

Street conflict mediation to prevent youth violence: Conflict characteristics and outcomes

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ABSTRACT

Background Mediation of potentially violent conflicts is a key component of CeaseFire, an effective gun violence-prevention programme.

Objective To describe conflicts mediated by outreach workers (OW) in Baltimore's CeaseFire replication, examine neighbourhood variation, and measure associations between conflict risk factors and successful nonviolent resolution.

Methods A cross-sectional study was conducted using records for 158 conflicts mediated between 2007 and 2009. Involvement of youth, gangs, retaliation, weapons and other risk factors were described. Principal component analysis (PCA) was used for data-reduction purposes before the relationship between conflict risk components and mediation success was assessed with multivariate logistic regression.

Results Most conflicts involved 2–3 individuals. Youth, persons with a history of violence, gang members and weapons were commonly present. OWs reported immediate, nonviolent resolution for 65% of mediated conflicts; an additional 23% were at least temporarily resolved without violence. PCA identified four dimensions of conflict risk: the risk-level of individuals involved; whether the incident was related to retaliation; the number of people involved; and shooting likelihood. However, these factors were not related to the OW's ability to resolve the conflict. Neighbourhoods with programme-associated reductions in homicides mediated more gang-related conflicts; neighbourhoods without programme-related homicide reductions encountered more retaliatory conflicts and more weapons.

INTRODUCTION

Gun violence is a serious threat to health and safety in many communities, especially low-income urban areas.¹ Youth are disproportionately involved as both victims and perpetrators of violent crimes.^{2–4} In the USA, homicide is the leading cause of death for black youth between the ages of 15 and 24, and the second leading cause of death for Hispanic youth in this age group.⁵ Violent neighbourhoods' social norms, or the 'code of the street', often dictate the use of violence when an individual is threatened or disrespected.⁶ This environment fosters cycles of retaliatory gun violence and repeated injury.^{7–9}

CeaseFire is a public health programme designed to prevent shootings by changing attitudes, behaviours, and social norms about gun violence.¹⁰ The model involves: case-management and mentoring for high-risk youth; interruption of violence through conflict mediation; community mobilisation; public education; and partnership with clergy. The programme maintains a careful relationship with law enforcement, balancing the need for police

information about shootings with the need for outreach staff to avoid being perceived by the community as untrustworthy police informants or 'snitches', a label that could jeopardise their own safety and their ability to learn of future conflicts before they happen.¹¹ An evaluation of CeaseFire Chicago found programme-related reductions in shootings from 16% to 35% in four out of seven neighbourhoods where it was implemented.¹¹ The Safe Streets programme, a replication of CeaseFire run by the Baltimore City Health Department (BCHD) in four of Baltimore's most violent neighbourhoods, was associated with reductions in gun violence in three of these neighbourhoods, including substantial reductions in homicides in the two neighbourhoods where the programme was fully implemented (McElderry Park and Cherry Hill).¹²

Of the CeaseFire model components, the most direct way of preventing shootings is the use of specialised outreach workers (OW) to identify and intervene in street conflicts to help resolve them peacefully. The OWs, sometimes called violence interrupters, are recruited for their credibility and influence among high-risk youth in the target communities. They are often former gang members or were previously involved in the drug trade.¹¹ In Baltimore, evaluators noted that the more effective programme sites had three times as many conflict mediations per month compared with programme sites that failed to reduce homicides.¹²

Communities, in the USA and internationally, are increasingly using conflict mediation as part of their violence-prevention efforts.^{11–16} It is important to determine the combinations of settings, individuals and risk factors in which mediation can be used effectively. As part of our evaluation of Baltimore's Safe Streets programme, we sought to describe the characteristics of conflicts mediated by OWs, and how they varied across programme neighbourhoods. We also examined associations between conflict risk factors and mediation outcomes in an effort to identify whether certain conflict risk factors are associated with successful mediation.

METHODS

Study sites

Four Safe Streets neighbourhoods in Baltimore were included in this analysis. McElderry Park was the first neighbourhood to implement the programme, beginning in June 2007. Later, additional outreach staff were hired to expand this site into two adjacent neighbourhoods—Ellwood Park (added in February 2008) and Madison-Eastend (added in December 2008). Another site began operation in the South Baltimore neighbourhood of Cherry Hill in November 2008. Each neighbourhood was assigned a

staff of four full-time equivalent OWs. Table 1 shows demographic characteristics and crime statistics for the four Safe Streets neighbourhoods, and Baltimore as a whole.

Data collection

The Safe Streets sites routinely collect information about mediations for programme monitoring purposes using a tool developed by CeaseFire Chicago called the Conflict Mediation Form (CMF). The CMF is typically completed within 24 h of the mediation. BCHD provided the research team with de-identified copies of all CMFs completed between the programme's inception in June 2007 and December 2009.

A dataset was constructed by abstracting information from the CMFs. Variables abstracted included: neighbourhood; conflict date; mediation date; number of OW(s) mediating conflict; number of people involved in the conflict; the way(s) in which Safe Streets learned about the conflict; and reasons for the conflict (gang, personal altercation, narcotics, domestic violence, child abuse, robbery, retaliation, unknown or other). Also recorded were seven risk factors indicating whether one or more parties was thought to: (1) be gang/crew involved; (2) have a history of violence; (3) be between ages 14 and 25 years; (4) have recently been released from prison; or if the situation (5) was related to high risk street activity (ie, drug-selling); (6) was in retaliation for a shooting in the past 90 days; or (7) involved a weapon. The type(s) of mediation conducted (phone, one-on-one, small group, diplomacy between groups, and/or conducted by a third party who was not an OW); the OW's perceived likelihood that the conflict, unmediated, would have led to a shooting; and the perceived outcome of the mediation (conflict resolved, resolved temporarily, ongoing or unknown) were also abstracted. A conflict was considered 'resolved' if, at the time the CMF was completed, the OWs believed the situation was fully resolved and would lead to no further violence. 'Resolved temporarily' meant immediate violence had been avoided but the parties had not reached a final agreement to avoid future violence related to this incident.

The form also contained an open-ended section in which OWs describe their actions. A majority of CMFs contained information in this field addressing the cause of the conflict. One author (JMW) read this section and coded a variable for the conflict trigger. This allowed us to identify the specific causes of conflicts and gain a deeper understanding of the meaning behind the closed-ended categories 'personal altercation' and

'retaliation'. A codebook was compiled and reviewed by a second author (DWW) to verify that codes were appropriate and fit with prior research on causes of street conflicts. The list of all codes was reviewed and condensed, forming categories into which similar codes could be grouped.¹⁹ From the text, we also coded binary variables indicating whether alcohol was involved, whether a Safe Streets case-management client was involved, and the sex of the people involved.

Data analysis

Descriptive statistics were used to assess frequencies and proportions for binary and categorical variables within the four Safe Streets neighbourhoods, and for the programme as a whole. A χ^2 -test was used to examine the relationship between gang-motivated conflict and having more than 10 people involved.

We examined whether certain conflict risk factors might be more important than others for predicting a successful mediation. Because there might be close correlations between some of the risk factors, we conducted a principal component analysis (PCA) of 10 risk factors (the seven conflict risk factors described above, an indicator variable for any mention of retaliation, the number involved in conflict, and the likelihood of it leading to a shooting) using varimax rotation.²⁰ This data-reduction tool allowed us to use only a few variable clusters (components) to explain the maximum amount of variance in the risk factors. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was used to determine whether the correlation was high enough to warrant PCA. KMO=0.60 was used as the criterion.^{21 22}

We dichotomised the outcome variable to reflect whether or not the OWs considered the conflict fully resolved without serious violence. This variable was included in a multiple logistic regression model to examine the relationship between the risk factor components derived from the PCA and mediation outcome. Because two neighbourhoods had relatively small numbers of mediations, we pooled the data for the regression analysis. Statistical analysis was conducted using Stata 10.²³ The Institutional Review Board at the Johns Hopkins Bloomberg School of Public Health approved this study.

RESULTS

There were 167 conflicts mediated during the study period; CMFs were available for 158 (95%) of these conflicts. Outreach staff in Cherry Hill and McElderry Park mediated the most

Table 1 Safe streets site characteristics

	McElderry Park	Ellwood Park	Madison-Eastend	Cherry Hill	Baltimore City
Population*	4033	3580	2487	8367	620961
Age 15–24*, n (%)	763 (18.9)	581 (18.6)	445 (17.9)	1237 (16.6)	100738 (16.2)
Race/ethnicity*, n (%)					
White	382 (9.5)	415 (11.6)	54 (2.2)	238 (2.8)	183830 (29.6)
Black	3238 (80.3)	2647 (73.9)	2371 (95.3)	7919 (94.6)	395781 (63.7)
Hispanic/Latino	473 (11.7)	501 (14.0)	53 (2.1)	140 (1.7)	25960 (4.2)
Other	271 (6.7)	392 (10.9)	31 (1.2)	99 (1.2)	28121 (3.5)
Median Household Income†	\$33352	\$33352	\$33352	\$18602	\$38346
Unemployment (%)‡	21.7	21.7	21.7	23.8	12.6
Female-headed households, n (%)*	539 (61.5)	478 (60.6)	382 (63.8)	1506 (71.9)	59589 (44.5)
Vacant housing units, n (%)*	547 (31.8)	316 (23.2)	170 (18.6)	242 (7.0)	46782 (15.8)
Annual homicides‡	3.8	4.5	3.3	5.0	273
Annual non-fatal shootings‡	9.8	12.8	12.3	12.8	598

*Demographic data from the 2010 census.¹⁷

†Economic data from 2006–2010 American Community Survey 5-year estimates for community statistical area (CSA) including neighbourhood of interest. McElderry Park, Ellwood Park, and Madison-Eastend are in the same CSA.¹⁸

‡Baltimore Police Department data, 2003–2006 average.

Table 2 Frequency and size of conflicts mediated by safe streets outreach staff

	McElderry Park	Ellwood Park	Madison-Eastend	Cherry Hill	Programme total
Conflicts mediated	76	21	14	47	158
Months in operation	31	23	13	14	*
Mediations per month	2.5	0.9	1.1	3.4	*
Individuals in conflict, n (%)					
2–3	40 (52.6)	7 (33.3)	9 (64.3)	29 (61.7)	85 (53.8)
4–10	15 (19.7)	8 (38.1)	4 (28.6)	9 (19.2)	36 (22.8)
11 or more	21 (27.6)	6 (28.6)	1 (7.1)	9 (19.1)	37 (23.4)
Maximum number	50	16	10	60	60
Mediators per conflict, n (%)					
1	47 (61.8)	13 (61.9)	10 (71.4)	37 (78.7)	107 (87.7)
2–3	23 (30.3)	7 (33.3)	3 (21.4)	8 (17.0)	41 (26.0)
4 or more	6 (7.9)	1 (4.8)	1 (7.4)	2 (4.3)	10 (6.3)
Mediation sessions per conflict, n (%)					
1	72 (94.7)	18 (85.7)	12 (85.7)	42 (89.4)	144 (91.1)
2 or more	4 (5.3)	3 (14.3)	2 (14.3)	5 (10.6)	14 (8.9)

conflicts, averaging 3 and 2.5 per month, respectively, compared with an average of one conflict mediation per month in Ellwood Park and Madison-Eastend. Across all the neighbourhoods, a majority of conflicts (54%) involved two or three individuals. The median number involved was four in Ellwood Park, three in McElderry Park and Cherry Hill, and two in Madison-Eastend. Two-thirds (68%) of conflicts were mediated by one OW. Table 2 shows the frequency and the number of individuals involved in the conflicts. No clear pattern was observed in the correlation between the number of individuals in conflict and the number of OW mediators. A large majority (91%) of conflicts required only one mediation session.

Reasons for conflict

The issues that precipitated conflicts did not vary significantly across neighbourhoods, and thus we grouped the data for this analysis. In the closed-ended section, a 'personal altercation' was noted as the reason for 65% of conflicts. Other reasons for conflicts included gangs (29%), retaliation (15%), narcotics (11%), and domestic violence (10%) (table 3). The percentage of gang-motivated conflicts with more than 10 individuals (37%) was significantly greater than the percentage of non-gang conflicts of that size (18%) ($\chi^2 = 6.63$; p value=0.010).

The open-ended section provided additional details on conflict triggers for 105 conflicts (67%). Within this group, there were 57 cases for which personal altercation was listed as a reason and a specific trigger was identified; the most common triggers described included disrespect (19%), disputes over territory (16%), theft (14%) and disagreements about money (13%). In 14 cases of retaliation where specific triggers were described, the conflicts were related to disputes over territory (28%), money (21%) or physical confrontations when at least one party was punched, hit, kicked or assaulted in some manner (21%).

Risk factors and people involved

Nine out of 10 conflicts involved at least one individual between ages 15 and 24 years (89%), and at least one with a history of violence (90%); nearly half (47%) involved someone who was recently released from prison. Almost 60% of conflicts were related to drug selling. The proportion of conflicts involving gang members was notably lower in Madison-Eastend than in the other neighbourhoods. Many more conflicts in Ellwood Park involved a weapon (81%) compared with the other neighbourhoods where 50%–61% of the conflicts involved weapons.

Conflicts in Ellwood Park and Madison-Eastend were more frequently related to retaliation than in the other neighbourhoods (see table 4).

OWs reported that, without their intervention, a shooting was 'very likely' in 57% of the incidents. Coding of the open-ended field revealed that nearly 20% of conflicts involved both women and men, and 7% involved only women. The proportion

Table 3 Reasons for conflicts

	Closed-ended responses (n=158)		Open-ended responses (n=105)							
	n	%	n _{category} *		n _{subcategory} †	%				
Personal altercation	102	64.6	57	Disrespect	11	19.3				
				Dispute over territory	9	15.8				
				Theft	8	14.0				
				Disagreement about money	6	10.5				
				Physical confrontation	5	8.8				
				Threatened kin	5	8.8				
				Snitching	4	7.0				
				Other	9	15.8				
				Retaliation	23	14.6	14	Dispute over territory	4	28.6
								Disagreement about money	3	21.4
Physical confrontation	3	21.4								
Robbery	2	14.3								
Other	2	14.3								
Gang	46	29.1								
Narcotics	17	10.7								
Domestic violence	16	10.1								
Robbery	7	4.4								
Child abuse	3	1.9								
Other	35	22.2								
Don't know	11	7.0								

For the closed-ended item 'reason for conflict', outreach workers chose from the nine categories in the leftmost column (not mutually exclusive). Coding of the open-ended responses showed distinct subcategories for 'personal altercation' and 'retaliation'.

*n_{category} is the number of conflicts for which open-ended responses were available within the closed-ended category; used as the denominator for the subcategory percentages.

†n_{subcategory} is the frequency with which specific conflict triggers were cited within a particular category.

Table 4 Conflict characteristics by programme neighborhood

	McElderry park n (%)	Ellwood park n (%)	Madison-eastend n (%)	Cherry hill n (%)	Total n (%)
Risk factors					
Age 15–24	67 (90.5)	21 (100.0)	12 (85.7)	38 (82.6)	138 (89.0)
Gang involved	60 (81.1)	18 (85.7)	7 (50.0)	32 (69.6)	117 (75.5)
History of violence	66 (89.2)	21 (100.0)	13 (92.9)	40 (87.0)	140 (90.3)
Returned from prison	31 (41.9)	13 (61.9)	6 (42.9)	23 (50.0)	73 (47.1)
High-risk street activity*	41 (55.4)	14 (66.7)	10 (71.4)	25 (54.4)	90 (58.1)
Weapon present	45 (60.8)	17 (81.0)	7 (50.0)	27 (58.7)	96 (61.9)
Retaliation†	23 (30.3)	10 (47.6)	8 (57.1)	16 (34.0)	57 (36.1)
Open-ended responses					
Alcohol	3 (4.0)	0 (0.0)	1 (7.1)	4 (8.5)	8 (5.1)
Programme participant‡	11 (16.4)	1 (4.8)	1 (8.3)	3 (7.9)	16 (11.6)
Only women	5 (6.6)	0 (0.0)	0 (0.0)	6 (12.8)	11 (7.0)
Men and women	10 (13.2)	5 (23.8)	2 (14.3)	14 (29.8)	31 (19.6)
Learned of conflict					
Personal contact	34 (44.7)	15 (71.4)	10 (71.4)	30 (63.8)	89 (56.3)
Street	31 (40.8)	7 (33.3)	3 (21.4)	22 (46.8)	63 (39.9)
Hospital	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.1)	1 (0.6)
Mediation type					
One-on-one	23 (30.3)	7 (33.3)	10 (71.3)	14 (29.8)	54 (34.2)
Small group	33 (43.4)	12 (57.1)	4 (28.6)	10 (21.3)	59 (37.3)
Third party	19 (25.0)	0 (0.0)	0 (0.0)	16 (34.0)	35 (22.2)
Shuttle diplomacy	17 (22.4)	1 (4.8)	0 (0.0)	12 (25.5)	30 (19.0)
Phone	5 (6.6)	0 (0.0)	0 (0.0)	2 (4.3)	7 (4.4)
Perceived likelihood of shooting‡					
Very likely	43 (56.6)	14 (73.7)	11 (78.6)	21 (45.7)	89 (57.4)
Likely	19 (25.0)	3 (15.8)	2 (14.3)	8 (17.4)	32 (20.7)
Unlikely	12 (15.8)	1 (5.3)	1 (7.1)	13 (28.3)	27 (17.4)
Unknown	2 (2.6)	1 (5.3)	0 (0.0)	4 (8.7)	7 (4.5)
Perceived outcome of mediation					
Resolved	54 (71.1)	12 (57.1)	13 (92.9)	23 (48.9)	102 (64.6)
Temporarily resolved	12 (15.8)	7 (33.3)	1 (7.1)	17 (36.2)	37 (23.4)
Ongoing	1 (1.3)	2 (9.5)	0 (0.0)	2 (4.3)	5 (3.2)
Unknown	2 (2.6)	0 (0.0)	0 (0.0)	4 (8.5)	6 (3.8)

*Risky street activity refers to drug-selling and participation other illicit street markets.

†Any mention of retaliation

‡Likelihood of a shooting if conflict was not mediated.

§Clients must be between the ages of 14–25; the percentage is out of the number of conflicts involving someone in that age range.

of conflicts involving a Safe Streets programme client—a high-risk youth whom OWs mentored and directed to services—varied across the programme sites, accounting for 16% of conflicts in McElderry Park and 5%–8% in the other neighbourhoods.

There was a ‘middling’ level of sampling adequacy for the PCA (KMO=0.73) based on Kaiser’s benchmarks.²¹ Four factors together explained 64% of the total variance. These factors were comprised of: (1) five items measuring the general risk level of the individuals in conflict (age 15–24 years, gang involvement, history of violence, recent release from prison and high-risk street activity), (2) two items indicating whether the conflict was related to retaliation, (3) two items reflecting the likelihood of a shooting if the conflict is not mediated (OW’s assessment and the presence of a weapon) and (4) one item indicating the number of people involved (table 5). Based on the results of the PCA, three factor score variables were created for the first three factors above and included for use in subsequent analyses. A fourth variable measured the number of people involved in the conflict.

Outcomes and associations

OWs were usually able to resolve the conflicts in which they intervened, thus avoiding violence. A higher percentage of

conflicts were reported as fully resolved in McElderry Park (71%) and Madison-Eastend (93%) as compared with Ellwood Park (57%) and Cherry Hill (49%). In Cherry Hill and Ellwood Park, approximately one-third of conflicts were reported to be

Table 5 Principal components of conflict risk

Component	Variable	Correlation between component and variable	Eigenvalue
Individual(s) risk level	Age 15–24	0.52	3.03
	Recently released from prison	0.30	
	Gang involved	0.48	
	History of violence	0.54	
	Related to high-risk street activity	0.30	
Retaliation	Retaliation for shooting in past 90 days	0.67	1.32
	Retaliation (any)	0.60	
Shooting likelihood	outreach worker’s assessment of shooting likelihood	0.86	1.06
	Weapon on the scene	0.31	
	Number of people involved	0.87	
Number of people	Number of people involved	0.87	1.04

temporarily resolved, meaning that violence was prevented but OWs were uncertain about whether conflict might re-erupt. Overall, OWs were able to fully resolve 65% of the conflicts without serious violence and bring about a temporary resolution in 23%. Only 3% of conflicts remained ongoing after the mediation attempt (table 4).

None of the PCA components showed a statistically significant relationship with the OWs' ability to fully resolve the conflict (table 6). The point estimate was largest for the impact of individual risk (OR=0.79, $p=0.137$), though it was not statistically significant.

DISCUSSION

To our knowledge, this is the first analysis of conflict mediation records from a street outreach programme. The results provide insight into the circumstances and people involved in situations that might turn deadly without intervention by skilled OWs. Most conflicts encountered by OWs were between two or three individuals. However, one in four conflicts involved more than 10 people. These larger conflicts were more likely to be gang-related than not. Youth, persons with a history of violence, persons recently released from prison, and weapons were common. Females were involved in nearly one-quarter of the conflicts. PCA reduced the risk factor items on the CMF to four dimensions of conflict risk: the risk-level of individuals involved, whether the conflict is related to retaliation, the number of people involved, and the likelihood of a shooting, but these factors did not predict mediation outcomes.

The role of gangs

Nonviolent resolutions of larger conflicts may have a greater impact on overall rates of violence in the community if the resolution includes a truce between gangs or groups.^{24 25} In this study, the number of people involved in the conflict was not associated with the OWs' ability to resolve the conflict, suggesting it was not necessarily harder to mediate larger conflicts.

Neighbourhood variation

The Safe Streets neighbourhoods are demographically similar to each other; all have a lower median income, a higher unemployment rate, and a greater proportion of black residents than the Baltimore city-wide average. All were among the most violent neighbourhoods in the city based on the number of homicides and shootings in the years before the programme began,¹² though Madison-Eastend had a higher number of shootings per capita. The variation in certain conflict risk factors across neighbourhoods may provide some insight into the mixed effects of the programme on homicides and shootings found in the Safe Streets evaluation.²⁶ Gangs were involved in a smaller percentage of conflicts that were mediated in Madison-Eastend (50%) than in other neighbourhoods

(70%–86%). An intense feud between gangs selling drugs precipitated an incident in which 12 people were shot at a cookout in Madison-Eastend in the summer of 2009.^{27 28} The feud allegedly involved kidnapping of a gang leader's family, murders and retaliatory violence during the period when Safe Streets was implemented. The intensity of this ongoing conflict may have made it difficult or impossible for OWs to mediate the very violent, gang-related conflicts in this area. Madison-Eastend and Ellwood Park experienced more violence during programme implementation than did McElderry Park and Cherry Hill. This may explain why roughly half the mediated conflicts in these neighbourhoods were related to retaliation, compared with approximately one-third of the conflicts in the other two neighbourhoods. Future studies should examine specific mediation strategies for addressing retaliation. Future attention is also needed to understand whether differences in programme implementation, such as staffing or community engagement, may have contributed to these observed differences in the types of conflicts mediated, and ultimately, the programme outcomes.

Conflict triggers and participants

The reasons for the conflicts in which Safe Streets OWs intervened are generally consistent with those identified in the literature as triggers for gun incidents: perceived disrespect, drug territory disputes and gang activities were among the most frequently cited.²⁹ The reasons for conflicts and the risk factors for people involved were similar to those noted in the evaluation of CeaseFire Chicago.¹¹

OWs indicated involvement of Safe Streets clients in a relatively small proportion (12%) of conflicts, though this figure should be seen as the lower bound of the true value because client involvement was ascertained from open-ended items and not directly asked on every CMF completed. The small number may reflect that the programme's case-management efforts are succeeding at keeping these youth out of trouble. Or, the programme may be failing to engage as clients the very highest-risk youth that end up in conflicts. The open-ended section of the CMF also provided some insight into the prevalence of females in street conflicts. Because young males are predominantly the victims and perpetrators of gun violence, descriptions of violent conflicts rarely focus on the involvement of women.^{2 5 30 31} The role of females in urban youth violence is an area that warrants future exploration.

Limitations and strengths

The process of mediating a street conflict involves assessing multiple factors about the situation, the actors involved, and the actions that will likely bring about a nonviolent resolution. The information on the CMFs does not represent the entirety of the interaction when reduced to check boxes and an open-ended section.¹¹ For example, it was unknown to researchers what type of weapon was involved in each scenario, and whether certain high-risk street activities referred to drug-selling or, perhaps, something else.

The reliance on self-reported data creates the possibility of social desirability bias if OWs exaggerate the danger of conflict mediations and their ability to resolve them peacefully. However, there is no viable alternative to capturing data about these very risky street situations. All CMFs are reviewed both by the OW's direct supervisors and the programme overseers at BCHD; we believe this system helps foster accurate reporting.

The data presented here depict conflicts mediated in one city implementing the CeaseFire model and cannot necessarily be

Table 6 Adjusted and unadjusted associations between risk score and successful conflict resolution*

	OR	P	95% CI		aOR	P	95% CI	
Individual(s) risk level	0.73	0.038	0.55	0.98	0.79	0.137	0.57	1.07
Retaliation	0.83	0.143	0.65	1.07	0.93	0.622	0.70	1.23
Shooting Likelihood	0.89	0.464	0.66	1.21	0.90	0.529	0.64	1.25
Number of people	0.97	0.087	0.92	1.01	0.93	0.187	0.93	1.01

*Outcome: 1=Fully resolved, 0=Not (unresolved+temporary+don't know). Excluded were 14 conflicts with missing outcome information (n=144).

generalised to other locations. Additionally, this analysis was limited to reports from conflicts in which OWs intervened. Therefore, it is not able to shed light on conflicts in which a shooting was likely or had occurred, but in which OWs did not intervene.

Despite these limitations, the study results demonstrate previously unknown patterns in conflict mediations likely to be useful for programmes seeking to mediate conflicts involving urban youth. In Baltimore neighbourhoods with programme-related reductions in homicides, a high proportion of mediated conflicts involved gang members, suggesting that mediation of gang conflicts may be especially important for preventing lethal violence. Examination of conflict data for other cities implementing the programme is needed to facilitate comparison and advance our understanding of conflict mediation as an evidence-based violence-prevention strategy.

What is already known on the subject

- ▶ An increasing number of communities are using street outreach, including violence interruption and conflict mediation, to address the problem of gun violence.
- ▶ Conflict mediation is a key component of CeaseFire, an effective public health programme for gun violence prevention.

What this study adds

- ▶ Conflicts mediated by CeaseFire-trained outreach workers (OWs) in Baltimore frequently involved youth, gangs, weapons and persons with a history of violence.
- ▶ Despite this combination of risk factors, OWs were able to prevent gun violence in two-thirds of conflicts mediated.
- ▶ More gang-related conflicts were mediated in neighbourhoods where homicides were reduced.

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REFERENCES

1. **Dahlberg LL**, Mercy JA. The history of violence as a public health problem. *Virtual Mentor: Am Med Assoc J Ethics* 2009;**11**:167–72.
2. **Cook PJ**, Laub JH. After the epidemic: recent trends in youth violence in the United States. *Crime Justice: Rev Res* Vol 29. 2002;**29**:1–37.
3. **Baum K**. *National crime victimization survey: juvenile victimization and offending, 1993–2003*. Washington, DC: US Department of Justice, 2005.
4. **Fox JA**, Zawitz MW. *Homicide trends in the United States*. Washington, DC: US Department of Justice, 2007.
5. **Centers for Disease Control and Prevention, National Center for Injury Prevention and Control**. Web-based Injury Statistics Query and Reporting System (WISQARS)—Fatal Injuries. Centers for Disease Control and Prevention. http://webappa.cdc.gov/sasweb/ncipc/mortrate10_sy.html (accessed 10 Apr 2012).
6. **Anderson E**. *Code of the street: decency, violence and the moral life of the inner city*. New York, NY: W. W. Norton & Co., 1999.
7. **Rich JA**, Grey CM. Pathways to recurrent trauma among young black men: traumatic stress, substance use, and the “code of the street”. *Am J Public Health* 2005;**95**:816–24.
8. **Sims DW**, Bivins BA, Obeid FN, *et al*. Urban trauma: a chronic recurrent disease. *J Trauma* 1989;**29**:940–7.
9. **Buss T**, Rashid A. Repeat victims of violence in an urban trauma center. *Violence Vict* 1995;**10**:183–94.
10. **University of Illinois—Chicago, Chicago Project for Violence Prevention**. CeaseFire Program Description. http://www.ceasefirechicago.org/program_description.shtml (accessed 14 May 2011).
11. **Skogan WG**, Hartnett SM, Bump N, *et al*. *Evaluation of CeaseFire-Chicago*. Chicago: Northwestern University, 2008.
12. **Webster DW**, Whitehill JM, Vernick JS, *et al*. Effects of Baltimore’s safe streets program on gun violence: a replication of Chicago’s CeaseFire program. *J Urban Health*. In Press.
13. **Kennedy DM**, Braga AA, Piehl AM. *Reducing gun violence: the Boston gun project’s operation ceasefire*. Washington, DC: US Department of Justice, Office of Justice Programs, 2001.
14. **Frattaroli S**, Pollack KM, Jonsberg K, *et al*. Streetworkers, youth violence prevention, and peacemaking in Lowell, Massachusetts: lessons and voices from the community. *Prog Community Health Partnersh* Fall 2010;**4**:171–9.
15. **Wilson JM**, Chermak S. Community-driven violence reduction programs. *Criminal Public Policy* 2011;**10**:993–1027.
16. **Kennedy DM**. Whither streetwork? *Criminal Public Policy* 2011;**10**:1045–51.
17. **Baltimore City Department of Planning**. 2010 Neighborhood Statistical Area Profiles. <http://www.baltimorecity.gov/Government/AgenciesDepartments/Planning/2010Census.aspx> (accessed 6 Feb 2012).
18. **Baltimore Neighborhood Indicators Alliance, Jacob France Institute**. Neighborhood Data. <http://www.bnaijfi.org/> (accessed 21 Jun 2012).
19. **Creswell JW**. *Qualitative inquiry and research design: choosing among five traditions*. Thousand Oaks, CA: SAGE Publications, Inc., 1998.
20. **Kaiser H**. The varimax criterion for analytic rotation in factor analysis. *Psychometrika* 1958;**23**:187–200.
21. **Kaiser H**. An index of factorial simplicity. *Psychometrika* 1974;**39**:31–6.
22. **Cerny BA**, Kaiser HF. A study of a measure of sampling adequacy for factor-analytic correlation matrices. *Multivariate Behav Res* 1977;**12**:43–7.
23. **Stata Statistical Software** [computer program]. Version 10. College Station, TX: StataCorp LP, 2007.
24. **Ordog GJ**, Shoemaker W, Wasserberger J, *et al*. Gunshot wounds seen at a county hospital before and after a riot and gang truce: part two. *J Trauma: Inj Infect Crit Care* 1995;**38**:417–19.
25. **Ordog GJ**, Wasserberger J, Ibanez J, *et al*. Incidence of gunshot wounds at a county hospital following the Los Angeles riot and a gang truce. *J Trauma* 1993;**34**:779–82.
26. **Webster DW**, Whitehill JM, Vernick JS, *et al*. *Evaluation of Baltimore’s safe streets program: effects on attitudes, participants’ experiences and gun violence*. Baltimore, MD: Johns Hopkins Center for the Prevention of Youth Violence, 2011.
27. **Fenton J**, Calvert S. 18 shootings stem largely from drug feud, police say. *Baltimore Sun* 2009.
28. **Fenton J**. Safe streets outreach worker wounded at cookout. *Baltimore Sun* 2009.
29. **Fagan J**, Wilkinson DL. Guns, youth violence, and social identity in inner cities. *Crime Justice* 1998;**24**:105–88.
30. **Rand MR**. *National crime victimization survey: criminal victimization, 2007*. Washington, DC: US Department of Justice, 2008.
31. **Wilkinson DL**, McBryde MS, Williams B, *et al*. Peers and gun use among urban adolescent males. *J Contemp Crim Justice* 2009;**25**:20–44.