significant reduction in overall crime within the cohort ( $P < 0.001$ ). The category with the largest magnitude of decrease was property crime ( $P < 0.001$ ).

Mean custody time also decreased by approximately 13% (over 17 days per person/per year), but this was not statistically significant.

### ***Pre/Post Changes in Police Contact among Study Participants***

A significant decrease in the overall number of police contacts occurred between the pre and post periods (see Table 3). While neutral police contacts increased, the increase was not significant. The overall reduction in police contacts reflects a significant decrease in the number of negative police contacts over the period of observation, from a mean of 10.1 to 7.1 per person per year. Note: negative police contacts are those associated with arrest or detention, while neutral contacts involve pre-emptive actions such as curfew checks, or routine patrol.

Table 3: Number of police contacts (N=197)

	Pre-period	Post-period	P value
<b>Overall number of contacts (per year)</b>			
Mean (SD)	13.8 (10.6)	11.2 (10.5)	<0.002 (t test)
Median (IQR)	11 (7, 17)	9 (4, 15)	<0.014 (Wilcoxon sign)
Min, Max	0-56	0-79	
<b>Number of negative contacts (per year)</b>			
Mean (SD)	10.1 (8.9)	7.1(7.7)	<0.000 (t test)
Median (IQR)	8 (5, 13)	5 (2, 10)	<0.000 (Wilcoxon sign)
Min, Max	0-52	0-63	
<b>Number of neutral contacts (per year)</b>			
Mean (SD)	3.7 (3.4)	4.1 (4.8)	<0.242 (t test)
Median (IQR)	3 (2, 5)	3 (1. 6)	<0.355 (Wilcoxon sign)
Min, Max	0-22	0-33	



**Pre/Post Changes in Social Assistance and Health Care Utilization among Study Participants**

Table 4: History of social assistance and health care utilization for POM participants (N=187)

Variables	Mean per capita (SD)	P value <sup>8</sup>
<b>Physician payments</b>		
Total payments (lifetime)	\$5,951 (\$5,590)	
Total payments in pre-enrolment (past 5 years)	\$1,860 (\$2,324)	
Total payment per year (pre-enrolment <sup>9</sup> )	\$372 (\$483)	
Total payments per year (post-enrolment <sup>10</sup> )	\$563 (\$963)	
<b>Change (↑) per year (pre-post)</b>	<b>\$191 (\$830)</b>	<b>&lt;0.001</b>
<b>Hospital days</b>		
Number of days (lifetime)	10.4 (23.6)	
Number of days in pre-enrolment (past 5 years)	3.8 (12.5)	
Number of days per year (pre-enrolment <sup>7</sup> )	0.7 (2.5)	
Number of days per year (post-enrolment <sup>8</sup> )	0.6 (2.1)	
<b>Change (↓) per year (pre-post)</b>	<b>- 0.1 (2.5)</b>	<b>0.638</b>
<b>Social Assistance payments</b>		
Total payment (lifetime)	\$32,720 (\$27,078)	
Total payment in pre-enrolment (past 5 years)	\$10,280 (\$11,800)	
Total payment per year (pre-enrolment <sup>7</sup> )	\$2,432 (\$2,870)	
Total payment per year (post-enrolment <sup>8</sup> )	\$3,473 (\$3,643)	
<b>Change (↑) per year (pre-post)</b>	<b>\$1,041 (\$3,063)</b>	<b>&lt;0.001</b>

Physician service costs increased significantly within the PPO cohort, from a mean amount of \$372 to \$563 (see Table 4). No significant change in hospital days was observed between the pre and post periods.

A significant increase was observed in amount of social assistance payments. The mean amount provided in the post period (\$3,473) was approximately 43% greater than the amount paid in the two years pre-PPOM.

<sup>8</sup> - Paired t test was used to compare payment and hospital days between pre and post period and restricted to patients who had at least one year post-enrolment follow up time (n=147)

<sup>9</sup> - Annualized physician payment, hospital days and social assistance payment in pre-enrolment period was estimated based on the two-year period

<sup>10</sup> - Annualized physician payment, hospital days and social assistance payment in post-enrolment period was estimated based on 12 months follow up time

### **Benchmark Figures for Cost Comparison**

To provide some context, we calculated comparison figures for selected variables associated with the entire Provincial offender population *excluding* PPOM participants (N= 95,103). The four variables presented are: overall offences; physician payments; hospital days; and social assistance payments (see Table 5). It is noteworthy that not all members of the sample had registration numbers associated with health and social services. Thus health and social assistance payments are reported for the subset of individuals who were available for matching between relevant government departments (N=87,337). All values are calculated over the same period used to derive results for the PPO cohort, and are reported as events or dollar amounts per person/per year (pp/py).

In the overall offender population, the mean value of physician payments was \$522 pp/py, approximately 1.4 times greater than the corresponding amount associated with members of the PPO cohort. Hospital days (1.2 pp/py) were also higher among non-participants. Specifically, the average number of hospital days in the entire offender population was nearly double the number of days associated with PPOM participants.

The average value of social assistance payments in the offender population (\$1,730 pp/py) was lower than the mean amount provided to PPO participants in the pre-program period (\$2,432 pp/py).

Table 5: History of recidivism, social assistance and health care utilization for non-POM participants

<b>Variables</b>	<b>Mean (SD)</b>
<b>Overall Offences</b>	
Number of offences pp/py in pre-enrolment (based on past 5 years; N=95)	0.4 (0.8)
Number of offences pp/py year in pre-enrolment (based on past 2 years; N=103)	0.4 (1.0)
<b>Physician payments</b>	
Total payment pp/py in pre-enrolment (based on past 5 years; N=87)	\$484 (\$720)
Total payment pp/py in pre-enrolment (based on past 2 years; N=337)	\$522 (\$931)
<b>Hospital days</b>	
Number of days pp/py in pre-enrolment (based on past 5 years; N=87)	1.2 (5.6)
Number of days pp/py in pre-enrolment (based on past 2 years; N= 337)	1.2 (7.0)
<b>Social Assistance payments</b>	
Total payment pp/py in pre-enrolment (based on past 5 years; N=87)	\$1,620 (\$3,067)
Total payment pp/py in pre-enrolment (based on past 2 years; N=337)	\$1,730 (\$3,511)

### **Discussion**

Our longitudinal analyses suggest that British Columbia's multi-site PPO program was associated with significant reductions in offending. While our results are preliminary, they are consistent with previous findings in the UK (Dawson & Cuppleditch, 2007/08; Easton, 2007; Marlow, 2007; Roberts, 2005). Limitations of our design, including the absence of a valid comparison group, are discussed below, and indicate that our results should be interpreted cautiously.

Within the combined cohort, the number of offences per person decreased significantly during the one year follow-up period. This overall effect was largely a function of a decline in property offences, although breach offences also decreased. The magnitude of the reduction in property crime is consistent with previously

reported outcomes (Dawson & Cuppleditch, 2007; Marlow, 2007). It is noteworthy that offending decreased in *each* offence category, including violent offences and drug & alcohol related offences, contributing to a significant reduction in overall crime within the cohort.

It is also important to note that mean custody time fell by over 13%. While this was a non-significant decrease, it is nevertheless relevant for two reasons: first, custody related costs are considerable, valued at \$193.75 per day in British Columbia (Ministry of Public Safety and Solicitor General, 2010); second, a pre-post decrease in custody time suggests that the observed reduction in offending was likely *not* attributable to reduced opportunities to offend due to incarceration. Moreover, although the decrease in overall offences was largely driven by a significant decrease in property offences, the decrease in breach offences (also significant) is notable, given that participants were subject to a higher level of surveillance, which could be expected to increase the detection of crime if offending behaviour is taking place.

Changes in offending were accompanied by a significant reduction in recorded police contacts (i.e., contacts entered in the police management records system). This was largely driven by a significant decrease in the number of recorded *negative* police contacts over the period of observation. Moreover, the decrease in *negative* police contacts is consistent with the observed reduction in sentenced offending, suggesting that PPO participants were not only less likely to be convicted, but were less active in offending behaviour overall. While the increase in *neutral* police contacts was not significant, it is entirely possible that the frequency of informal (i.e., meet and greet) police contacts rose substantially and that this increase was not allowed for by the data capture design.

We note that despite the presumed need for health care within PPO cohorts (e.g., mental health care, substance-related treatment), the level of care provided to the present cohort was lower in the pre-program period than the amount of health services received by the general BC offender population. The use of community health services and social assistance services increased significantly during participation in the PPO program. The observed increase in outpatient health care may reflect a number of potential causes, including: personal neglect of health in the pre-period; difficulty accessing physician care pre-program; and detection and treatment of illness in the post-period. Referring to ISM projects in the UK, Worrall et al (2003) suggest that "...contributions of the health representatives were integral..." (p.9). Further examination of this change and its potential relationship to reduced offending is an important focus for subsequent research.

Social assistance payments to PPO participants increased from \$2,432 to \$3,473 per year during their participation in the program. This finding implies that participants had unmet needs for social assistance at baseline, and that the program facilitated access to levels of support that better reflect their needs, and their eligibility.

Our baseline data indicate that PPO participants were clients of multiple agencies prior to enrolment. However, our results suggest that at baseline, participants were not engaging health and social services to their greatest advantage, or at levels that were commensurate with their needs. Plausible explanations for the observed increases in healthcare and social welfare include effective brokerage by the PPO team, and the reduction of chaotic life circumstances (e.g., ongoing offending, precarious housing) through the active support of the PPO team members. Our results are consistent with the finding that PPOs have higher levels of need than non-persistent but serious offenders (Merrington, 2006), and with the RNR principle of offender rehabilitation.

Socio-demographic variables of the BC cohort also confirm a “universal criminological truth: that people in prison are not drawn in equal numbers from all neighborhoods” (Fox, Albertson, & Warburton, 2011, p.122). Our analyses show that the PPO group resembles the overall offender population on educational attainment, but is more heavily comprised of male participants. Our results are consistent with findings reported by Statistics Canada on the relatively low level of education completed among offenders in provincial jurisdictions (Calverly, 2010) and rates of educational attainment among participants in Intensive Supervision and Surveillance Programs in the UK (Moore et al, 2006).

### **Costs**

Evidence of cost-effectiveness is increasingly consulted in the determination of public policy. Few evaluations that we know of have addressed this critical evaluation component in relation to PPO programs (e.g., Drake, Aos & Miller, 2009; Roberts, 2005). This is largely due to the many limitations associated with performing such analyses. These include a lack of standardized costs, few estimates of intangible costs of crime, and the absence of studies analyzing the benefits of potential long-term returns on PPO program investment (Fox & Warburton, 2011). Despite decreasing crime levels in Canada (Brennan & Dauvergne, 2011), the increase in the prison population has been slow but consistent (Calverly, 2010). Furthermore, custody costs are projected to increase due to inflation and increasing fixed costs (Fox & Warburton, 2011). This situation is driving policy makers to rethink the balance between custody and community supervision in many jurisdictions (Bonta et al, 2011), particularly in the United States (Drake et al, 2009).

For context, average per capita daily costs for community supervision and custody in British Columbia are \$7.09 and \$193.75, respectively. The average custody cost *per person per year* is \$70,000.00 (Ministry of Public Safety and Solicitor General, 2010). While very preliminary, these figures are illustrative of data that could be used to formulate useful cost analysis. For example: *the entire PPO cohort* (N=187; see table 4) incurred an average of \$105,281 in physician costs and an average of \$649,451 in social assistance costs during the post-enrolment year. If we add the cost of community supervision (i.e., \$7.09 per person per day or approximately \$483,928 per year for all PPO participants) to these figures, the costs associated with supervision, physician services and income assistance *to the entire BC PPO cohort* in the year post-enrolment was \$1,238,660. Comparatively speaking, the cost of incarcerating these individuals over the same time period is estimated at \$13,090,000. Using the few variables available to us, we observed that health and social service costs increased by \$230,384 between the pre and post periods (respectively, by \$1,041 + \$191 per participant), while the cost of custody decreased by \$639,840 (\$193.75 x 17.2 days per participant) during the same period. Robust cost accounting is required in order to expand on the sketch afforded by our findings, and to confirm the direction and magnitude of costs associated with PPO programs.

### **Limitations**

This report constitutes a preliminary examination of the British Columbia PPOM pilot, and our findings are subject to several limitations and restrictions. The absence of a comparison group and the use of a non-experimental design restrict our ability to infer a causal relationship between the PPOM program and the observed outcomes, including reduced offending among participants. The observed 40% decrease in offending cannot be solely attributed to the PPO intervention and may be due to other factors, including regression to the mean, (i.e., the phenomenon of ‘averaging out’ in statistics). Although researchers in other jurisdictions have also found similarly promising outcomes associated with PPO programs, they too have encountered important limitations. There is consensus that more rigorous trials are required (Dawson & Cuppleditch, 2007/08; Merrington, 2006; Worrall et al, 2003).

Moreover, using convicted offences as a proxy for reduced offending is problematic as it likely results in an underestimate of overall offending.

### **Future Study**

Merrington (2006) urges the consideration (and evaluation) of other potential benefits associated with PPO initiatives and suggests that “a case can be made for rehabilitation in its own right” (p.356). While we briefly address this by assessing an increase in the uptake of community medicine and social assistance among members of the PPO cohort, this preliminary investigation needs to be further developed and followed over a longer time period.

In a related vein, Worrall et al. (2003) warn that PPO programs may merely perform a maintenance function, (i.e., that they may only be effective in reducing offending while participants are actively engaged in the program). Longer-term participant follow-up, (e.g., survival analysis) is required to evaluate the effectiveness of PPO initiatives.

In light of challenges faced by researchers using quasi-experimental methods such as PSM (see Dehejia & Wahba, 2002), future research of PPO programs should include experimental study designs. Given the difficulty of separating the effects of PPOM from other factors that might affect offending rates, it may be useful to incorporate mixed (i.e., qualitative and quantitative methods) in subsequent evaluations. The perceptions of program participants and program staff may shed invaluable light on understanding the salient unmet needs among participants, opportunities to support PPOs differently through integrated responding, and possible barriers faced at the community level (e.g., adequate housing?).

As mentioned, further work is also needed to develop robust costing models leading to the analysis of cost avoidance and cost-effectiveness.

### **Conclusion**

PPOM offers opportunities for improved public safety, better integration among justice partners and cost avoidance. It also offers a pragmatic approach to effective offender treatment and rehabilitation – an established and commendable objective of correctional policy in Canada. Finally, it offers the prospect of “...crime prevention... [as]...a legitimate and noble pursuit within health, education and social service agencies” (Andrews & Bonta, 2010, p.51).

Our findings indicate a significant association between participation in the BC PPOM project and reduced recidivism among participants. Members of the cohort reduced their overall offending by over 40% during the first year follow-up period. These results reinforce recent findings in similar UK-based initiatives; however they must be interpreted cautiously pending the implementation of an experimental trial.

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