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Author(s):	**David C. Pyrooz, Ph.D.**
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LEAVING GANGS AND DESISTING FROM CRIME USING A MULTIDISCIPLINARY TEAM APPROACH: A RANDOMIZED CONTROL TRIAL EVALUATION OF THE GANG REDUCTION INITIATIVE OF DENVER

FINAL SUMMARY OVERVIEW

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The Regents of the University of Colorado
3100 Marine Street, Room 479
572 UCB
Boulder, CO 80309

Attn: Betty Rasmussen
Betty.Rasmussen@colorado.edu

Principal Investigator:
David C. Pyrooz, PhD
Associate Professor of Sociology

David.Pyrooz@colorado.edu
Institute of Behavioral Science
483 UCB
Boulder, CO 80309
303-492-3241

SUMMARY OF THE PROJECT

The consequences of gangs for communities and individuals are well-documented. The most recent national estimates, while dated, identified 2,363 victims of gang-related homicide in 2012 (Egley Jr. et al., 2014). In St. Louis, for example, the annual homicide victimization rate for young Black male gang members was 950 per 100,000 (Pyrooz et al., 2020). The risk of non-fatal gang-related victimization is an order of magnitude greater. The consequences of gang membership extend beyond offending and victimization to include adverse impacts on education, employment, and health (Augustyn et al., 2014; Gilman et al., 2014; Krohn et al., 2011). The population of people involved in gangs in the United States is large. Police estimates indicates that there are anywhere from 850,000 (Egley Jr. et al., 2014) to 1.4 million (National Gang Intelligence Center, 2011) gang members in the United States, though these estimates are likely conservative given that these are individuals known to law enforcement (Pyrooz & Sweeten, 2015). What can be done to lessen the impact of gangs on communities and people?

While policymakers and practitioners have long recognized the importance of gang prevention (Centers for Disease Control and National Institute of Justice, see: Simon et al., 2013), as evidenced by federal investment in programs like Gang Resistance Education and Training (Decker et al., 2022; Esbensen, 2015), only in recent years has such interest extended to intervention, that is, promoting disengagement from gangs. Part of the reason is that lifelong gang membership has been a long held, popular myth (Howell, 2007). However, longitudinal panel studies and qualitative research with older gang populations has uncovered that leaving gangs was the norm, not the exception (for a review, see: Decker et al., 2022). What is more, empirical research has demonstrated repeatedly that leaving gangs is associated with reductions in criminal offending and a range of other beneficial outcomes (Melde & Esbensen, 2014;

Sweeten et al., 2013; Weerman et al., 2015). Not only does leaving correspond with immediate changes, but the sooner someone leaves the better they fare across multiple life domains in the long run.

Findings such as these have prompted the search for intervention programs that can facilitate disengagement from gangs and desistance from crime. Roman, Decker, and Pyrooz (2017) surveyed the literature and situated the motivations given for leaving gangs—the pushes and pulls—within the theories of change found in leading intervention programs, including focused deterrence, hospital-based intervention, jobs-based intervention, and relationship-based norms, therapy, and mentorship. The last type of intervention, relationship-based mentorship, is the focus of a process and impact evaluation supported by the National Institute of Justice and conducted by the University of Colorado Boulder in collaboration with services by the City and County of Denver's Department of Public Safety.

The purpose of this research was to evaluate a gang intervention program led by the Gang Reduction Initiative of Denver (GRID). Housed in the City and County of Denver's Department of Public Safety, GRID operates at the core of a network of community and systems partners tasked with violence reduction. Created in 2009, inspired by the Comprehensive Gang Model and supported by the OJJDP's Community-Based Violence Prevention demonstration program (Tomberg & Butts, 2016), GRID has historically coordinated around two dozen strategies with partners emphasizing prevention, intervention, and suppression. The centerpiece of GRID's efforts is their use of juvenile and adult multidisciplinary teams (MDT) to facilitate coordinated and individualized case management of gang-involved young people referred for services (Pyrooz et al., 2019). While the MDT creates a service plan that is tailored to the needs of the individual, a street outreach worker who is employed by GRID and sits on the MDT leads

the effort to execute the plan. The outreach worker is typically someone who is culturally competent, understands gang dynamics, and is knowledgeable about the community. They are assigned a caseload and work with referred youth and adults as they transition across the four levels of the model's intervention.

A process and impact evaluation was undertaken between 2019 and 2022. The project was preregistered on the Open Science Framework prior to the collection of data (https://osf.io/6b2jw/?view_only=baecae7f2b924900b862a5b86cf6f34a). Two core questions guided the evaluation:

1. **Does the MDT-based approach achieve its stated purpose of providing comprehensive, coordinated services to gang members with fidelity?**
2. **Does the MDT-based approach achieve its stated goals of producing disengagement from gangs and desistance from crime?**

The first question was the focus of the process evaluation. The CU Boulder research team observed multidisciplinary team meetings, including the creation and implementation of, and progress through, case management plans, interviewed participants who sat on the MDTs, conducted field-based observations of outreach workers, and surveyed clientele about their experiences and services received since referral.

The second question was the focus of an impact evaluation. People referred to GRID and deemed eligible for services were assigned at random to one of two conditions. The treatment group was intended to be served by the MDT-based intervention, that is, individualized and coordinated case management facilitated by a street outreach worker. The control group was intended to be served by business-as-usual conditions, although GRID would regularly refer the original referral source to community-based organizations that serve gang-involved populations. The OJJDP supported a process and impact evaluation of five of the seven cities participating in

the Community-Based Violence Prevention demonstration program, which included GRID (Tomberg & Butts, 2016). Owing to GRID's earlier developmental stage, the evaluation focused primarily on describing various strategies and some quantitative comparisons of crime in GRID and non-GRID neighborhoods. Left unaddressed was whether the centerpiece of GRID's strategies—the MDT-based approach—was achieving its goals of facilitating disengagement from gangs and desistance from crime, the subject of this impact evaluation.

While GRID is a government-led initiative, the MDT-based approach is not facilitated by law enforcement. The reliance on street outreach to facilitate change is consistent with national trends and federal initiatives to support community violence prevention and intervention (Jannetta et al., Forthcoming). The science of gang intervention has advanced considerably since Klein and Maxson's (2006) survey of the literature concluded that most responses to gangs were promising because they had not been subject to rigorous evaluation (Decker et al., 2022). This research assists in further advancing the evidence-based landscape with a randomized control trial with gang-involved populations in Denver.

The findings of this evaluation are mixed. There is clear evidence, based on the process evaluation, that ***GRID delivered a range of high-quality services to gang-involved populations with efficacy***. People referred to GRID received a more comprehensive battery of services and, generally, viewed such services as more effective than people in the control group. The adult MDT was not functioning as well as intended, though the juvenile MDT continued to perform its functions, even with the disruptions brought about by the pandemic. GRID clients overwhelmingly viewed their outreach workers positively, actively sharing information with them and receiving guidance from them. There was a fair amount of ambivalence among outreach workers of what constitutes success and a universal method for achieving it. There was

variability in how outreach workers sought to effect change in their clients, as some focused primarily on gang involvement while others on protective and risk factors.

The impact evaluation focused on five core outcomes: gang embeddedness, criminal offending, victimization, substance use, and criminal justice involvement. The foremost finding was that GRID reduced criminal offending, particularly the perpetration of violence. ***GRID clients were nearly 70 percent less likely to engage in violence than people in the control group***. This finding was observed even though GRID clients trended toward being more embedded in gangs than people in the control group, standing in contrast to expectation. ***GRID clients maintained over 3 times greater odds of claiming a current gang status***. There were few differences for the remaining outcomes. The rest of this report summarizes the participants and organizations involved in the evaluation, how the original design was impacted by the coronavirus 2019 pandemic, additional details about the findings of the evaluation, and products and dissemination activities.

PARTICIPANTS AND OTHER COLLABORATING ORGANIZATIONS

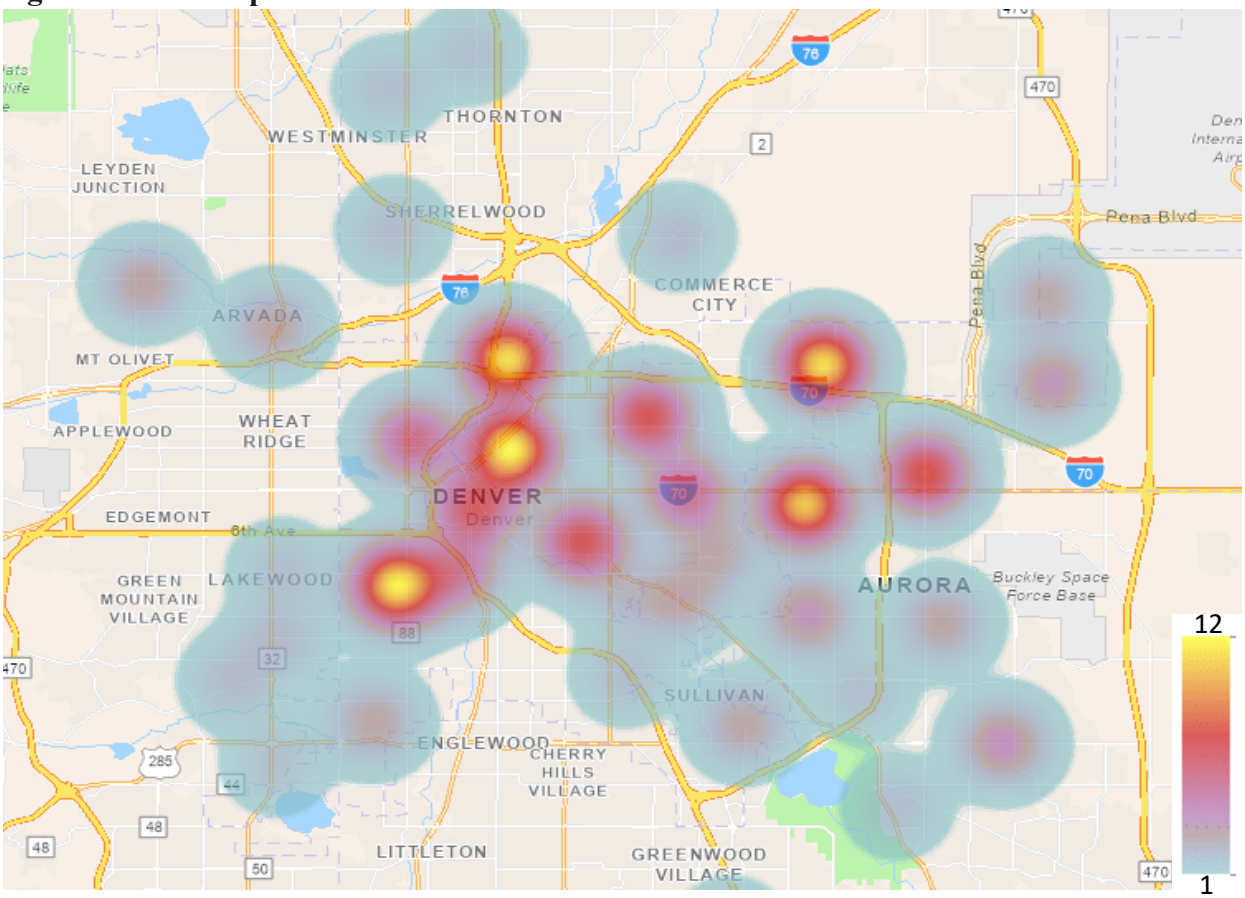
GRID is the primary organization involved in this evaluation. While GRID maintains numerous strategies to respond to gangs and violence, the focus of the evaluation is on the intervention that commands the bulk of its resources: MDTs with street outreach workers. GRID operates out of the Department of Public Safety and maintained an annual budget of around $1m. Part of GRID's budget is used to issue contracts to local community groups to provide various services. The remaining portion was devoted to labor. GRID has eight employees, all of whom are involved in the MDT-based approach. There are five outreach workers who maintain caseloads of no more than 30 clients. There are two coordinators. The program coordinator oversees the provision of services to clients. The outreach coordinator oversees the street

outreach team. All seven of these individuals sit on the MDT, while the director of GRID provides oversight to the coordinators along with a team of interns from local universities, liaising with many different community and government partners who take part in the initiative.

The juvenile and adult MDTs are composed of various community and systems partners but differ based on the developmental needs of clients. For example, the adult MDT has a stronger emphasis on jobs and vocational training, while the juvenile MDT has a stronger emphasis on education. While representation on the MDT could vary from month to month, it was standard practice for the following agencies to be regularly present: the diversion team from the District Attorney's Office, pre-trial services from Colorado's Youth Detention Continuum, juvenile probation, parole, community corrections, and Denver Department of Human Services. Representatives from agencies contracted by GRID (e.g., Urban Impact) and surrounding cities (e.g., Aurora's gang program) were also frequent attendees.

GRID receives referrals from various organizations in the Denver area. Upon receiving a referral, GRID's outreach coordinator will screen the referral to ensure GRID services are suitable. The two main criteria are whether the person being referred has gang ties and whether they have connections to the Denver area. In other words, GRID can work with people who reside outside of Denver so long as there is proof of having a significant tie to the city such as employment or schooling within Denver. GRID received referrals from government agencies (e.g., juvenile probation) and non-government agencies (e.g., law firms or non-profits), see Table 1 for a breakdown of the top sources. Figure 1 illustrates the distribution of GRID referrals across the greater Denver metro area. The highest concentrations were found within Denver but people being referred to GRID spanned a vast geographic area.

Figure 1. Heat Map of GRID Referrals



CHANGES IN APPROACH FROM THE PROPOSED RESEARCH DESIGN

The original proposal outlined conducting a randomized control trial of GRID's MDT-based approach to gang intervention in Denver. The evaluation delivered on this commitment through the random assignment of 143 people to treatment or control conditions. The original proposal also outlined determining how GRID sought to achieve its goals. The evaluation also delivered on this commitment by conducting a process evaluation. However, the approach taken to both core areas of focus was impacted by the pandemic and turnover in staffing, which is reflected in Figure 2.

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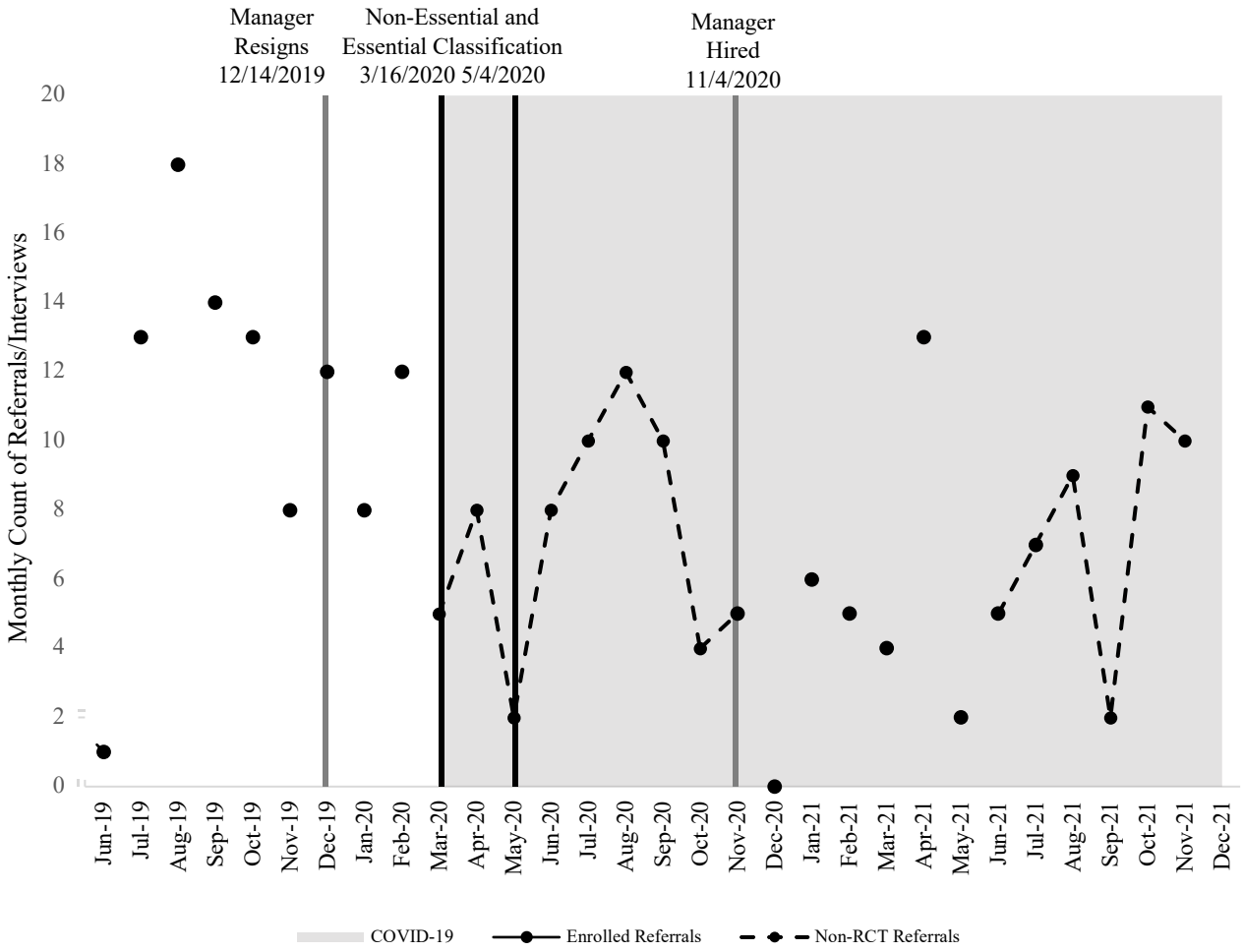
Figure 2. Study Timeline of Referrals and Key Events



The RCT was original proposed to enroll 300 people in the study. This target number was based on four assumptions: (1) no reductions from prior years' number of referrals to GRID, which had been a little over 100 annually, (2) filling of a vacant outreach worker position to support increased aggregate caseloads, (3) outreach to adult referral sources to increase the number of referrals, and (4) no disruptions to study enrollment. While the first assumption held true, the remaining three did not. Six months after initiating study enrollment the director of GRID resigned; for the next 11 months that position was filled by an interim director who split time across three agencies. The vacant outreach worker position was filled, but there were no net

additions to outreach team because another outreach worker left and their position was left unfilled because of budgeting issues.

The pandemic, however, introduced the extensive challenges to the evaluation. In response to city government budget cuts, the interim director made the decision to suspend study enrollment. There was the belief that, to weather budget cuts, GRID needed to operate at full capacity. From March to September 2020 the 59 people referred to GRID were directly enrolled in services if they were deemed eligible. A new director, who at one time was the program coordinator, was hired October 2020, and proceeded to remove the suspension of referrals. Had we been able to enroll the 59 referrals during the period of suspension, the sample size would have been 202, consistent with the expected rates of referrals, consistent with the first assumption. While a sample of 143 is smaller than anticipated, this remains among the largest RCTs of an intervention program that targets people involved in gangs.

The process evaluation was also impacted by the pandemic. Originally, the participant observation of the MDTs was to occur in-person. The pandemic, however, required them to migrate online, taking place on Microsoft Teams, which presented numerous challenges but also opportunities to examine changes to the nature and composition of the MDTs. At this point it was decided that qualitative interviews would be a worthwhile supplement to the process evaluation, and 19 were conducted as a result. The pandemic also delayed the onset of the field-based observations of outreach workers. Originally planned to begin in summer 2020, these efforts were delayed for a year, officially beginning June 2021, though it was still possible to observe outreach workers for 70 hours in the field across 10 outings.

OUTCOMES

REFERRALS TO GRID AND BASELINE EQUIVALENCE

The impact evaluation is based on the random assignment of 143 people to treatment (N=72) or control (N=71) conditions between June 2019 and March 2020 (N=104) and again between October 2020 and June 2021 (N=39). Referrals to GRID came from a total of 41 sources. Table 1 highlights the top 10 referral sources.

Table 1. Top Ten Referral Sources for GRID

Referral Source	Total	Total %	Tx[a]	Tx %	Control	Control %
Denver Pre-Trial Release	30	21.0%	16	22.2%	14	19.7%
Denver Juvenile Probation	21	14.7%	11	15.3%	10	14.1%
Denver Human Services	7	4.9%	3	4.2%	4	5.6%
Tooley Hall[c]	7	4.9%	2	2.8%	5	7.0%
Arapahoe Pre-Trial Release	6	4.2%	2	2.8%	4	5.6%
Independence House Fillmore[c]	6	4.2%	4	5.6%	2	2.8%
EMBARC[b]	5	3.5%	3	4.2%	2	2.8%
Juvenile Assessment Center	5	3.5%	3	4.2%	2	2.8%
Arapahoe 18th Judicial District Probation	4	2.8%	0	0.0%	4	5.6%
Denver Youth Programs	4	2.8%	1	1.4%	3	4.2%

Note: a. Tx = Treatment b. EMBARC = Enhancing Motivation by Achieving Reshaped Cognition c. halfway house

The sources of data used in the impact evaluation include: (1) referral forms, (2) judicial records, and (3) interviews. The *referral forms* contain information completed by someone in a position of authority who identified a need for gang intervention services. The *judicial records* are based on information recorded in a statewide database. The *interviews* are based on surveys administered by the research team at two points in time: (1) shortly after clients were referred to GRID, and (2) approximately 10 months after random assignment. Whereas the referral forms and judicial records contain (near) complete information, not all study subjects completed interviews at the baseline. Sixty-six percent of study subjects completed a baseline interview (N=95) and 67 percent of study subjects completed a follow up interview (N=96). Twenty-seven people completed no interviews, owing primarily to declinations or inability to contact.

Table 2 provides information about the characteristics of people referred to GRID based on the referral form. The average age of a referral is a young adult, around age 20 years, though the bulk of sample (71 percent) was a juvenile. GRID's clientele is overwhelmingly Black (34 percent) or Hispanic (49 percent), and with one exception, male. Most referrals were unemployed and, reflecting the age demographic of the sample, currently enrolled in school. Nearly 90 percent were reportedly affiliated with a gang, many of whom (25 percent) were from multi-generational gang families.

Judicial records, based on five years before the date of referral, revealed a large amount of prior criminal justice involvement. Over 60 percent of the sample had a criminal charge filed against them in the last five years, the bulk of which involved a felony. There was a mix of offense types for charges filed: 36 percent had person offenses, 35 percent property offenses, 15 percent drug offenses, and 46 percent had other offenses, such as handgun possession by juveniles, obstructing a peace officer, and enhancements (i.e., repeat offenders). Convictions followed a similar pattern. Twenty-six percent of the sample were subject to incarceration as a result of their conviction disposition.

Table 2 also provides an abbreviated listing of comparisons that demonstrate the equivalence of treatment and control groups. A total of 58 measures for which we had near complete information about the treatment and control groups were used. There were three statistically significant difference between the groups among the full sample: 63 percent of the treatment group reportedly had a criminal history listed in the referral form compared to 42 percent of the control group ($p<0.05$). Using a $p<.10$ threshold, the treatment group had a higher prevalence of convictions for person crimes (24 percent v. 13 percent) and a higher average number of convictions for person crimes (0.347 v. 0.156). Additional comparisons of baseline

equivalence between treatment and control groups were made for the 96 study subjects who completed the follow up interviews (not reported in tabular form). Using a less conservative threshold ($p<.10$), the treatment group maintained a greater prevalence than the control group of felony criminal filings (61 percent v. 44 percent, $p=.098$), general criminal history (63% v. 44%, p=.062) gang family members (67% v. 44%, p=0.079), and interest in job training (33% v. 50%, p=0.084). Given the number of comparisons and the statistical threshold of p<0.10, four differences at are about what would be expect by chance alone.

Table 2. Official Report Demographics Balance Statistics

	Total			Tx[a]			Control		
	N=143			N=72			N=71		
	M or %	(SD)	N	M or %	(SD)	N	M or %	(SD)	p
Age	20.47	(9.14)		21.08	(9.38)		19.86	(8.92)	0.425
Juvenile	71.3%			68.1%			74.6%		0.383
Black	34.3%			31.9%			36.6%		0.556
Hispanic	49.0%			54.2%			43.7%		0.209
White	10.5%			9.7%			11.3%		0.763
Other Race	6.3%			4.2%			8.5%		0.292
Currently Employed	9.1%			9.7%			8.5%		0.791
Currently in School	51.0%			44.4%			57.7%		0.112
Interested in Job Training	46.2%			44.4%			47.9%		0.680
Gang Affiliation	88.8%			91.7%			85.9%		0.275
Generational Member	25.2%			26.4%			23.9%		0.736
Significant Role in Gang	54.4%		30	53.3%		27	55.6%		0.866
Family Gang Members	52.7%		44	56.8%		49	49.0%		0.450
Wants to Leave Gang	73.1%		39	74.4%		28	71.4%		0.790
Risky Activities	55.2%			54.2%			56.3%		0.794
Recently Victimized	12.6%			13.9%			11.3%		0.637
General Criminal History	52.4%			62.5%			42.3%		0.015*
Recent Release	49.7%			50.0%			49.3%		0.933
Prior Municipal Charges	30.8%			33.3%			28.2%		0.504
Prior Misdemeanor Charges	37.1%			34.7%			39.4%		0.560
History of Human Services	27.3%			25.0%			29.6%		0.539
Prior Jail	34.3%			37.5%			31.0%		0.412
Prior Prison	16.9%			18.8%			14.9%		0.543
Current Charges	49.0%			52.8%			45.1%		0.357
Referred by Probation	21.0%			20.8%			21.1%		0.966
Referred by Pretrial Release	26.6%			25.0%			28.2%		0.668
Referred by Comm. Corr.	17.5%			18.1%			16.9%		0.856
Referred by Human Serv.	12.6%			11.1%			14.1%		0.592
Referred by Public Safety	5.6%			4.2%			7.0%		0.454

Referred by Other Gov.	8.4%		11.1%		5.6%		0.238
Referred by Non-Gov.	8.4%		9.7%		7.0%		0.563
Arrested Prior to Referral	55.2%		58.3%		52.1%		0.455
Charges Filed Prior to Ref.	62.9%		68.1%		57.7%		0.202
Number of Charges Filed	1.483	(1.80)	1.486	(1.62)	1.479	(1.98)	0.981
Felony Charges Filed	51.7%		58.3%		45.1%		0.113
Number of Felony Charges	2.706	(4.50)	2.819	(4.20)	2.592	(4.81)	0.763
Person Charges Filed	36.4%		40.3%		32.4%		0.327
Number of Person Charges	1.490	(2.79)	1.583	(2.44)	1.394	(3.13)	0.687
Property Charges Filed	35.0%		34.7%		35.2%		0.951
Number of Prop. Charges	1.168	(2.25)	1.181	(2.28)	1.155	(2.23)	0.946
Drug Charges Filed	14.7%		16.7%		12.7%		0.500
Number of Drug Charges	0.503	(1.63)	0.542	(1.57)	0.465	(1.69)	0.779
Other Charges Filed	46.2%		51.4%		40.8%		0.206
Number of Other Charges	1.476	(2.56)	1.472	(2.37)	1.479	(2.76)	0.988
Convicted Prior to Referral	35.7%		40.3%		31.0%		0.246
Number of Convictions	0.839	(1.41)	0.889	(1.37)	0.789	(1.45)	0.672
Felony Conviction	28.0%		31.9%		23.9%		0.287
Number of Felony Convicts.	0.552	(1.10)	0.625	(1.17)	0.479	(1.04)	0.431
Person Conviction	18.2%		23.6%		12.7%		0.090†
Number of Person Convicts.	0.252	(0.69)	0.347	(0.86)	0.155	(0.44)	0.094†
Property Convictions	16.8%		18.1%		15.5%		0.682
Number of Property Convic.	0.350	(0.90)	0.375	(0.94)	0.324	(0.86)	0.735
Drug Convictions	9.8%		11.1%		8.5%		0.593
Number of Drug Convicts.	0.140	(0.45)	0.167	(0.50)	0.113	(0.40)	0.479
Other Convictions	32.9%		36.1%		29.6%		0.406
Number of Other Convicts.	2.238	(4.43)	2.375	(4.34)	2.099	(4.55)	0.711
Incarcerated Prior to Ref.	25.9%		29.2%		22.5%		0.365
Number of Incarcerations	0.552	(1.12)	0.611	(1.11)	0.493	(1.13)	0.529

[a] Tx = Treatment. M=Mean. * p<.05 † p<0.10

IMPACT EVALUATION FINDINGS

Does the MDT-based approach achieve its stated goals of producing disengagement from gangs and desistance from crime? To answer this question, the treatment and control groups were compared on gang embeddedness, criminal offending, victimization, substance use, and criminal justice involvement. The first four domains of outcomes were based on survey data derived from the interviews (N=96), where respondents were asked around 10 months after being referred to GRID to self-report their behaviors and experiences in the last three months. The last domain consists of data from statewide judicial records for the entire sample of referrals to

GRID. The period of observation was confined to 18 months post-random assignment.

Linear and generalized linear regression models were used to test for differences in the outcomes between treatment and control groups, which took the following form:

$$y_i = b_0 + b_1 GRID_i + b_2 LaggedDV_i + \sum_{k=3}^{j} b_{ki} + e_i$$

The dependent variable, *y*, is value for a given outcome for person *i*; b_0 refers to the model constant when all values are fixed to zero; the key indicator, b_1, refers to the intent-to-treat effect of the random assignment to the GRID condition for person *i*; b_2 is a lagged measure of the dependent variable to improve statistical power and measured at pretest, but in instances where a lagged dependent variable was unavailable, a vector of *j* baseline covariates, b_{mi}, predictive of *y*, which differed across outcome, were used as a replacement by b_2; finally, a vector of *j* unbalanced baseline covariates, b_{ki}, were adjusted in the regression models, where *j*=1 in criminal justice domain outcomes, where *N*=143, and *j*=3 in the four domains derived from surveys, where *N*=96.

Table 3 contains the results of impact evaluation. The effects of GRID on survey measures of the gang outcomes operated in the opposite direction of what was expected. The gang embeddedness scale and six of the seven items were not statistically significant, as zero was included in the 95 percent confidence interval. Still, many of the differences were substantively large enough to not be ignored. For example, the people assigned to receive GRID services scored about 0.29 standard deviations *greater* on the gang embeddedness scale. Items such as the proportion of friends in gangs, contact with gangs, influence on gang dynamics, the importance of the gang, and social positioning in the gang were all at least 0.20 standard deviations greater among than treatment than control group. The odds of self-identifying as an active gang member were 3.3 times greater for GRID clients (51 percent) than for control cases (28 percent), which

was statistically significant at conventional levels, which was in the opposite direction of the preregistered hypothesis that GRID would facilitate disengagement from gangs. People assigned to receive GRID services scored about 0.36 standard deviations greater in the importance they placed on the gang in their life, which was statistically significant at $p<0.10$.

Table 3. Impact Results of the GRID Program Evaluation

	Tx[a]		Control				
	Mean	n	Mean	n	d	OR/IRR	p-value
Gang Membership							
Gang Embeddedness Scale[b]	0.151	46	-0.139	50	0.289		0.159
Friends[b]	0.110	44	-0.099	49	0.2089		0.324
Contact[b]	0.131	44	-0.118	49	0.249		0.261
Colors/signs[b]	-0.057	44	0.051	49	-0.109		0.598
Influence[b]	0.122	44	-0.107	50	0.229		0.266
Attacks/threats[b]	0.091	44	-0.080	50	0.172		0.418
Importance[b]	0.189	43	-0.169	48	0.358†		0.086
Position[b]	0.171	43	-0.150	49	0.322		0.145
Current Gang Member	0.512	45	0.278	50		3.266*	0.021
Former Gang Member	0.271	45	0.358	50		0.573	0.322
Offending							
Offending Variety Score	1.209	45	1.971	49		0.614	0.111
Violent Offending Variety Score	0.547	45	0.973	49		0.562†	0.074
Non-Violent Offending Variety Score	0.709	45	0.998	49		0.710	0.324
Recent Violent Offender	0.317	45	0.523	49		0.307*	0.032
Recent Non-Violent Offender	0.430	45	0.363	49		1.544	0.456
Victimization							
Victimization Variety Score	1.040	44	0.844	49		1.233	0.506
Violent Victimization Variety Score	0.742	44	0.561	49		1.323	0.342
Non-violent Victimization Variety Score	0.244	44	0.342	49		0.715	0.428
Recent Victim Violence	0.463	44	0.322	49		2.085	0.159
Recent Victim Non-Violence	0.221	44	0.252	49		0.821	0.723
Substance Use							
Substance Use Variety Score	2.008	43	1.484	48		1.353†	0.084
Hard Substance Use Variety Score	0.274	43	0.254	48		1.080	0.859
Soft Substance Use Variety Score	1.814	43	1.181	48		1.536*	0.021
Recent Hard Substance Use	0.235	43	0.144	48		2.139	0.241
Recent Soft Substance Use	0.789	43	0.584	48		3.551*	0.034
Judicial							
Arrests	0.363	72	0.307	71		1.296	0.481
Filings	0.478	72	0.444	71		1.158	0.681
Felony	0.392	72	0.391	71		1.002	0.995
Person	0.232	72	0.144	71		1.798	0.194
Property	0.242	72	0.234	71		1.045	0.915
Drug	0.127	72	0.094	71		1.422	0.535
Other	0.241	72	0.335	71		0.615	0.214
Convictions	0.369	72	0.386	71		0.929	0.835
Felony	0.232	72	0.215	71		1.103	0.812
Person	0.213	72	0.124	71		1.922	0.169
Property	0.150	72	0.197	71		0.713	0.463
Drug	0.039	72	0.015	71		2.824	0.383

Other	0.326	72	0.359	71	0.862	0.682
Incarceration	0.151	72	0.242	71	0.553	0.180

[a]Tx= Treatment. [b] Standardized. † p<.10 * p<.05

The findings with respect to survey measures of criminal offending stood in sharp contrast to the gang findings, and consistent with expected behavioral changes outlined in GRID's logic model. GRID clients maintained 69 percent lower odds of engaging in violence in the last three months than control cases, 32 percent compared to 52 percent, respectively, which was statistically significant at conventional levels. GRID clients also engaged in fewer types of violent offenses than control cases, as reflected in differences in the violence variety score ($p<0.10$). Overall offending and non-violent offending were both statistically null but in the expected direction. Given that violence reduction is the foremost goal of GRID's, these findings are quite positive, outweighing the unintended effects on gang embeddedness and especially self-identification as a gang member.

There were few differences for the remaining outcomes. GRID and control cases were equally likely to be victimized. GRID clients were more likely to use soft substances, such as alcohol, tobacco, and marijuana, than control cases, though there were no differences in hard substances, such as cocaine, methamphetamine, and heroin. The judicial data, which was based on the full sample of 143, and not limited to the people interviewed at the follow up, exhibited no statistical differences in the likelihood of arrest, filing, conviction, and incarceration. Still, GRID clients were about half as likely to be sentenced to incarceration. The process evaluation permits a deeper look into understand this mix of findings.

PROCESS EVALUATION FINDINGS

Does the MDT-based approach achieve its stated purpose of providing comprehensive, coordinated services to gang members with fidelity? Qualitative methods were used in order to answer this question. A member from the research team attended and observed the monthly

MDT meetings from the start of the study. In June 2021, field observations of the outreach workers began. The participants were also asked about services they received during their follow-up interview. Table 4 demonstrates the services participants stated they received and the proportion of participants that received them. The people in the GRID group reported having received more types of services than those in the control group with the exception of employment and extracurricular activities. Services to reduce gang involvement was statistically significant ($p<.001$) as were services for addiction ($p<.10$). To this end, we can conclude that the MDT was indeed effective in connecting clients with more services than people who were not a part of GRID's MDT.

Table 4. Services Received by Study Participants

	Total %	n	Tx %	Control %	p
Reducing Gang Involvement	53.7%	95	73.9%	34.7%	0.000*
Mental Health	65.6%	96	73.9%	58.0%	0.101
Addiction	35.8%	95	45.7%	26.5%	0.052†
Education	35.4%	96	39.1%	32.0%	0.466
Employment	36.5%	96	30.4%	42.0%	0.240
Extracurricular Activities	17.7%	96	17.4%	18.0%	0.938
Other	2.1%	95	0.0%	4.0%	0.175

† $p<.10$ * $p<.01$

Observing the GRID MDT meetings revealed several findings. The Intervention Support Team (IST) MDT for juveniles has more stability than its adult counterpart, the Adult System Navigation (ASN) MDT. The core of the IST team has been in place for many years and the representatives for key partners, such as juvenile probation, Denver Department of Human Services, and the Colorado Youth Detention Continuum (SB94), have remained consistent since well before study period. The familiarity between the members contributed to well-run meetings and an open flow of information. The average attendance for the IST meetings was about 15 people (including 8 non-GRID attendees) which was much greater than the ASN attendance of

about 10 (including 3 non-GRID attendees). The IST meetings also averaged about 140 minutes while ASN about 60 minutes.

Table 5. Breakdown of MDT Meetings Pre and During COVID-19

	Pre-COVID	During COVID
Intervention Support Team (Youth)		
Observations	7	28
Attendees (Mean)[a]	10	6
Minutes		
Mean	127	113
(SD)	(19)	49
Range	105-135	60-135
Adult Systems Navigation (Adult)		
Observations	4	20
Attendees (Mean)[a]	7	3
Minutes		
Mean	105	51
(SD)	(50)	(21)
Range	55-120	30-60

[a] Mean number of attendees do not include the GRID team.

The emergence of COVID-19 had a bigger impact on ASN because halfway houses were GRID's biggest source of adult referrals. The impact of COVID-19 on the Colorado Department of Corrections trickled down to halfway houses, leading to fewer referrals made to GRID. The relationship between GRID and its adult partners were already fragile given to the number of ASN MDT meetings that had been canceled by GRID.

During the MDT meetings, a GRID outreach worker leads the discussion of a client on their caseload. They discussed information gathered about the client and the work they have done to begin the transition from engagement to level 1. Once the outreach worker is done, the partners proceed to share information they may have regarding the client. This information may include current legal cases, housing status, or compliance with services such as therapy.

GRID clients held favorable views about their outreach worker, as shown in Table 6. This was based on interviews with clients randomly assigned to receive GRID services. Seventy-five percent of the people we interviewed agreed that they talk to their outreach worker about gang activity, 88 percent agreed that their outreach worker provided them with disengagement

strategies, 90 percent trusted their outreach worker, only 10 percent avoided their outreach worker, 73 percent agreed their outreach worker helped them to resolve conflicts, and 80 percent said they did not lie to their outreach worker.

Table 6. Client Views on GRID Outreach Workers

	Strongly Disagree N (%)	Disagree N (%)	Agree N (%)	Strongly Agree N (%)
Talking to ORW About Gang Activity	3 (7.3)	7 (17.1)	19 (46.3)	12 (29.3)
ORW Provides Gang Disengagement Strategies	1 (2.5)	4 (10.0)	23 (57.5)	12 (30.0)
Client-ORW Trust	3 (7.7)	1 (2.6)	22 (56.4)	13 (33.3)
Avoiding ORW	9 (22.5)	27 (67.5)	3 (7.5)	1 (2.5)
ORW Provides Conflict Resolution	3 (7.5)	8 (20.0)	21 (52.5)	8 (20.0)
Client Lies to ORW	10 (24.4)	23 (56.1)	6 (14.6)	2 (4.9)

As the impact results demonstrated, although not statistically significant, people in the GRID group demonstrated higher levels of gang embeddedness than those in the control group. Despite this, the GRID group displayed less engagement in general offending and statistically significant less violent offending. Field observations with the outreach workers may reveal a possible explanation for this.

First, the outreach workers all approach service delivery differently. It became apparent that there was variance in the importance identification as a gang member had for the outreach workers. Some addressed gang membership with explicit and pointed questions, whereas other outreach workers de-prioritized gang membership and instead focused on issues like education, employment, and family dynamics. A couple outreach workers expressed a reluctance to tell their clients to stop identifying as gang members since their peers and neighborhoods would remain a constant in their lives. Despite this, all outreach workers emphasized behavioral change. In short, outreach workers encouraged their clients to stop *behaving* like gang members and not necessarily to stop *identifying* as gang members.

Second, it is possible that clients were reacting to being assigned to GRID, akin to labeling effects. Respondents in the treatment condition could possibly sensationalize or internalize their involvement in gangs owing to their assignment to GRID. There is suggestive evidence in support of this. Leveraging the baseline interview to predict self-reported current gang membership, there was an interaction with treatment assignment for the duration between when a referral was assigned to a condition and the baseline interview and treatment assignment. For the control group, the predicted probability of current membership was .249 at 0 months, .315 at 1 month, .382 at 2 months, and .448 at 3 months. In contrast, the predicted probability for the treatment group was .290 at 0 months, .427 at 1 month, .565 at 2 months, and .703 at 3 months. The interaction was not statistically significant, but this evidence is suggestive of an activation or enhancement effect of being assigned to GRID.

LIMITATIONS

This study is not without limitations. The sample size was smaller than anticipated. This was due to the suspension of referrals in response to the outbreak of the pandemic, but also constrained outreach due to turnover in leadership. A larger sample size would have yielded more reliable estimates of the effect of GRID on the core outcomes. While random assignment was retained throughout the study, permitting causal estimates of GRID effects, turnover in various positions could have dampened treatment effects. Leadership to mid-level to outreach positions all changed during the three years of data collection. Of course, instability and uncertainty are a reality of gang and violence interventions across the country. Field-based experiments are rarely if ever as clean as lab-based experiments. The final point to make about limitations is with respect to generalizability. It is obvious that these findings apply to an organization in operation for about 12 years in Denver; it is less obvious the extent to which

these findings could generalize to MDT- and outreach-based interventions beyond Denver, whether they are government or community-based. There are many generalities in the way the MDTs and outreach workers were deployed (Arciaga, 2007; Decker et al., 2022), but the findings from this study could be conditioned by the gang culture in Denver and period effects of the pandemic. Still, these findings contribute to a growing body of scholarship seeking to determine the efficacy of community-based, non-law enforcement violence prevention and intervention.

ARTIFACTS

The artifacts that have emerged from this research include a number of training opportunities, scholarly products, and dissemination activities.

Two doctoral students were employed as graduate research assistants on this project for three of the four years (which includes the one-year no-cost extension). These students respectively served as the point-persons on the process and impact evaluations. The study provided opportunities for the students to learn about developing and implementing an experimental study which included: survey development and testing, , developing a database for contact management of study participants, developing procedures for informed consent, recruitment, and interviews, hiring and training undergraduate interns and employees to conduct these procedures, conducting day-to-day study recruitment and interviews, communicating with criminal justice agencies for assistance with study recruitment when necessary, cleaning data, analyses of data. In addition, 25 advanced undergraduate students and 1 master's student worked on this project as volunteers, interns, or paid positions, all of whom were trained on interview-based survey data collection, contact management, human subjects consent and ethics in research with sensitive populations, and ACT! and Qualtrics software.

The following are products were directly or indirectly related to project activities that have over the course of the research:

- Refereed journal articles:

    1. Pyrooz, D. C., Weltman, E., & Sanchez, J. A. (in progress). *Effects of multidisciplinary teams and street outreach on gang embeddedness, offending, and victimization: Mixed evidence from a randomized control trial in Denver*. Working Paper.

    2. Sanchez, J. A., & Pyrooz, D.C. (2023). Gang intervention during COVID-19: A qualitative study of multidisciplinary teams and street outreach in Denver. *Journal of Criminal Justice*. https://doi.org/10.1177/10887679211043804

    3. Pyrooz, D. C., Weltman, E., & Sanchez, J. A. (2019). Intervening in the lives of gang members in Denver: A pilot evaluation of the Gang Reduction Initiative of Denver. *Justice Evaluation Journal* 2: 139-163. https://doi.org/10.1080/24751979.2019.1609334

- Doctoral dissertations:

    1. Sanchez, Jose Antonio. Working Title. "There's Something Happening Here…": Examining Gang Intervention Service Delivery by Outreach Workers in Denver.

    2. Weltman, Elizabeth. Working Title. Are Changing Masculinities Important for Gang Disengagement?

- Data sets generated

    - Upon conclusion of the project the quantitative data will be submitted for review for public access to the National Archive of Criminal Justice Data

- Dissemination activities

    1. Pyrooz, D. C., Weltman, E., & Sanchez, J. A. (2022). *Disengagement from gangs and desistance from crime: Findings from a randomized controlled trial of a multidisciplinary team and street outreach worker intervention in Denver*. Annual Meeting of the American Society of Criminology, Atlanta, GA.

    2. Sanchez, J., Pyrooz, D. C., and Weltman, E. (2022). *Examining how the Gang Reduction Initiative of Denver's outreach workers perceive their mission and deliver services*. Annual Meeting of the American Society of Criminology, Atlanta, GA.

3. Weltman, Elizabeth. (2022). *Are changing masculinities important for gang disengagement?* Annual Meeting of the American Society of Criminology, Atlanta, GA.

4. Pyrooz, D. C., Weltman, E., & Sanchez, J. A. (2022). *Process and impact evaluation results: A presentation to the Gang Reduction Initiative of Denver.* Institute of Behavioral Science, University of Colorado Boulder. Boulder, CO.

5. Pyrooz, D. C., Weltman, E., & Sanchez, J. A. (2022). *GRID process and impact evaluation.* Blueprints for Healthy Youth Development working group, Institute of Behavioral Science, University of Colorado Boulder. Boulder, CO.

6. Weltman, E., Pyrooz, D. C., and Sanchez, J., (2021). *Street outreach and gang intervention: A scoping review*. Annual Meeting of the American Society of Criminology, Chicago, IL.

7. Sanchez, J., Pyrooz, D. C., and Weltman, E. (2021). *Gang intervention and multidisciplinary teams: A qualitative study in the age of COVID-19*. Annual Meeting of the American Society of Criminology, Chicago, IL.

8. Pyrooz, D. C. (2021). Disengaging from gangs: Role exits, signaling, and intervention. *Continuing Legal Education.* Office of the Federal Public Defender for the Districts of Colorado and Wyoming.

9. Pyrooz, D. C. (2020). Implementing a randomized controlled trial of a gang intervention program in Denver. *Virtual Meeting of Stakeholders to Advance Knowledge to Reduce Gangs and Gang Violence*. National Institute of Justice.

10. Pyrooz, D.C., Callanan, P., Sanchez, J., Monroe, N., & Weltman E. (2019). *Intervening in the lives of gang members in Denver: Findings from a pilot project evaluation of the Gang Reduction Initiative of Denver.* Los Angeles Gang Prevention and Intervention Conference. Long Beach, CA.

11. Pyrooz, D.C., Sanchez, J., & Weltman E. (2019). *A randomized control trial evaluation of the Gang Reduction Initiative of Denver program*. Blueprints for Healthy Youth Development working group, Institute of Behavioral Science, University of Colorado Boulder. Boulder, CO.

12. Pyrooz, D.C. (2019). *Effective gang intervention and disengagement from gangs*. Keynote Address. Strategic Planning Workshop, Reducing Gang Violence in Denver, City and County of Denver.

13. Pyrooz, D.C., Sanchez, J., & Weltman, E. (2019). *Intervening in the lives of gang members in Denver: Evaluating the Gang Reduction Initiative of Denver*. Annual Meeting of the American Society of Criminology, San Francisco, CA.

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