A Discussion of the Collection and Analysis of Data on the Use of Force in Encounters between the Police and Members of the Public

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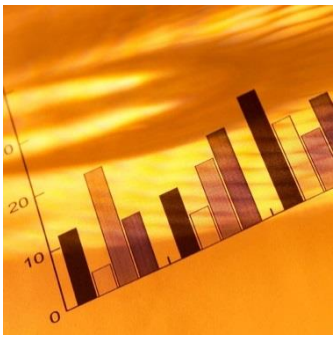
John Kiedrowski
Ronald-Frans Melchers
Michael Petrunik
Christopher Maxwell

RESEARCH DIVISION
www.publicsafety.gc.ca



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Abstract

The primary objective of this report is to review literature on use of force in encounters between police and members of the public in order to identify the key research questions posed and the most appropriate information sources and variables to answer these questions. Advice from police use of force experts was sought on how to interpret relationships between variables in use of force analyses. A secondary objective is to discuss analytic methods that allow for reliable analysis of interactions between officers and subjects in use of force encounters in order to provide information useful to trainers and operational policy makers. Two quantitative analytic approaches are explored: the Maximum Use of Force Scale and the Force Factor Scale. The advantages and disadvantages of these two approaches are discussed. The research findings are intended to inform stakeholders about key research questions with regard to police use of force and subject resistance, to provide guidance on what data are needed to address these questions, and to offer examples of approaches to analyze interactions between officers and subjects in use of force encounters. The report may aid discussions of federal, provincial, territorial and municipal, regional and Aboriginal police services as they share their policies and practices related to use of force reporting and data collection. This report may also contribute to a better understanding of ways to apply the National Use of Force Framework in collecting data which is useful for understanding the tactical considerations of police officers when they respond to incidents.

Editor's Note

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Introduction

Canada's provinces and territories are responsible for the administration of justice in their respective jurisdictions, including providing direction on the use of force by police. The deployment of any use of force option needs to be consistent with a federally, provincially, or territorially recognized use-of-force framework. Furthermore, any police use of force must comply with the *Canadian Charter of Rights and Freedoms* and the *Criminal Code of Canada*.

A defining characteristic of police work is the authority to use different levels of appropriate force to prevent crime, apprehend criminals, manage the risk mentally-ill persons might pose to themselves or others (Coleman and Cotton, 2014), and safeguard all members of the public from a range of criminal and non-criminal harms (Binder et al., 1982; Binder and Fridell, 1984; Reiss, 1971; Scharf and Binder, 1983). As well as positive applications of the use of force to achieve public safety there are also potentially significant negative outcomes of police use of force including citizen resistance and antagonism (Terrill and Reisig, 2003), serious injury or death of persons (Coleman and Cotton, 2014; Hall and Voltova, 2013), and loss of confidence and trust in the police (Schwartz, 2009; Thompson and Lee, 2004; Ross, 2000).

As seen in the highly-publicized incidents of Sammy Yatim in Toronto, (Iacobucci, 2014) Paul Boyd in Vancouver,[1] and Kyle Jamieson in Halifax,[2] police use of force resulting in serious harm or even death to members of the public can initiate various judicial or quasi-judicial processes to determine criminal[3] and/or civil liability for harms incurred or to assess the possibility of failure to meet professional standards governing policing (Schwartz, 2009; Schwartz, 2011).[4] Police use of force, particularly against mentally-ill persons (Coleman and Cotton, 2014; Iacobucci, 2014) and racial or ethnic minorities, is sometimes viewed as uncalled for or excessive, and draws both anger from the public and attention from the media, policy makers, and researchers.

Since the mid-1980s, research have focused on the nature, extent, and correlates of police use of force resulting in lethal or non-lethal harm to officers and/or members of the public (Kaminski et al., 2004; Smith and Petrocelli, 2002). In addition, research have examined police response to persons brandishing a weapon (Paoline and Terrill, 2004), the behaviour of subjects and other members of the public during encounters with the police (Paoline and Terrill 2004, 2007; Terrill et al., 2008), and the influence of police officers' socio-demographic characteristics, level of experience, and demeanour during interaction on incident outcomes (Paoline and Terrill, 2007).

Some recent studies in the United States (U.S.) suggest that use of force by police officers is reported by the public in less than 2% of police-civilian encounters (Eith &

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[1] Sarah Boesveld (August 3, 2013) Lethal Force: Recent Shootings Raise Questions Over Effectiveness Of Police Use-of-Training. *National Post*. http://news.nationalpost.com/2013/08/02/lethal-force-recent-shootings-raise-questions-over-effectiveness-of-police-use-of-force-training/ [Accessed May 26, 2014]

[2] The Chronicle Herald (April 1, 2014), Halifax Police Accused Of Excessive Force, Face Two Lawsuits. *Herald News*. http://thechronicleherald.ca/metro/1197394-halifax-police-accused-of-excessive-force-face-two-lawsuits [Accessed May 15, 2014]

[3] See for example: The Canadian Press (2013). G20 Assault, Babak Andalib-Goortaini Gets 45-Day Sentence. http://www.cbc.ca/news/canada/toronto/g20-assault-Babak-Andalib-Goortani-gets-45-day-sentence-1.2456893 [Accessed May 15, 1024]

[4] See for example *Wood v. Schaeffer*, 2013, SCC71; *Penner v. Niagara* (Regional Police Services Board), 2013 SCC 19.).

Dunrose, 2011)[5] and is reported by police in less than half a percent of calls for service (Henriquez, 1999). The prevalence of injury to police officers in encounters where they use force, have been estimated to be between four percent and 10% in the U.S. (Henriquez, 1999). There seems to be a commonly-held belief, although data are scant on this question, that police officers are disproportionately affected, relative to other workers, during the conduct of their occupation by injuries that appear likely to have been intentionally inflicted by others.

Some recent data from two, large Canadian cities suggest there may be lower rates of the use of force by police in Canada than in the U.S.., although definitions of what comprises use of force and how it is measured vary among studies. For example, less than 1% of reported calls for service in Toronto and Ottawa involve use of force on the part of the police (Toronto Police Services 2012, 2012a; Ottawa Police Services, 2011). The occurrence of injuries to subjects during use of force incidents is, however, quite high. Hall and Votova (2013), in their review of data from seven municipal police services in four major Canadian urban centres (2006- 2013), find police used force in 0.14 percent of reported encounters between police and members of the public aged 18 years or older, with more than three-quarters of use of force incidents consisting of physical strikes. Verbalizations and handcuffing are not defined in this particular study as types of use of force, as they are in some other studies. The highest incident rate of use of force among the seven agencies is 0.16%. According to the report, police records indicate that 23% of subjects in incidents where force was used by the police were transported to emergency care but hospital records put this lower at 16.6%. Death occurred in 0.14%(*n*=7) of police-public interactions in which force was used by police, or less than 0.02% of all police-public interactions observed in the study.

In research conducted in the U.S., Alpert and Dunham (2004) estimate that the incidence of injuries to subjects in encounters with the police, in which force was used, is around 35%. Garner and Maxwell (1999), using a large sample of police recorded incidents that have been collected to measure the use of force by the police in six cities, find that police feel they need to use physical force against a suspect in just 17% of their

[5] The 2002 U.S. National Survey of Contacts between the Police and the Public (Durose et al., 2005), a survey of more than 90,000 Americans conducted by the Bureau of Justice Statistics as a supplement to the U.S. National Criminal Victimization Survey that year, asked respondents to self-report their experiences with police. According to this survey, about one American in five reported having had a law enforcement contact with a police officer in the previous year, three-quarters of them only one contact. The majority of these contacts (58.5% of most recent contacts) were police-initiated, half of these taking the form of vehicle stops or traffic accidents. Five percent of contacts resulted in a search, 11.7% of searches yielded evidence, and fewer than three percent of all contacts resulted in arrest. Force or threat of force was used in 1.5% of all incidents. Police use of force or threatened use often accompanied respondents' self-reported resistance to being handcuffed, searched or arrested (68.3%), trying to get away from police (40.9%), disobeying or interfering with officers (33.3%), pushing, grabbing or hitting officers (29.7%), other physical behaviour directed at police (27.3%), and arguing with, cursing at, insulting, or verbally threatening police (22.3%). Examples of perceived excessive use of force by officers as noted by respondents included:

- yelling at a respondent who was no longer resisting;
- forcing the respondent's arms behind his/her back;
- grabbing and forcing the respondent to the ground or into the back of a police car;
- pointing a gun at the respondent;
- putting handcuffs on too tightly;
- grabbing a respondent running away by the arm and pushing him or her against a car;
- using insults and other derogatory language;
- neglecting to read the respondent his or her rights; and
- threatening to slam the respondent's head into a wall.

custody arrests.[6] Burch (2011) found that from 2003 to 2009, among an estimated 98 million arrests, 4,813 deaths were reported to the U.S. Bureau of Justice Statistics Arrest-Related Data (ARD) program. Of these, about 60% (2,931 cases) are classified as homicides by law enforcement personnel and 40% are classified as death due to other causes.

MacDonald et al. (2009) cite findings that suggest subjects have a greater likelihood of sustaining an injury when officers use canines or high-impact weapons than when they use less lethal forms of force such as conducted energy weapons or pepper spray (MacDonald et al., 2009:2268). Coleman and Cotton (2014:65-66) in their literature review note that police officers with substantial training in using a crisis intervention/de-escalation model, during encounters with apparently-psychotic persons, tend to rely more on "non-physical" methods and to use less force than officers who have little or no such training.

Method

Social science research is used to help develop and evaluate law enforcement policy, protocols, practice, and training. To support further research on use of force, and to clarify the nature of the data that needs to be collected and analyzed by police services, this study is intended to address the following questions:

1. What are the most frequently asked research questions with regard to the use of force by and against police?
2. What kinds of information (i.e., most important variables) on officer-citizen encounters need to be collected to answer research questions?
3. What are the best data-collection and analysis methods to produce valid and reliable information that can be used effectively by trainers and operational policy makers?

A review of the documents, articles, and other reports on police use of force, dated between 2000 and 2014, identifies key questions, methodologies, variables, and units of measurement that have been used. The document review includes the following sources:

- peer-reviewed scholarly articles identified through database searches (e.g., Academic Search Complete, Google scholar, social science citation index [Web of Science], and the Inter-University Consortium for Political and Social Research) using key word searches (e.g., "use of force+police," "police use of force," "law enforcement use of force," "police-citizens encounters," "nonlethal force," "excessive force," "unnecessary force," "illegitimate force," "abuse of force," "misuse of force," and "police brutality");
- "grey literature" (e.g., non-peer-reviewed public reports of governmental and non-governmental organizations, conference paper indexes, bibliographic citations, dissertation abstracts);
- selected websites and blogs; and

[6] Garner and Maxwell's (2002) six -city research project was supported by a $351,573 g*rant (No. 1995-IJ-CX-0066) from the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice.*

- documents/information identified by stakeholders (e.g., policing policy officials and experts) including national and provincial use of force frameworks and relevant policy documents.

Recently, considerable attention has been given to de-escalation of a situation in police-subject confrontations (Police Executive Research Forum, 2012; Prenzier et al., 2013). Police officers have always applied de-escalation tactics but do not generally report or provide a "count." Therefore, no secondary data yet exists on de-escalation. While some studies make reference to de-escalation and avoidance of force, most of the research cited in this report primarily examines incidents where some level of force was ultimately used. The examination of de-escalation tactics at the incident level would entail entirely different research approaches, sources, variables, instruments, and analytic strategies than those discussed here.

Analysis of documents

The analysis of documents on encounters between police and the public involving use of force is based on a comprehensive strategy identifying, appraising, and synthesizing the research questions or hypotheses that identify the variables and indicators that have been used to measure use of force. This information is available in an Excel spread sheet (Appendix A) showing the relationship between research questions, key variables, their indicators/measurement, and information sources.

Stakeholder Engagement

To help ensure the comprehensiveness of the document review information has been sought from the following stakeholders:

- the Federal/Provincial/Territorial (FPT) Working Group on Use of Force, which comprises government officials working on policing policy;
- key policing stakeholders (e.g., national police associations);
- the Commission for Public Complaints Against the Royal Canadian Mounted Police;
- "experts" on police use of force identified with assistance from the stakeholders listed above.[7]

To facilitate engagement, a list of questions has been provided (a copy of the research instruments can be found in Appendix B) for completion by those identified as "experts" on use of force issues. Selected follow-up interviews have been undertaken as required.

Input from stakeholders focuses on:

[7] A non-probability referential sampling technique (Maxfield and Babbie ,1995) was used whereby F/P/T government representatives were asked to identify police and other experts on use of force in their respective jurisdictions. The experts so identified were then asked to identify other use of force experts especially in the area of training, curriculum and policy development. For the purposes of this report, "expert" refers to those individuals working as police officers or civilians in the area of police use of force as well as academics and private-sector consultants who provide advice on research or expert testimony in judicial and quasi-judicial settings. In many cases, the names provided by government representatives and those provided by police experts were the same. Seven of the 11 members of F/P/T Use of Force Working Group responded to the research instrument. Of the 21 police services contacted, seven responded. Among the four police experts employed as educators or trainers contacted, two responded. Among the stakeholders identified as representing policing interests, four were contacted of which three responded.

- reviewing the bibliography with regard to relevance and completeness;
- identifying key experts such as:
    - use of force supervisors;
    - those responsible for curriculum development and training on police use of force;
    - those responsible for reviewing/developing use of force policies at an operational level;
    - those responsible for collecting, reviewing, and maintaining data on use of force;
- reviewing and providing input to research questions and variables related to use of force to ensure they were complete as possible; and
- providing feedback on the draft report for discussion and subsequent revision.

Results

Stakeholder Feedback

Federal/Provincial/Territorial Policing Policy Officials

The research instrument is sent to the members of the F/P/T Working Group on Use of Force. Responses were received from seven of the eleven members. Four of these seven have provided additional information on resources and police experts and three have provided suggestions with regard to research questions and variables worth considering, for example those relating to the use of force with persons who appear to be mentally ill or under the influence of alcohol or drugs. In some instances, additional research articles and documents have accompanied input.

Police Expert Stakeholders

While the majority of the respondents did not provide bibliographic references identifying additional research questions or ways of collecting or analyzing use of force data, a few did provide minutes of meetings between particular police services and their police boards on the subject of reports pertaining to police officer use of force. Some of the police experts also provided information and commentary on policies and standards as well as government reports. This information was reviewed to identify any significant research variables to be added to the list compiled and hypotheses for further investigation.

On the topic of the collection of use of force data, police experts confirm that, under current federal and provincial policing regulations, any police officer involved in a use of force incident is required to complete a formal use of force report. In addition, the experts note that certain police services may also require the completion of an “occurrence report.” This is a written document that describes any occurrence, unusual problem, incident, deviation from standard practice, or situation requiring follow-up action. The experts also note that many police services have developed their own forms to include information additional to that specifically required under federal or provincial regulations. For example, in one province where regulations do not require the collection of information on subject/citizen behaviour, some police services have revised their use of

force forms to include this type of information. Further information may be gleaned from the commanding officer or supervisor's review of the use of force incident.

This differential availability of three different types of reports, resulting from a single use of force incident, is the outcome of some police services collecting substantial amounts of information (e.g., on both subject behaviour and officer response) on police use of force and other police services collecting only the information required by the regulations that govern them. The area in which reports are most lacking, in terms of systematic data, is that of subject behaviour (i.e., subject use of force against the police and/or others present) both initially and cumulatively throughout an encounter. Most police reports on the use of force attempt to identify the frequency and degree of severity of force used by the police or members of the public. Frequency is expressed in terms of total counts of incidents of use of force over a period (e.g., number of times any type of force is deployed by police), percentage increases, or percentage changes from year to year or over several years. Degree of severity is captured by data on the type of force used, escalation of force, and cumulative use in an incident and its impact. Causal explanations or correlations are typically not sought but individual incident reports may be scrutinized to assess whether the use of force or escalation in the use of force was appropriate or whether it could be could be viewed as "excessive" under the circumstances. In some follow up interviews, a few police experts pointed out that, for the most part, the information on the police use of force forms is reviewed for content but no further detailed analysis is conducted except to provide total counts of the types of use of force applied by a police service.

To answer the question of whether the collection of use of force data should focus mainly on individual use of force incidents, or whether data should be used to provide insights into general patterns of the use of force in encounters between police and members of the public, police experts were asked to indicate which of the following two statements most closely matched their views:

I) such data should primarily be used to detail the circumstances around individual use of force incidents; or

II) such data should primarily be used to get at general patterns in the use of force in incidents involving police and members of the public.

Among the police experts responding, most agree with the first statement. Some of the comments provided by the police experts to support this view include:

- "Each use of force is unique and how each person perceives a threat is unique. Taking this perspective allows trainers to deal with individual officers and determine who might benefit from additional training. While general trends are important for designing new programs, individual events must be given primary consideration."
- "Police services are primarily concerned with the operational aspects of these matters at the individual police-officer and subject-person level."

With respect to the second statement, the following observations have been made by police experts that best represent the views shared by others:

- "Although individual use of force incidents need to be looked at to address any possible breaches of policy and to address individual training requirements that

may be needed, a collective look at the data is required to address any systemic issues that might require a change in [the] way officers are trained."

- "It is used to look for [the] trends within a policing agency and to analyze certain members, the environment, and the circumstances."

A few of the police experts contend, as noted below, that these two statements cannot be separated.

- "Both are important, first to debrief the individual event and to establish trends that may affect training priorities."
- "These two things are inseparable [we] need to see the pattern. The details of the circumstance help determine the patterns."

Overall, there appears to be an increased interest, on the part of police experts, in the collection and analysis of more comprehensive use of force data. As one police expert states:

> " … [The] … Police Service is primarily interested in the operational aspects of police use of force in the context of the [name of location removed] as it relates to individual encounters between police officers and community members, any information that provides greater understanding of such encounters, is generally useful. The [removed] Police Service's training college and corporate planning function continually scans for sources of information."

This particular police expert further states "[d]ata that can help explain rates of encounters between police and community members that may lead to the use of force by police should include more information about persons such as their emotional state and mental condition."

With respect to using studies on the use of force to help explain police decision making with regard to use of force, a few experts provided a "no" response but the majority did not respond at all. Two experts indicate that such studies help them to substantiate or elaborate on their training materials or to understand trends in police use of force. One expert further states: "Information from these sources is useful to help police… to validate or reject established and proposed, practices, training, techniques, and equipment. It can also be useful to dispel community misperceptions about the rates of use of force by police." Note, however, that most police services use scenario-based approaches or case studies in use of force training. It was noted during interviews that in some instances police trainers request use of force data to assist in developing training curriculum, but had been unable, due to a lack of resources, to retrieve, compile, and analyze the data. Furthermore, there does not seem to be a high degree of awareness of how use of force data can be analyzed to improve training and operational policies.

Finally, in terms of the collection of police use of force data, the following comment by a respondent is worth highlighting: "I'd like to underscore that it would be very useful to have a full Canadian portrait on the use of force, to determine what the Canadian culture is with regard to the use of force. There is a lot of information coming from studies in the U.S. but it's a different culture." Several police experts during follow-up interviews echo this view.

While the data on use of force that police collect and maintain are based on both regulatory and operational requirements, a significant issue is that operational

requirements for collecting such data vary among both police services and the agencies that regulate policing in Canada. For example, despite the adoption of the National Use of Force Framework (NUFF), the data collected by particular police services and police boards may be incongruent with the NUFF format, making it difficult to use such information for either scientific or operational purposes. One police expert, whose opinion is that the problem was primarily operational, notes: “This type of information is generally useful for scientific research but the needs of most police services are operational; the question for police services is how does this information help develop procedures, techniques, training, supervision, reporting.”

Use of Force Data Collected by Police Services in Canada

Based on the responses from the police experts, police services across Canada collect various data on police use of force as required by provincial policing regulations. In addition, many police services go beyond minimum requirements and collect other kinds of data on police use of force they deem relevant. For instance, several police services collect information on the subject’s behaviour and whether the subject carried any weapons at the time of the use of force incident. Table 1 (below) illustrates the type of data collected by one particular police service in Canada. The data collected by this police service include: level of resistance displayed by subjects, level of force used by officers, officer and subject characteristics, and injuries to officers and subjects, all of which can be used for policy development and training purposes. The use of force report is completed and signed by a police officer, who must state her or his last use of force training and/or requalification date, and signed off by the supervisor, unit commander, and use of force training analyst.

In addition to data obtained from use of force reports, police experts have identified other areas where data relevant to analyzing use of force incidents may be collected:

1. administrative data or internal records including personnel records (Human Resources Management System) where information on years of service, education level, training, etc., are provided;
2. operational data (e.g., costs, deployment, number of officers at a particular location, officers per car);
3. court records and documents;
4. worker’s compensation injury reports;
5. hospital records;
6. use of force policies; and
7. training manuals and related materials.

Table 1: **An Example of Use of Force Data Collected by a Canadian Police Service**

Variable Name	Nature of Data Collected
Background Information	• date • time incident commenced and concluded • individual report – length of service (years completed), rank • team report – length of service (years completed), rank • location of incident, including outdoor and indoor factors
Location of Incident	• Outdoor: Roadway, laneway, commercial area, industrial area, yard, park, rural area, vehicle, other – specify • Indoor: included (private property) house, apartment, hallway, other – specify, (Public Property) financial institution, commercial site, public institution, other – specify
Weather Conditions	• clear • sunny • cloudy • rain • snow/sleet • fog • other – specify
Footing	• dry • wet • snow/ice • other – specify • NA – specify
Lighting Conditions	• daylight • dusk/dawn • dark (no lights) • good artificial light • poor artificial light • other – specify
Type of Incident	• robbery • break and enter • domestic dispute • traffic • EDP • alarm • other – specify • disturbance • suspicious person

	• weapons call • property damage • homicide • serious injury • search warrant • other – specify
Type of Assignment	• general patrol • foot patrol • traffic patrol • criminal investigation • drug investigation • off duty • other – specify
Type of Force Used	• firearm discharged • firearm pointed at person • handgun drawn • aerosol weapon • impact weapon – hard • impact weapon – soft • empty hand techniques – hard • empty hand techniques –soft • other – specify • police are to record the sequence 1st, 2nd, 3rd etc., and whether force was effective – yes or no.
Reason for Use of Force	• protect self • protect other officers • protect public • effect arrest • prevent commission of offence • prevent escape, accidental • destroy an animal • other – specify
Police Presence at Time of Incident	• alone • police assisted • specify number of police
Police Firearm Used	• patrol – semi automatic • rifle • shotgun • MP5 • other – specify
Number of Rounds Discharged	• record number of rounds discharged

Type of Aerosol Used	• oleoresicum spray (OC spray) • c/s (incapacitant spray) • other – specify
Number of Subject(s) Involved in Incident	• one • two • three • other – specify
Subject Information	
Weapons Carried by Subject	• unknown • none • revolver • pistol/semi-automatic • rifle • shotgun • knife/edged weapon • baseball bat/club • other – specify
Location of Subject's Weapons (at time decision was made to use force)	• in hand • at hand • concealed on person
Distance (between officer and subject at the time the decision was made to use force)	• less than 2 metres • 2-3 metres • 3-5 metres • 5-7metres • 7-10 metres • greater than 10 metres
Number of Rounds Fired by Subjects (if applicable)	• total number (provide count)
Condition of Subject(s)	• normal • alcohol influence • drug influence • emotionally disturbed • other – specify
Subject(s) Behaviour	• cooperative • passively resistant • actively resistant • assaultive • serious bodily harm or death
Subject(s) Vehicle (If Applicable)	• tinted windows

	• interior obstructed • other – specify
Alternative Strategies Used (if Applicable)	• verbal interaction • concealment • cover • other – specify
Person Injured	• self • other police officer • subject • third party
Medical attention Required	• yes • no (response for each of the person(s) injured)
Nature of Injury Included	• minor serious • fatal • unknown response for each of the person injured
Taken to Hospital.	• record yes, or no response for each of the person(s) injured
Narrative	• record yes or no

List of Statements, List of Variables, and Sources on the Use of Force

Using information gathered from the document review and other sources, a list of statements (LOS) pertaining to police use of force and a list of key variables (LOV) was developed. The LOS and LOV were referenced to the author(s) of the study or the name of the report as an indication of "source."

The LOS refers to general statements, hypotheses, or research questions regarding police use of force taken from the review of the literature, including reports from inquests or judicial inquiries. In some instances, where research questions were suggested but were not raised explicitly, an attempt was made to articulate more clearly what was implicit. Two or more members of the research team sought to reach a consensus in these instances.

The LOV refers to those variables identified in the document review. In many cases these variables are presented in terms of certain words or phrases but have not been operationally defined. In Table 2, LOV are categorized into two areas: key variables and subcategories of key variables.

Table 2: **Key Variables and Subcategories of Variables Identified in Use of Force Studies**

Key Variables	Subcategories of Key Variables
Officer	Characteristics of the officer
	Officer knowledge and perception
	Use of force by the officer
Subject	Characteristics of the subject(s)
	Subject behaviour (inc. use of force)
Incident	Characteristics of the incident
	Characteristics of interaction between officer and subject(s) (inc. officer behaviour)

Where there is a lack of information to describe how certain key variables were defined and measured, it was sometimes not possible to delineate between types of variables (e.g., independent, dependent, contextual, outcome, exogenous, endogenous). Measures have been identified for each item on the LOV, including the unit of analysis (e.g., age, gender, type of program). For some of the variables, relevant literature has been provided, citing whenever possible the actual names or phrases and units of measurement used.

The information gathered (e.g., LOS, LOV, source) is placed into a relational database that retains links between sources, statements, variables, and variable attributes (i.e., police characteristics) for ease of compilation. Information is also provided on which questions are linked with which variables. This information and instructions on how to review the relational data are provided in the attached Excel document (Appendix A).

The LOS and LOV are provided to give guidance to the policing community with regard to the use of literature on use of force by identifying significant questions (along with the rationales underlying them) that the police might seek to respond to or address through their own research efforts. The LOS and LOV can also be used to help the police interpret data to which they have access and relate these data to what is already known in the field. The sources identified are provided to give the policing community up-to-date references on police use of force. The Excel spreadsheet can be a starting point for any police organization wanting to understand and effectively use the research literature on use of force in police-citizen encounters.

Figure 1 (below) helps put this information into perspective through a generic model showing how the lists of research questions, variables, and sources can be used in a sequence of stages to conduct a study on use of force in police-citizen encounters. The research process begins with identifying the research questions that one wishes to study (i.e., with what frequency are different types of force threatened or used against the police). The Excel spreadsheet in Appendix A provides a list of statements (LOS) or

questions identified in the literature review on use of force, a list of key officer, subject and situational variables (LOV), and a list of sources organized by the names of the author(s) of the research or the titles of reports.

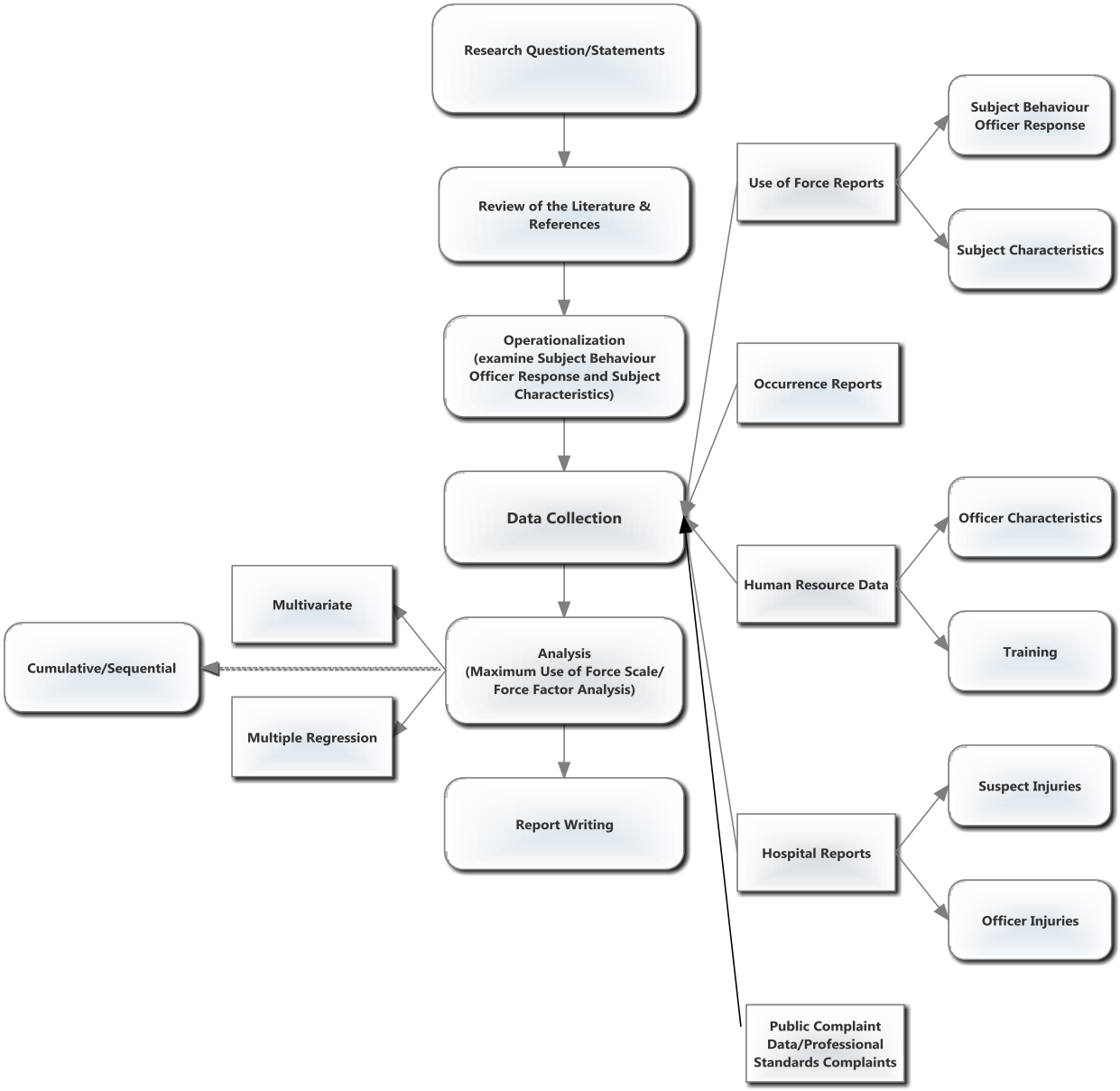
The data-collection stage that follows focuses on what is involved in collecting qualitative and/or quantitative data from such sources as use of force reports, occurrence reports, human resources data, and hospital reports.

In the analysis stage, consideration is given to whether the data are best analyzed qualitatively or quantitatively, manually, or with the aid of a computer. While qualitative data are rich in narrative detail, and useful for getting at the influence of contextual factors, it is difficult to summarize and use them in comparative analysis. If quantitative analysis (which allows for the construction of various metrics allowing for systematic comparative analysis) is to be used, it is necessary to decide what methods of data presentation are required (e.g., frequency distributions, cross tabulations, or other statistical procedures such as regression analysis).

The final stage is report writing, where findings are presented, conclusions drawn, caveats issued, and implications for policy and practice suggested.

The generic research model in Figure 1 (below) and the Excel spreadsheet (Appendix A) with questions, variables, and sources, provide a useful starting point. While some police agencies may have the research capacity to carry out such a project, those police agencies that do not have the requisite resources or know-how may consider hiring consultants or working in partnership with a university or a research institution.

Figure 1: Overview of the Research Model to Analyze Use of Force Incidents



Discussion

Understanding Relationships between Variables in Use of Force Analysis

Central to the quantitative analysis of police use of force is the idea that certain situational factors or predictors (i.e., independent variables) influence or determine other variables (i.e., dependent variables). Generally speaking, the dependent variable (outcome) is the use of force by the police officer against the subject and its consequences. In some analyses, however, the dependent variable could be the use of force by the subject against the police officer and its consequences. A more complex chain to analyze would be the links between police and subject use of force or its threat

and how each influences the other. Table 3 gives an example of independent and dependent variables commonly used in police use of force analyses.

Table 3: Examples of Independent and Dependent Variables Used in Police Use of Force Studies

Examples of Independent Variables	Examples of Dependent Variables
Characteristics of the subject (e.g., age, gender, height, demeanour, impairment)	Greatest level of force used by the police
Encounter characteristics (e.g., type and degree of resistance, possession of a weapon and utterance of threats)	Type of force possessed by the officer (e.g., capacity to use submission holds, nightsticks or batons, oleoresin [OC] spray)
Situational characteristics (e.g., presence of other officers, citizen bystanders, weather)	Level of force used by the officer and outcome of its use (i.e., subject totally incapacitated by OC spray)
Officers characteristics (e.g., age, experience, fitness level, education)	Types and degree of injury to subject and to the officer
Officer's level of training	Police officer's general level of satisfaction with the use of force (e.g. OC spray) selected
Distance from the subject at the time a modality of force (e.g. OC spray), was used	Officer levied a command at the subject
Use by subject(s) of some kind of protective device (e.g., mask, goggles, or shield)	Officer threatened the subject with violent force

Klahm and Tillyer (2010), in their review of 23 studies, found 212 different independent variables used to explain various dimensions of police use of force. The authors found little consistency in terms of operationalization and measurement even with regard to defining police use of force. Many of the earlier studies on police use of force involve unilevel or univariate analysis, or the authors only provide a general overview of the use of force in terms of descriptive statistics or bivariate relationships. Westley (1953), Freidrich (1980), and Fyfe (1982), for example, use dichotomous variables (excessive versus non-excessive and lethal versus non-lethal) to investigate police use of force. Klahm and Tillyer (2010:16) argue that research needs to be more rigorous with multivariate analysis favoured over simpler forms of analysis. Indeed, more recent studies have moved away from dichotomous explanations of force towards the use of multivariate analysis to understand interactions of factors in police-citizen encounters. Terrill et al. (2012) use a multivariate framework to control for subject resistance levels

and other factors that may account for why officers use no force or different degrees of force when they do. Lee et al. (2012) use multiple linear regression analysis, multivariate analysis of variance (MANOVA), and multiple factor analysis to determine if neighbourhood contextual factors and the amount of police pre-service and in-service training influenced the levels of police use of force across multiple police agencies.

Multivariate analysis requires large datasets that enable complex relationships between multiple dependent and/or independent variables to be shown. Many multivariate analyses use datasets from police organizations that have been collecting use of force data and related datasets for many years. Many police organizations, however, often may have neither the expertise on staff nor the statistical software to conduct these types of analyses. Alpert and Dunham (2004) have recommended that police organizations seeking to advance their understanding of the use of force in encounters between police and the public need to improve their data collection and analysis capacity and examine both detailed standardized data and narrative accounts to get at the sequencing of events and cumulative outcomes in encounters. Such analysis can ultimately lead to explanatory models on police use of force that can be useful for training and policy development.

Methodological Challenges in Collecting and Analyzing Use of Force Data

The first significant challenge is the absence of agreed-upon operational definitions and indicators for measuring use of force. Garner et al. (1995), Alpert and Dunham (2004) and Garner et al. (2002), Harris (2009) Hickman et al. (2008), and Klahm and Tillyer (2010) note difficulties in establishing a uniform definition for the level of force used by the police. One such difficulty is that while an assortment of police behaviours (e.g., verbal commands, use of fists, baton use) may be easy to recognize and classify, whether the force used was defensive or offensive, reasonable, inappropriate, or excessive, will depend on the circumstances. Garner et al. (2002) further points out significant differences between researchers in their conceptualizations of what constitutes physical force broadly and what constitutes a force-continuum specifically. Garner et al. (2002) and more recently, Harris (2009) and Klahm and Tillyer (2010), indicate that the only noticeable and consistent difference in use of force research is the choice to view use of force as a dichotomous variable (used or not used, proper or improper, yes or no) versus a notion of the use of force on a continuum of lesser to greater.

A second challenge is that there is still no corresponding use of force reporting system to make the NUFF operational. The NUFF lacks a national set of operational definitions and variables, standard measures, and a baseline for data collection.[8] Currently, each province and territory has its own use of force reporting system with the result that there is considerable variability across Canada.[9] Furthermore, within provinces and territories, police services vary with regard to the type of data collected on police use of force. Since

[8] Iacobucci (2014) recommends that shared and central police databases be established for use of force data covering municipal, provincial and federal police services. In particular, Iacobucci's recommendation 56 itemized a number of specific and detailed variables be collected, focusing on their relationships with CEW usage in the context of other use of force options as well as both subject and officer characteristics and behaviour.

[9] Iacobucci (2014) further recommends conducting a pilot project to assess the potential for expanding CEW access to police services. However, the suggested pilot project required very detailed data collection that would include: frequency and circumstances associated with use; frequency and nature of misuse by officers; medical effects of use; and the physical and mental state of the subject; use by supervisors versus other officers; discipline and training records for officers using or not using CEWs; etc.

the use of force can be defined and measured in a variety of ways, researchers are unable to obtain good estimates of the frequency of police use of force incidents.

A third challenge is that police services interested in developing a methodology for identifying and monitoring officer use of force for training and policy purposes need to have a comprehensive data-collection strategy.[10] While many police services have mechanisms for tracking certain elements of officer behaviour (e.g., citizen complaints, officer reports, supervisors' reports) key elements of subject behaviour are often overlooked. These include individual mental and emotional states, type and degree of resistance, threats, and "symbolic assault on the officer's authority and self" in the form of disrespectful verbal taunts and violations of officer property such as a uniform or vehicle (Hunt, 1985). While a particular force technique looked at in isolation may seem 'severe,' excessive, or uncalled for, when related to the level of force used or risk of violence presented by a subject it may seem reasonable or even less than adequate given the details of the situation (Terrill and Paoline, 2007). The data-collection strategy also needs to be linked to training and policies on police use of force as well as informal understandings in various police subcultures as to what kind of force is justifiable under various circumstances from an officer's perspective (Hunt, 1985).

A fourth methodological challenge involves the collection of use of force data. Instructions for completing a use of force report are sometimes vague and subject to differing interpretations by police officers and their supervisors. Ideally, a report would be required for all incidents when a police officer uses any form of physical force as this would identify that an encounter occurred between the police and the subject. In addition, collecting data on subject use of force or its threat might also be required. Such a level of reporting, however, may be regarded as too burdensome by some police services or individual police officers. There can also be inconsistencies in the collection of data, the storage of information into datasets, and limited quality control with regard to the data that are stored (Kiedrowski et al., 2008).

A fifth methodological challenge relates to the complex, dynamic nature of police-citizen encounters. The type and magnitude of resistance by citizens often varies over the period of the encounter as police and citizens react to one another with the result that the level of threatened or actual force used by the police and/or by civilians at one point of the encounter may substantially differ at a later point. Highly-advanced data-collection techniques and statistical algorithms (e.g., two-stage least squares (2SLS), structural equation (SEM), agent-based models) would be required to effectively model such complex, interactive relationships.[11] This type of data collection would be required to examine issues such as de-escalation.

A sixth challenge for Canadian research on police use of force is that there has been a paucity of research studies on police use of force; the majority of these few studies have been conducted in the U.S. Hickman et al. (2008) indicates that previously-published research studies on use of force only included 28 jurisdictions and only a few included data from multiple jurisdictions. Research studies on police use of force in Canada have sometimes been modelled on those conducted in the U.S. without taking into account

[10] Iacobucci (2014), in recommendation 22, identifies that research using standardized data collection and reporting should be directly used to improve police education and training, including a recommendation that training be evaluated through the actual impact of behaviours in the field.

[11] See Garner et al. (1995) for example of how one of these approaches was implemented to understand the relationship between suspect resistance and office use of force.

legal, socio-demographic, and cultural differences among the various jurisdictions in the two countries (Murphy and McKenna, 2007).

A seventh challenge involves the degree of capacity for the centralized collection and storage of data (as opposed to collection and storage in individual departments) in a manner that can be accessed to effectively assess individual and organizational performance and optimally respond to complaints, inquiries, and any judicial or quasi-judicial process that might be initiated.[12]

An Approach to the Analysis of Canadian Use of Force Data

Research on use of force by the police in encounters with members of the public historically focuses on measuring force on a continuum. This involves trying to determine whether or not force was threatened or used by the police and, if it was used, at what level on a spectrum from minimally intrusive to lethal. Increasingly, citizen behaviour and context along with the status characteristics (age, gender, race/ethnicity, etc.), behaviour, and demeanour of police have been recognized as important to consider in assessing use of force outcomes. As Terrill et al. (2003:157) note "[V]irtually any inquiry concerning how or why officers use force is augmented by the inclusion of citizen resistance. Knowing an officer used force tells us very little without knowing the specific type of force used, how many times it was used, and what the citizen behaviour was prior to each use."

To measure the relationship between the police use of force and subject behaviour several different methodologies have been employed. Some studies use data collected by Alpert and Dunham using the official Metro-Dade Police Department Control of Persons reports from 1993-1995 (Alpert and Dunham 1997, 1995, 2004; Avdi, 2013). Other studies use data from as few as one jurisdiction to as many as six (Hickman et al, 2008). There are also studies that deploy specially-developed instructions for surveys to be completed by the police and/or suspect (Garner, et al., 1995; Garner et al., 2002; Garner et al., 2004) and those that have used data from field observations to estimate the amount of force used (Engel, 2000; Klahm, et al 2011; Schuck, 2004; Smith, 1986;). Finally, some studies use subject surveys (Pate and Fridell, 1995), household surveys (Alpert et al., 2008; Frank et al., 2001), and surveys of police officers (Garner, et al., 1995; Garner et al., 2004; Edwards, 2000). As well as advantages, such as the richness and quality of data, these approaches to studying police use of force may have disadvantages (e.g., too expensive to collect data, conduct interviews, and develop independent forms), which must be taken into account. After conducting a review of the literature, and consulting with police experts and stakeholders, the research team selected two approaches to examine in detail in this report, having potential to be used as a reliable and systematic method for analyzing interactions between police officers and subjects in use of force encounters in Canada. They are the Maximum Use of Force Scale developed by Garner and Maxwell and the Force Factor Scale developed by Alpert and Dunham.

The NUFF model used in Canada is not usually presented as a continuum of potential harm and response to such harm. Neither is it viewed as outlining the path (escalation and de-escalation) in which force is threatened, used, and stopped as is the case with

[12] The Canadian Centre for Justice Statistics may be a viable option to help establish a national framework to collect use of force data. See also Kiedrowski et al. (2013) regarding the use of police performance metrics.

comparable frameworks in many states in the U.S.[13] The view typically taken by advocates of the NUFF is that it is simply a protocol intended to assist police officers to select appropriate intervention options based on assessments of the subject's characteristics and behaviour (including indicators of mental illness and alcohol or drug impairment) and the totality of the situation (RCMP, 2008). Each use of force encounter is deemed to be unique.

This is fine for the purposes of police work. From a quantitative research perspective what is required is "operationalization" to reduce complex information on individual incidents into uniform, standardized variables and measures. While some Canadian police services already structure their reporting on use of force incidents in order of severity, a more comprehensive approach to data reduction and aggregation would allow the NUFF to be adapted for quantitative measurement along continua covering various aspects of interactions between police officers and subjects in order to reveal general patterns. Results of these summary analyses could then be used to inform strategies to deal with unique operational situations. Several studies cited in this report have been successful in taking a continuum use of force model and applying it to police use of force scenarios or case-by-case operations.

Maximum Use of Force Analysis

As an alternative to the traditional dichotomy or the Continuum of Force measure, Garner, Maxwell, and Heraux (2002) developed the Maximum Use of Force Scale building on the work of Garner et al. (1995) in the Phoenix Use of Force Project (Garner et al., 1996). Garner, et al. (1995:161) developed this scale to "capture finer distinctions in the relative severity of different behaviors on the part of officers and subjects," as well as to begin to "approximate an interval level of measurement" appropriate for cross-jurisdictional use and for multivariate linear regression models that go beyond categorical logit models. This innovative measure uses values ranging from 1 to 100, with 1 equalling the least serious force and 100 the most serious. The measure was constructed by ranking some 80 different behaviours obtained from information collected from the survey instrument. Significantly, police officers found this measure easy to use for scoring subject behaviours.

Development of the Maximum Use of Force Scale

Garner and Maxwell (2002) created their maximum force measure using a two-step process. First, they surveyed over 500 experienced officers from five police departments in order to obtain rankings of a variety of hypothetical types of force on a scale from one to 100. For instance, one item was "an officer uses a baton," another was "an officer threatens to use a handgun." For similar items, the officers also ranked potential subject actions such as "subject speaks in a conversational voice." Garner and Maxwell directed the officers to rank each of the items as more or less forceful based on their own personal experience rather than on their departmental policy.

Garner and Maxwell (2002:4-12) report the average rankings for each of the police items from the lowest to the highest average ranking and for each of the rankings of subject actions. They claim that this approach resulted in a use of force scale that makes

[13] Personal correspondence with Dr. Joel Garner, September 7, 2014. Dr. Garner suggests that a potentially-useful way to look at the NUFF is that it is congruent with models based on the notion of a continuum, simply expressed as a circle. Braidwood Inquiry also referred to the NUFF and the Incident Management/Intervention Model used by the RCMP as a "use-of-force continuum." See Braidwood Inquiry (2009a).

"reasonable (but not necessarily perfect) distinctions between different types of force." Findings demonstrate that officers ranked their presence, conversation, and commands near the bottom of the scale and their use of weapons, especially firearms, near the top. This severity ranking includes some elements of force not included in most discussions of force and not included in traditional dichotomies (presence or absence) pertaining to physical force or other interventions in a department's continuum-of-force measures. For instance, officers rank use of handcuffs at 28 and chasing a subject in a car at 41. Experienced officers in Garner and Maxwell's study ranked these two behaviours as involving substantial amounts of force. If someone in the same police service with lesser or no police experience were to measure physical force and other interventions on the continuum of force, however, they were likely to count arrests involving "just handcuffing" or "just a pursuit" as involving no physical force or as mere officer presence. Garner and Maxwell also found a wide range in the rankings given to various items within a particular element of force. For example, police-officer tactics range from just over 20 to almost 40, depending on the tactic; officer-weapon use ranges from about 45 to over 80, depending on the type of weapon. Subject tactics involve a much greater range and some of them exceed weapon-use items. Garner and Maxwell's analysis also show the perceived degree of severity with which officers rank the display, threatened use, and actual use of a weapon. The findings pertaining to officer perceptions of the severity of the risk of threats of weapon use and the display of weapons, along with the frequency with which such threats and displays occur, led them to recognize the value of capturing information about the display and threatened use of weapons and to incorporate these events into measures of force. This is an important consideration for training, since a weapon displayed at the start of an encounter is often the same as that used if the situation escalates.

Garner and Maxwell's second step in developing their Maximum Use of Force Scale was to determine if such acts occurred in their sample of arrests and, if so, to weigh each act according the rankings made by the sample of police officers. For instance, when a police officer reported twisting an arrestee's arm, the amount of force was measured as 35; when a carotid hold was used, the amount of force was measured as 56. When an officer reported that she or he carried out two or more forceful acts, Garner and Maxwell coded the final ranking using the highest ranked item. Note that by measuring and ranking all types of threatened and actual force used during an encounter, others can use Garner and Maxwell's approach to get at the cumulative impact of all force threatened and used, not just the maximum force applied.

Application of the Maximum Use of Force Scale

Garner and Maxwell (2002) applied the Maximum Use of Force Scale to six police departments in the U.S. The sample size was 7,512, the largest sample involving use of force data ever collected (Klahm, 2009). Their objective was to record the amount of force used by and against law enforcement officers and to relate this information to more than 50 characteristics of officers, civilians, and arrest situations associated with the use of more or less force. Data were collected on both the police officer and the arrested subject in a manner protecting the confidentiality of each. Among the six police jurisdictions, the authors found that the frequency of physical force varies between 12 and 17 percent. The amount of force used by the police tends to be concentrated at the lower end ("weaponless") of a variety of measures of force with the tactic of "grabbing" the most common method used under this category. Note that for many Canadian police services such actions do not currently require completing a use of force form.

The authors' multivariate analysis findings indicate that police officers responding to a call using their lights and sirens, or responding to a priority call, are consistently likely to use more force. They also found that younger police officers, and officers that had previously received medical attention for injuries received on the job, are more likely to use physical force and to use maximum force more frequently. Finally, the authors found that the subject was more likely to use force when alcohol impaired, when there is a greater number of police officers than normal, when bystanders are present, and when violent offences or gang-related activities are involved. Police also tend to use less physical force if they perceive the subject to be a member of a gang or associated in some way with a gang.

A further review of the literature shows no additional analysis to have been conducted using the Maximum Use of Force Scale. This can be attributed to several reasons, notably the financial and human-resource costs required to collect this type of data.

Advantages of the Maximum Use of Force Scale

1. It quantifies the amount of force used by approximating police officer understanding of the factors influencing variations in their use of force.
2. It captures aspects of the use of force missed by other measures when data collection instruments are limited to simple dichotomies or categorical measures such as the Force Factor Scale.
3. It demonstrates that the police themselves believe there are meaningful, measurable differences between the different ways they respond to a subject's behaviour.
4. It gets at important but imprecisely known differences.
5. It incorporates assessments of the use of force by police officers intimately familiar with use of force incidents.
6. It allows for the capture of a wide range of variation in the use of force.
7. It can take into consideration subject and police officers' behaviour across a broad range of force rather than in terms of a simple dichotomy with a relatively low base rate of occurrences.
8. It supports evidence-based policing.

Disadvantages of the Maximum Use of Force Factor Scale

1. It may require a separate form for the collection of data on police use of force.
2. Depending on the type of data currently being collected, it may be prohibitively expensive to collect the data required.
3. It requires the use of police personnel to review data.
4. Although it allows for the collection of ordinal-scaled data that can be analyzed systematically, as is the case with other such methodologies, it does not capture the nuances, dynamics, and flow that interpretive qualitative methodologies capture.

Force Factor Analysis

Another major advance in assessing police use of force has been Force Factor (FF) analysis (Alpert and Dunham, 1997, 2004; Mesloh, 2008; Terrill et al., 2003, 2005; Wolf et al., 2009), an approach that measures the interaction between degree of citizen non-compliance or resistance and degree of officer use of force. The FF approach involves measuring both the subject's level of resistance and the level of force used by the officer, as determined on a formally-defined police use of force continuum. Both are then scaled relative to each other to obtain a single metric. Subsequently, comparisons can be made taking into account various police-officer characteristics (e.g., rank, gender, age, years of police service, assigned duties, types and amounts of training, etc.), in order to gain insight into variations in the use of force against members of the public both within a particular police organization and between different police services. Alpert and Dunham (2000) note that an important objective of FF analysis is to assess whether levels of force used by officers can be compared across departments using similar reporting and recording processes.

Calculating Force Factor

To calculate FF, one must measure both the level of resistance of subjects and the level of force used by the police officer. Then, these respective levels are scaled relative to each other.[14] More specifically, the FF metric is calculated by subtracting the level of resistance from the level of force (i.e., the maximum officer force level minus the maximum subject resistance = force factor) with possible scores ranging from –5 to +5. This range may vary depending on the scales used. For example, if the maximum level of subject resistance was "Resistance 4" and this was met with a comparable level of officer force ("Force 4") the result would be a FF of 0. If in the above example the officer used a higher level of force, such as Force 5, then, the corresponding FF would be +1, indicating the officer used one level of force higher than the degree of subject resistance. If the officer used a lower level of force, for example Force 3, the FF would be -1.

Alpert and Dunham (1997) argue that a negative or zero, or a positive value *per se* is not an indicator of force being reasonable or unreasonable, given that police officers are authorized by law to use greater force than the level of resistance used or threatened by others in an encounter. In many cases, the police officer may be able to control a highly-resistant subject or other member of the public with minimal force. Alpert and Dunham (2004) contend that the "force factor that reflects the greatest difference in the use of force is the most interesting one in analysis and review, although neither positive nor negative numbers can, of themselves, equate to a proper or improper use of force" (2004:75).

Table 4, developed by Alpert and Dunham (2004), shows the subject's level of resistance and the corresponding level of force used by officers on a similar use of force

[14] One cannot make these types of comparative statements using ordinal level data. It would be akin to saying that -0 Fahrenheit was the same as -0 Celsius because they share the same numerical value. Nor can the intervals between scores (1, 2, 3 …) on ordinal scales be considered to be proportional across different scales or even within the same scale. Because the FF is at best a quasi-ordinal scale, users of the scale should not add or subtract officer and subject behaviours, nor use them to create ratios (i.e. average or divide), including for time series. All such operations would require ratio level or proportional interval data. Users should not attempt to regress, within a multivariate context, the difference score because neither the two measures nor their difference represent or approximate an interval level measure. In other words, these scales are ordinal and non-proportional and cannot be properly expressed relative to one another. As such, the results of such analyses cannot support conclusions in terms of, how much force would be appropriate and how much might be considered excessive.

continuum scale used by the Miami-Dade, Florida Police Department, which has four ordinal categories: 1) no resistance, 2) passive resistance; 3) active resistance; 4) assaulted officer. The corresponding categories for the level of police use of force are: 1) no force; 2) minimal force; 3) forcibly subdued subject with hands; and 4) forcibly subdued subject using means other than hands.

Table 4: **Force Factor Scale Applied to Use of Force Study for Miami-Dade Police Department**

Subject		**Police Officer**	
Level	**Description**	**Level**	**Description**
Resistance 1	Cooperative and/or no resistance	Force 1	Police presence and/or verbal direction
Resistance 2	Verbal noncompliance, passive resistance, and/or psychological intimidation	Force 2	Strong verbal order/(minimal contact)
Resistance 3	Defensive resistance and/or attempted to flee	Force 3	Forcibly subdued – hands or feet (defensive use – open hand or OC spray)
Resistance 4	Active resistance	Force 4	Forcibly subdued – hands or feet (offensive use – open hand)
Resistance 5	Aggravated active resistance	Force 5	Forcibly subdued – intermediate weapon (used weapon – non-deadly)
Resistance 6	Active resistance (with a deadly weapon)	Force 6	Deadly force

Source: Alpert and Dunham (2004:79)

In another example, Wolf et al. (2009) developed an FF scale for the Orange County Sheriff's Office (OCSO) and the Orlando Police Department (OPD). Table 5 provides an overview of the development of the FF based on the police use of force continuum. To identify resistance level, and the police-officer force reactions, the researchers established a focus group of police experts from both the OCSO and OPD.

Table 5: **Force Factor Scale Applied to Use of Force Study for the Orange County Sheriff's Office and Orlando Police Department**

Resistance Type	Officer Use of Force
0. No resistance	0. Presence
1.Verbal resistance: yelling	1. Gentle hold
2.Verbal resistance: threat	2. Handcuff
3. Verbal resistance: threat/posture	3. Leg restraints
4. Passive resistance: dead weight	4. Compliance hold
5. Brace/tense up	5. Takedown
6. Pull away	6. Chemical agent
7. Flight	7. CEW
8. Concealment	8. Empty hand strike/punch
9. Push away	9. Impact weapon
10. Wrestle	10. Pepperball
11. Strike: punch/kick	11. Less-lethal munitions
12. Impact weapon	12. K9
13. Edged weapon	13. Lateral Vascular Neck Restraint (LVNR)
14. Firearm	14. Deadly force
15. Vehicle	

Source: Wolf et al. (2009)

Hickman and Atherley (2012) used the notion of FF to develop a seven-point scale to measure the police use of force for the Seattle Police Department[15]. This Department does not operate in terms of a use of force continuum; officers are simply expected to use a "reasonable" amount of force. Consequently, to develop FF measures in this context, the authors had to review use of force reports and narratives (1,240 cases for the period January 1, 2009, to March 24, 2011,) as submitted by the police officers. Table 6 represents how FF measures were applied.

[15] See the report by The Force Options Research Group (2000). *A Less Lethal Options Program for Seattle Police Department.* http://www.seattle.gov/police/publications/forg/forg_report.pdf [Accessed June 10, 2014]

Table 6: **Force Factor Scale Applied in Seattle Police Department Use of Force Study**

Subject		Police Officer	
Level	**Description**	**Level**	**Description**
Resistance 1	No resistance. The subject is offering no resistance or threat.	Force 1	Officer presence in uniform or marked police vehicle.
Resistance 2	Verbal resistance to complying with lawful orders. Subject may challenge authority or standing and may present as "dead weight."	Force 2	Issuance of lawful orders and light physical contact including guiding, leading, and/or handcuffing. No intentional infliction of pain to obtain compliance.
Resistance 3	Use of posture and verbal threats of physical violence. Subject may attempt to intimidate or otherwise pose a physical threat to officers.	Force 3	Chemical agents for crowd dispersal or distraction in the context of large gatherings and disturbances, e.g., instances of civil disobedience.
Resistance 4	Physical non-compliance including refusal to give up hands for cuffing and attempts to flee.	Force 4	Physical control tactics such as pain compliance holds, joint manipulation, and open-handed strikes.
Resistance 5	Active physical resistance to compliance. Subject may attempt to strike officers, kick and struggle free from holds and compliance positions.	Force 5	Advanced physical control tactics including closed-fisted strikes and knee and elbow strikes to the body and the extremities.
Resistance 6	Use of non-lethal weapons to injure or otherwise actively assault officers. Drug paraphernalia, beverage containers, and rocks may be employed as cutting and impact weapons.	Force 6	Intermediate weapon use, deployment of electronic control weapons, impact weapons for pain compliance, and strikes to the body and extremities.
Resistance 7	Use of lethal force as presented by whatever means are available: firearms, knives, and motor vehicles.	Force 7	Use of lethal force including carotid artery holds, head strikes, and intentional discharge of firearms.

Source: Hickman and Atherley (2012:7)

In these examples, one can see how FF measures were applied differently, based on the use of force training model a particular police service employs. The FF methodology expands upon the police's use of force continuum to allow for the information gathered to be categorized in terms of the FF measures.

Force Factor and Collecting Data

The collection of reliable information is critical for any study. The data used by Alpert and Dunham (2004) for their Miami-Dade Police Department study consists of 1,038 official use of force reports for the years 1996 to 1998. In calculating FF, a wide range of variables were considered.

- total calls received;
- calls for service reports with numbers;
- issued (by dispatch), no reports written;
- reported (no police action required);
- contacts;
- arrests;
- use of force reports (number);
- percentage of arrests resulting in use of force reports;
- unauthorized/excessive force complaints;
- sustained complaints;
- percentage of arrests resulting in excessive-force complaints;
- complaints of a lack of courtesy;
- complaints sustained;
- lawsuits and claims;
    - lawsuits filed;
    - claims filed;
    - claims paid out (dollar value);
    - claims closed or settled;
    - amount paid out per claim;
- complaints related to use of force;
- minor force/no visible injury (mere touching);
- unauthorized force/no visible injury (during arrest);
- unauthorized force/injury (during arrest);
- shooting/contact;
- shooting/non-contact;
- shooting/animal;
- shooting/accidental;
- criminal misconduct/battery (domestic);
- death in custody;
- minor force/injury;
- total (all complaints);
- subject demographics (e.g., age, race, ethnicity, gender);
- subject behavior (e.g., impaired by alcohol or drugs at time of the incident);

- weapons used by the subject;
- subject injuries and medical treatment;
- subject resistance (no resistance, passive resistance, attempted to flee, actively resisted, resisted arrest/incite, assaulted officer);
- officer demographics (age, gender, race/ethnicity);
- weapons used by the officer;
- officer injuries; and
- officer use of force.

Data were collected from the following sources:

- use of force reports/forms completed by the police officers;
- use of force report/forms completed by the supervisor;
- police administrative computer files (personnel files);
- data obtained from a professional compliance bureau; and
- data from subjects booked into a county jail who were participants in a national arrestee and drug abuse monitoring project.[16]

In addition, the level of force and resistance was obtained from narratives written by the supervisors, giving the specific details of the encounter as obtained from the relevant officers, subject, and witnesses.

More recently, Hickman and Atherley (2012,[17] 2014) examined 1,240 records for the period January 1, 2009, to March 25, 2011, related to use of force reports that includes officer information, subject demographic information, categorization of the type of subject resistance, and how police use of force was applied, location, booking, injuries to both the subject and officer, as well as a subject's behaviour (i.e., symptoms of apparent alcohol or drug impairment and/or mental disorder). Supplemental documents includes report narratives, photographs, Washington Crime Information Center reports, labour and industry claim forms, computer-aided dispatch call logs, routing information, and other administrative documentation. The data were coded accordingly and descriptive statistical analysis carried out.

For both the Alpert and Dunham project and Hickman and Atherley's project, the data were collected by independent researchers and research protocols or agreements were signed between researchers and the police department to address sensitive issues with regard to data collection and storage. For example, Alpert and Dunham (2004) and Garner and Maxwell (2002) collected information from the police officer and the arrested subject in a manner that protects the confidentiality of each.[18] While some police organizations may have internal research units and personnel with substantial research

[16] For more information about this program see Alpert and Dunham (2004) page 127.

[17] Hickman and Atherley (2012) is a study designed to replicate the findings of the report of the 2011 Civil Rights Division of the U.S. Department of Justice, in conjunction with the U.S. Attorney report entitled *Investigation of the Seattle Police Department*.

[18] In the United States, Federal law (42 U.S.C. §3789(g)) – Confidentiality of Information states: "No officer or employee of the Federal Government, and no recipient of assistance under the provisions of this chapter shall use or reveal any research or statistical information furnished under this chapter by any person and identifiable to any specific private person for any purpose other than the purpose for which it was obtained in accordance with this chapter. Such information and copies thereof shall be immune from legal process, and shall not, without the consent of the person furnishing such information, be admitted as evidence or used for any purpose in any action, suit, or other judicial, legislative, or administrative proceedings."

and data analysis, training, and experience in these types of cases, the police might also want to consider hiring independent consultants or working in partnership to collect and analyze the data with a police college, university, or other institution[19] capable of providing expertise and resources (e.g., statistical programs) not available in many police organizations.

There may be a need to develop coding sheets and to enter the resulting data into a statistical program (e.g., SPSS). The data-collection stage can be time consuming and requires special resources dedicated to this project. There is also a need to review the coding to ensure accuracy of entry and whether or not information has been correctly interpreted. For this particular type of study, police services might consider hiring independent analysts, while continuing to provide support in the form of project management and data collection. These types of studies require the full cooperation of the police service with outside researchers, to ensure the study is independent, to minimize criticisms of bias, and to avoid the possibility that actual or potential shortcomings might go unexamined and/or that an understanding based on anecdotes might prevail over scientific evidence.[20]

Collecting information for FF analysis (or for any study for that matter) involves a review of multiple sets of records and extraction of pertinent information. Some concerns may be raised with regard to the privacy issues involved in accessing personal information. Most of the research reviewed in this report, however, examines and reports on large aggregates, not individual incidents. Individual identifiers are stripped from the final data once quality control has been assured. Thus, there is no threat to the anonymity of individuals as there is no public disclosure of information pertaining to individuals. Where numbers of cases are so few as to open the possibility that individual cases might be identifiable, that research information would inevitably be considered too unreliable to inform general conclusions and the data would be suppressed in any public release or dissemination.

Furthermore, many of the variables or data that would be required for a use of force study are already publicly released by police organizations in aggregate form. For example, reviewing annual police reports on use of force and reports to police commissions can provide information on the years of service of officers, officer and suspect injuries (e.g., no injuries, medical attention required), the assignment of the police officer at the time of incident, disciplinary actions taken against police officers involved in use of force incidents, complaints received by the police regarding a use of force incident, and court cases involving the police or suspect.

Application of Force Factor

Several studies in the U.S. have used FF methodology. One of the earlier examples of applying the FF was Alpert and Dunham's (2004), of the Miami-Dade Police, that applied FF analysis to five variable categories. These variables and findings can be found in Table 7. In that study, variables significantly related to the FF included: subject gender; subject race or ethnicity; whether or not the subject was intoxicated; initial subject behaviours; and whether the subject was injured during the incident. Also included were:

[19] See Alpert et al. (2013) which examines police practitioner-researcher partnerships.

[20] For instance, Iacobucci (2014) recommends: "collaborate with academic researchers, hospitals and others to evaluate the effectiveness of … initiatives undertaken as a result of this Review, including, where applicable, both quantitative and qualitative evaluation."

officer gender; age; date of hiring; whether or not the officer was injured; and the ethnic/racial match between officers and subjects. Alpert and Dunham examined each factor separately using bivariate analysis and then conducted a regression analysis to assess the relative influence of different variables on the FF.

Table 7: The Force Factor Analysis, Variables, Measures Used and Findings for the Miami-Dade Police Department

Analysis	Variables	Measures	Findings
Bivariate analysis	Subject characteristics	Gender, subject initial behaviour, whether subject was impaired by alcohol or drugs, level of subject resistance to the officer, age, ethnicity.	When only impaired subjects are considered, it is clear that they had less force used on them relative to their level of resistance than subjects not impaired (2004:159).
Bivariate Analysis	Officer characteristics	Gender, age, date officer was hired.	Female officers tended to use significantly less force for a given level of resistance than male officers (although the numbers for female officers were small). An officer's age was significantly related to the FF. The youngest officers (in their 20s) used less force in relation to the level of subject resistance, while officers in their 40s used more force related to that which the subject offered in resistance (2004:75).
Bivariate analysis	Ethnic matches between officer and subject	Ethnicity of officer and subject	Anglo officers (whether Black or White) arresting Anglo subjects (whether White or Black) employed lower levels of force in relation to the level of resistance than did other ethnic/racial matches; and black-Anglo officers used even lower relative levels of force against white-Anglo subjects than did Hispanic officers (204:75).
Bivariate analysis	Injuries to officers and subjects	Subject injuries and medical treatment. Police injuries and medical treatment	Incidents involving subject injury involve more force relative to the level of resistance than incidents in which the subject was not injured. Using more force in relation to the

			level of resistance decreased the chances of officer injury, but conversely, it increases the chances of injury to subjects (2004:82).
Multivariate Analysis (Ordinary least square regression analysis)	Sequence of actions	Assess the level of force used by officer relative to the level of resistance given by the subject for each of the actions in the sequence and also to compare these to other actions in the sequence.	In the vast majority of the cases throughout the sequence, officers maintained a level of force close to the level of resistance given by the subject. In only about 10 percent of the cases did the force/resistance balance express extreme negatives or positives; most deviations from this pattern were on the negative side with officers deploying less force than might be expected in terms of subject level of resistance (2004:95)

Source: Alpert and Dunham (2004)

A few researchers have attempted to elaborate on FF methodology to understand police use of force relative to subject resistance in interactive and sequential encounters. Terrill (2003) applies an innovative approach to FF methodology called a Resistance Force Comparative Scale (RFCS) in a study analyzing observational data from 3,544 police-citizen encounters during the summers of 1996 and 1997, in St. Petersburg, Florida and Indianapolis, Indiana. The scores obtained assess not only the highest level of subject resistance and use of force within an incident but also include all instances of resistance and force taking place. This study's findings indicate that encounters that begin with some form of force tend to result in a greater frequency of subsequent subject resistance and an increase use of additional force at some later point in the encounters. Along the same lines, Delgado (2011) attempted to employ FF scores and couple them with the RFCS in order to understand the use of force policies within the Austin Police Department.

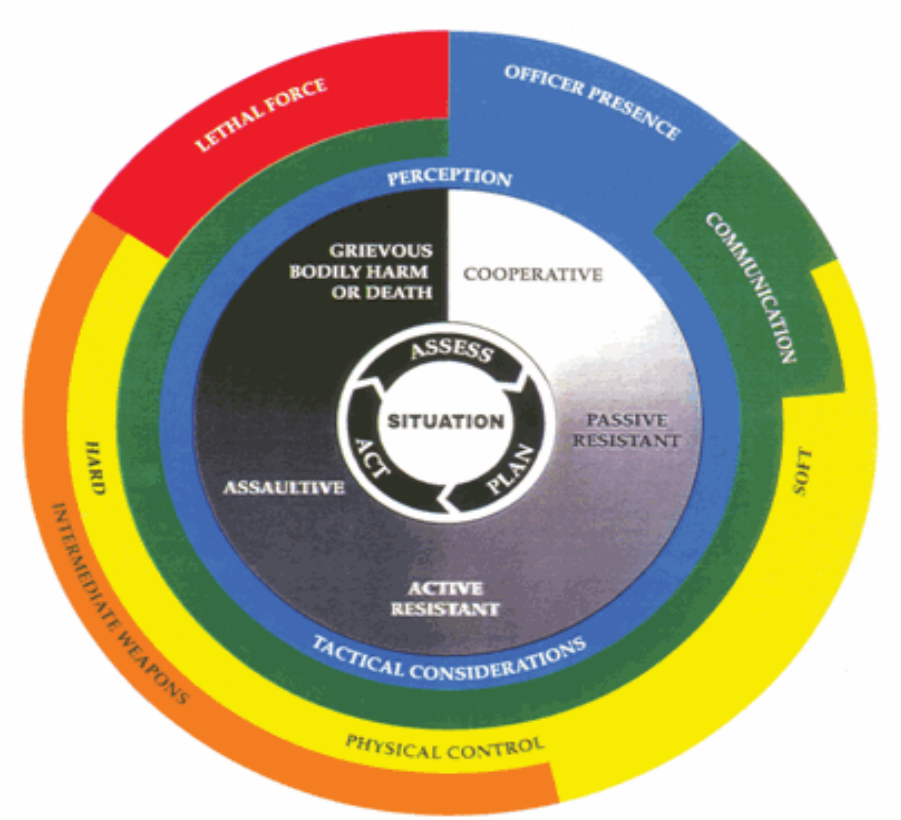
The Mesloh et al. (2008) and Wolf et al. (2009) studies build on prior research using the FF approach by focusing on the cumulative FF. Using 4,303 use of force reports, the authors examine the cumulative effects of use of force levels by the police and subject resistance levels in two law-enforcement agencies in Central Florida: the Orange County Sheriff's Office (OCSO) and the Orlando Police Department (OPD). According to the authors, police-officer encounters with subjects often have an "ebb and flow," with resistance sometimes increasing sometimes decreasing as officer use of force escalates or de-escalates in terms of shifting perceptions of the immediacy, gravity, and certainty of threat (Mesloh et al., 2008:77). They argue that repeated applications are much more likely to cause an injury to either subject or to the police officer than would a single application of force. As depicted in Figure 2,[21] the cumulative FF attempts to capture

[21] Adopted from Mesloh et al. (2008).

three iterations and the outcomes on injuries for police officers and subjects at the end of an altercation, whether one, two, or three iterations.[22]

In calculating the cumulative FF, the authors found that the police officers are frequently operating at a "force deficit" with cumulative FF scores showing that the police use of force is far less than the level of force authorized as legitimate. An important finding is that the outcome of officers using less force than subjects is consequently longer confrontations, as well as more frequent and more serious injuries.

Figure 2: National Use of Force Framework



Recently, as part of the Department of Justice's Consent Decrees analysis of police departments in the U.S., the Independent Monitoring Team has, in some instances, employed FF scores to understand police department's use of force policies. Finally, the Commission on Accreditation for Law Enforcement Agencies (CALEA) also employs an FF methodology to evaluate whether use of force by the police are meeting the police department's policy objectives.[23]

[22] Mesloh et al. (2008) calculated cumulative force factor by force factor 1 (+/-FF1) + force factor 2 (+/-FF2) + force factor 3 (+/-FF3) = Cumulative force (CFF).

[23] Based on a personal interview with Professor G. Alpert, University of South Carolina, Monday, April 28, 2014.

To sum up, police services that adopt the FF approach can gather valuable information about police officers and their supervisors, to better understand how both officer and subject injuries may occur in police encounters with members of the public. This approach can also help to develop training programs and policies by identifying and defining areas of concern and by providing data to assist in training scenarios and in policy development. Because the more advanced Resistance Force Comparative Scale and Cumulative Force Factor analyses are both complex, and can be difficult to implement, professional expertise may be required by police services.

Advantages of the Force Factor Approach

1. FF scores can be analyzed in conjunction with citizen-complaint data to help identify police officer training needs.
2. As part of a use of force management system, FF analysis can help to assess citizen complaints and determine if the continuum use of force model was appropriately applied.
3. The use of FF with a particular methodology such as the RFCS can help police services learn more about the work of both police officers and their supervisors, when assessing encounters between the police and the public.
4. The FF approach can help advance research by identifying what kinds of force are, and are not, currently used by and against the police.
5. The FF approach can help in understanding when and how injuries occur to both police officers and subjects.
6. FF analysis can help to analyze the actual levels of non-criminal resistance that police officers face.
7. An FF approach can assist in the development of training curricula and policies.
8. Applying FF methodology allows for either descriptive statistics on the distribution of data for FFs (e.g., t-test) or multivariate analysis (e.g., regression analysis).
9. FF methodology supports evidence-based policing.

Disadvantages of a Force Factor Approach

1. The problem with analyzing force using FF scores, at least in terms of current methodologies, is that they only capture the highest level of force and resistance used. This excludes temporal sequencing as identified in the ideal type model.[24]
2. Because the FF is at best a quasi-ordinal scale, users of the scale should not add or subtract officer and subject behaviours, nor should users regress, within a multivariate context, the difference score, because neither the two measures nor their difference quotient represent or approximate an interval level measure. In other words, these scales are ordinal and relative to one another. As such, they may not support conclusions in terms of how much force or resistance would be appropriate. This is demonstrated in Table 5 where the numbers in the table are

[24] See for example, Terrill (2003).

ordinal and not comparable. For example, a police officer's strike/punch resistant level is 8, while subject strike-punch is 11.

3. Because of limitations in the underlying data-collection instrument and because specific police/subject interactions may last only a few minutes or even a few, very chaotic, seconds, it is difficult to validly and consistently assign values to incidents/outcomes that can accurately and reliably describe what happened.
4. It requires data on police use of force and corresponding subject resistance that may be difficult to obtain.
5. There are challenges in making comparisons between police organizations because police services may differ in their policies with regard to how their officers are expected to use force.
6. Police services may not have the internal resources or expertise to conduct such a study using FF methodology.
7. Although it allows for the collection of ordinal-scaled data that can be analyzed systematically, as is the case with other such methodologies, it does not capture the nuances, dynamics, and flow that more interpretive, qualitative methodologies can produce.

Adaptation of Force Factor Measures to Operationalization of the National Use of Force Framework

So far, no Canadian police service has adapted either Garner and Maxwell's (1999) Maximum Use of Force Scale or Alpert and Dunham's (1997) FF instrument to measure the use of force by their officers or citizen's resistance. Most of the reports on use of force in police-citizen encounters in Canada provide only a descriptive overview of incidents in terms of frequencies or percentages. This section briefly focuses on how one might apply either the Maximum Use of Force Scale or the FF to the Canadian Association of Chiefs of Police's NUFF to assist in the training of officers and to provide a reference for decision-making and accountability with respect to the use of force across Canada.[25]

The NUFF (see Figure 2) consists of concentric circles of different colours and sizes that police officers use to assess the influence of situational factors. Included in the NUFF is a graphical representation of the elements involved in the process by which police officers assess situations and act in a manner that can be considered reasonable to ensure officer and public safety (Hoffman, 2004). In the innermost circle, subject behaviour is depicted in terms of how it best fits one of five categories:

1. cooperative;
2. passive resistant;
3. active resistant;
4. assaultive; and
5. causing grievous bodily harm or death.

Taking into account assessments of the subject's behaviour (e.g. threat cues) and relevant situational factors, the outer circle depicts six tactical considerations with regard to police response:

[25] For further information on the NUFF Model see C. Butler (n.d.); RCMP Incident Management/Intervention Model (2009).

1. officer presence;
2. communication;
3. “soft” physical control;
4. “hard” physical control;
5. use of intermediate weapons; and
6. lethal force.

The FF methodology may be applied for example to the NUFF by using two different interpretations. The first approach, see Table 8, is to apply the FF to each of the categories of subject behaviour and to each police use of force option.

Table 8: Example Application of the Force Factor Scale to the National Use of Force Framework

Subject		Police Officer	
Level	**Description**	**Level**	**Description**
Resistance 1	Cooperative	Force 1	Officer presence
Resistance 2	Passive resistant	Force 2	Communication
Resistance 3	Active resistant	Force 3	Soft physical control
Resistance 4	Assaultive	Force 4	Hard physical control
Resistance 5	Grievous bodily harm or death	Force 5	Intermediate weapons (e.g., OC spray, baton, or CEW); lethal force

The second approach, again applicable to either scale, as outlined in Table 9, involves the use of overlapping categories (e.g., cooperative/no resistance) of subject behaviours and overlapping police use of force options (e.g., officer presence and/or verbal direction) provides more detailed descriptions than would be obtained using broad categories of subject behaviour and police use of force options. This approach is more behaviourally anchored, in that it refers to specific behaviours rather than general categories of subject behaviour. For conducting the data analysis, these FF categories may be easier to reference when extracting the data from police use of force reports or from a police officer’s narrative statements and applying them to broader categories. In comparison with the Maximum Use of Force Scale the FF approach is a less-precise and adaptable measure to get at specific agency needs and contextual factors. Also, because FF does not explicitly seek to identify the use of each form of force, as does the Maximum Use of Force Scale, one cannot calculate the frequency of each type of force. The scope of this research report did not include a review of actual use of force documents or narratives. If this were of interest, it would necessitate further work by police services in order to develop a more sophisticated form of data collection and analysis to apply to use of force data. It seems to be the case that the more detailed the listing of categories provided, the easier it will be for research analysts to accurately code information.

Table 9: Example Application of the Force Factor Scale to the National Use of Force Model Using Overlapped Subject Behaviours and Police Officer Responses

Subject		Police Officer	
Level	**Description**	**Level**	**Description**
Resistance 1	Cooperative/no resistance	Force 1	Officer presence and/or verbal direction. Police handcuff subject in accordance with policy
Resistance 2	Cooperative/passive resistant	Force 2	Officer presence/communication
Resistance 3	Passive resistant	Force 3	Communication/soft hand control
Resistance 4	Passive/active resistant	Force 4	Communication/soft physical control/hard physical
Resistance 5	Active resistant	Force 5	Soft physical control/hard physical control, or intermediate weapons (e.g., OC spray, baton, or CEW)
Resistance 6	Active resistant/assaultive	Force 6	Hard physical control/intermediate weapons (e.g., OC spray, baton, or CEW)
Resistance 7	Assaultive	Force 7	Hard physical control and intermediate weapons (e.g., OC spray, baton, or CEW)
Resistance 8	Assaultive/grievous bodily harm or death	Force 8	Hard physical control, intermediate weapon/lethal force
Resistance 9	Grievous bodily harm or death	Force 9	Hard physical control, intermediate weapon/lethal force

Practical Application of Maximum Use of Force Scale and Force Factor in Canada

At least some aspects of the work of Garner et al. (2002), Garner, et al. (1995), Garner, et al. (1996) and Garner and Maxwell (2002), on the Maximum Force use of force scale, can be used by some police services in Canada that collect data on many of the key variables used by these researchers.

For example, based on the police expert's responses to the questionnaires and the interviews, it has been identified that some Canadian police services already collect information, extracted from the narrative sections in the police use of force reports, occurrence/incident reports, or human resources files, such as the following:

- suspect's general response to the police (e.g., verbal resistance, hostile demeanour);
- suspect's alcohol or drug impairment;
- suspect's apparent mental disorder;
- suspect's flight or pursuit;
- suspect's weapon (type of weapon)/no weapon;
- location of completed arrest;
- police officer's response/type of force used;
- characteristics of police officer (age, gender, height/weight, etc.); and
- educational level and specialized training of police officer.

The police service could then augment these data by conducting a retrospective case-control study to build a comparison sample of cases without use of force reported by the officer, which match the number of cases with reported use of force. A case-control approach would have the advantages of being relatively quick, inexpensive, and easy to implement. Such an approach might also be particularly appropriate for identifying risk factors for statistically-rare events as incidents involving police use of force are known to be (Lewallen and Courtright, 1998). This additional step would allow for analyses similar to those conducted by Garner et al (2002). In particular, including additional control cases would give the option of estimating how factors such as the subject's response (passive resistance, threats, actual force) to the police could help predict the degree of the officers' use of force.

Quantifying the force used, such as by means of the Maximum Use of Force scale, can provide opportunities to look at how type and degree of force vary according to whether suspects are in flight or pursuit, what levels of resistance (including the brandishing of different kinds of weapons) occurr, and how police interpret and respond to these factors. For example, findings from use of force research indicate that when the suspect is demonstrating moderate/high resistance, the police used OC spray 18% of the time, wrestled the suspect 2% of the time, and used a firearm 1% of the time (Alpert and Dunham, 2000). Such information can be useful for operational-policy development and training.

By way of another illustration, a common question in inquiries is how frequently a specific force technique or a particular level of force is used in different types of incidents or circumstances or with different types of subjects. The question cannot be answered without data and analyses beyond first-run, single-variable descriptions. It may also arise that a particular use of force technique or instrument may become controversial following a critical incident. Without aggregate data, it is impossible to answer questions regarding how representative that incident might be of situations in which this technique or instrument is commonly used.

Routine analyses of interactions between officer and subject characteristics and behaviours, contextual factors, use of force, and incident outcomes should be forming the basis of evidence to permit evaluations of training, standards, and operational guidance. Reliance on the anecdotal evidence of police specialists alone is less likely to

garner public and judicial confidence, as is evidenced by Justice Iacobucci's (2014) recent recommendations.

Similarly, the FF developed by Alpert and Dunham (2004) can also be applied to some of the existing data on police use of force. The focus on the FF is to measure both the subject's level of resistance and the level of force used by the officer as determined on a formally-defined police use of force continuum. A police service could take the NUFF model and, using data like that described above to calculate the level of resistance of subjects and the level of force used by the police officer in order to scale them relative to each other. By applying this approach to the data collected, one might find that the police use less force than the level of resistance faced; or, in other cases, use more force than the level of resistance faced in instances when the subject has a weapon. There is a problem, however, in using such methodologies to dynamically measure the flow of escalation and de-escalation in encounters between the police and members of the public. The dynamic process of escalation and de-escalation, and the contextual factors and contingencies involved in such flow, might be better assessed through an observational-research design that captures narratives of individual incidents, which can subsequently be systematically translated into time-dependent, coded, quantitative measures.

Notwithstanding the specific assumptions and methodologies used to develop the Maximum Use of Force Scale and the FF approach, Canadian police might consider exploring the combination of certain aspects of these two approaches, collecting and interpreting the data required, and presenting the data in a simple descriptive fashion for practical purposes such as developing and evaluating operational policies and training. Systematic, qualitative, narrative analysis can be used in conjunction with quantitative analysis to maximize the benefits and minimize the deficiencies of each approach. One might argue, in this regard, that such attempts at research, however imperfect, would be better than no research at all given the importance of getting beyond anecdotal accounts and moving toward more evidence-based approaches, whether quantitative, qualitative, or some combination of the two (Alpert et al., 2013).

Conclusion

The majority of Canadian police-citizen contacts result in no use of force by an officer, with force occurring in less than 2% of encounters. In these few incidents, however, the prevalence of injury to either or both the police officer and members of the public is high. Research shows a strong relationship, regardless of the level of subject resistance, between the level of officer force and the likelihood of increased officer injury as levels of officer force increase. Conversely, some research indicates there is decreased likelihood of the use of lethal and other physical force, and presumably fewer deaths or injuries, when the officers responding to an incident have undergone substantial crisis intervention/de-escalation training.

This project consultation has been undertaken with government officials, policing experts, and other stakeholders. Although all police services are required under provincial/territorial legislation to collect some use of force data there are variations in what data are collected and how they are used across Canada. The information currently collected is mainly used to provide an overview on the force used by the police such as the number of times a specific weapon (firearm, Oleoresicum Spray or CEW) has been deployed. This information is presented either as a count or a percentage change from

the previous years and is mainly found in annual reports to the police board. Based on the interviews and responses to the research instrument from police experts, unfortunately, no publicly-available research could be identified showing the interaction between subject levels of resistance and the application of force by the police.[26]

To support research projects on the police use of force in Canada and evidenced-based policy development, this project sought to identify the most frequently-asked and significant research questions with regards to the use of force by and against the police. A substantial review of the literature has been conducted that focuses on identifying, appraising, and synthesizing research questions and the variables used to measure use of force used by the author(s) of the report. Approximately 80 sources have been reviewed. What is apparent from reviewing these studies is that the majority have been conducted in the U.S. and only a few in Canada. The information collected was placed in an Excel Spreadsheet to show relationships between research questions, key variables, and information sources. The objective of collecting this type of information is to assist police organizations, police boards, and other stakeholders in policing to assess the value of various types of data collected, studies conducted, data collection practices, or data analysis strategies undertaken with regards to use of force during policing incidents.

The report further focuses on understanding the relationships between independent and dependent variables in use of force analysis. Most importantly, the information gathered has been assessed in terms of how it could provide guidance to the police with regard to the kinds of data (what particular variables) that would be most useful and how these data might be analyzed and interpreted. The current report also focuses on identifying methods to conduct a valid, reliable analysis of interactions between officers and subjects in use of force encounters, which could be useful to trainers and operational policy makers. While several approaches might be used, based on the review of the various research projects and in consultation with use of force experts, two approaches – the Maximum Use of Force Scale and Force Factor (FF) analysis – are described in detail and their potential application to the NUFF framework considered.

The Maximum Use of Force Scale involves asking police officers to rank in order a variety of police behaviours from least to most severe on a scale from 1 to 100 as well as conducting rankings of various kinds of subject behaviour. This scale, which has been applied to six jurisdictions in the U.S., represents, to date, the largest collection of use of force data. Application of such an approach in Canada would require a significant investment in funding and time to collect similar data.

FF analysis measures the levels of interaction between degree of citizen noncompliance or resistance and degree of officer use of force. The FF approach involves measuring the level of resistance displayed by the subject and the level of force used by the officer as determined on a formally-defined police use of force continuum. In discussing the FF approach, examples have been provided for how this approach has been applied by particular police departments in the U.S. This approach, while still exploratory in nature, holds promise in terms of bivariate or multivariate analysis using a variety of data sources.

[26] There is, however, some “grey literature” on the subject. For example, a report produced by the Commission for Public Complaints Against the Royal Canadian Mounted Police (2012) uses the RCMP’s Subject Behaviour/Officer Response (SB/OR) Reporting System to review the subject’s behaviour and police officer’s response.

With regard to the possible use of either approach (or at some future point, possibly even combinations thereof), dealing with issues pertaining to the collection and analysis of use of force data may place too great a burden on some police services. If they pursue such analyses they may consequently need to hire independent subject-matter experts to carry out data collection and analysis and address issues of potential bias or modify internal resource allocation and hiring practices to meet the requirement for a civilian specialist.

The information presented in this report provides an opportunity for various policing-community stakeholders to consider how data can be applied when addressing issues pertaining to use of force in police-citizen encounters. This data can generate information that could help reduce police and subject injuries, assist in developing policies and training curricula, and in evaluating the extent to which their objectives are being met.

The information in this report is intended to further discussions on police use of force within a Canadian policing context. For example, studies cited in this report have been used to review the level of police injuries as a result of a use of force incident. Such analyses may focus on when the use of force injury occurred with respect to the police officer's work shift. Along similar lines, the data collected on police use of force can be used to review other issues such as police officers' stress levels and various indicators of well-being such as the effects of sleep deprivation (Couyoumdjian et al., 2009; Lewinski and Honig, 2008).

The information in this report may prove useful at the FPT level when looking at areas that may benefit from a consistent approach to reporting. The information in this report may also contribute to further operationalization of Canada's NUFF and the type of research design that might be used to understand tactical considerations of police officers when responding to an incident (i.e., what types of data can be used to measure different forms of control from "soft" to "hard"?). Finally, the collection of data on police use of force in response to various kinds of resistance, both physical and symbolic, may also be very useful in performance measurement to assess how consistent police organizations are in enforcing formal professional standards for officers and how they deal with the informal standards that are often part of particular police subcultures. The more systematically such data can be analyzed, whether through quantitative methods or various types of qualitative methods, the more thorough and useful the results of evaluations will be regarding the effectiveness of use of force training programs.

References

Alberta Association of Chiefs of Police. *AACP Provincial Use of Force Criteria for Reporting Use of Force* (nd).

Alberta Justice and Solicitor General*.* "Alberta Guidelines for the Use of Force*." Policing Standards and Audit Section.* 12 (2012).

Alpert, G. P., and R.G. Dunham. *The Force Factor: Measuring Police Use of Force Relative to Subject Resistance.* (Washington, DC: Police Executive Research Forum, 1997).

_____. *Understanding Police Use of Force*. (Cambridge, U.K: Cambridge University Press, 2004).

_____. *Analysis of Police Use-Of-Force Data*. (US: The Department of Justice, Grant Number 95-IJ-CX-0104, 2000).

_____. *Police Use of Deadly Force: A Statistical Analysis of the Metro-Dade Police Department.* (Washington, DC: Police Executive Research Forum, 1995).

Alpert, G.P., et al. *Building Bridges Between Police Researchers and Practitioners: Agents of Change in a Complex World.* (Washington: DC: U.S. Department of Justice, December, 2013).

Alpert, G. P., et al. "Interactive Police-Citizen Encounters that Result in Force." *Police Quarterly.* 7 (2004), pp. 475.

Angel, H., et al. *Review of the Skills Perishability of Police "Use of Force" Skills.* (Guelph, ON: Humansystems Incorporated, 2010).

Atherley, L. T., and M.J. Hickman. "Controlling Use of Force: Identifying Police Use of Excessive Force Through Analysis of Administrative Records*." Policing*, pau003 (2014).

Ariel, B. "Self-Awareness to Being Watched and Socially-Desirable Behavior: A Field Experiment on the Effect Of Body-Worn Cameras on Police Use-of-Force," Unpublished Report, 2013 http://www.policefoundation.org/sites/g/files/g798246/f/201303/The%20Effect%20of%20Body-Worn%20Cameras%20on%20Police%20Use-of-Force.pdf [Accessed June 26, 2014].

Armstrong, J., et al. *Physiological Relevance of Scenario-Based Use-of-Force Simulations: Evaluating the Royal Canadian Mounted Police Skills Refresher Program*. (nd) (University of Western Australia: Crime Research Centre, Unpublished paper, Accessed June 26, 2014).

Avdi, S. A. "Police Use of Force: An Analysis of Factors that Affect a Police Officer's Decision to Use Force on Subjects." *International Research Journal of Social Sciences,* 2, 9 (2013), pp. 1-6.

Aveni, T.J. "The MMRMA Deadly Force Project: A Critical Analysis of Police Shootings Under Ambiguous Circumstances." *The Police Policy Studies Council* (2008).

Binder, A., and L. Fridell. "Lethal Force as a Police Response." *Criminal Justice Abstracts*, Vol. 16, 2 (June 1984), pp. 250-280.

Binder, Arnold, et al. *Use of Deadly Force by Police Officers*. (Washington, DC: National Institute of Justice, 1982).

Blair, J. P., et al. "Reasonableness and Reaction Time." *Police Quarterly*, 14, 4 (2011), pp. 323-343.

Borrego, A. *Arrest-Related Deaths in the United States: An Assessment of the Current Measurement.* (Arizona: Arizona State University, MA Thesis, 2011).

Braidwood Commissions of Inquiry. "Restoring Public Confidence: Restricting the Use of Conducted Energy Weapons In British Columbia. Conducted Energy Weapons" *Braidwood Inquiry* (2009a). http://www.braidwoodinquiry.ca/report/ [Accessed June 26, 2014].

_____. "Restoring Public Confidence: Restricting the Use of Conducted Energy Weapons in British Columbia. Medical Risks." *Braidwood Inquiry* (2009b). http://www.braidwoodinquiry.ca/report/ [Accessed June 26, 2014].

_____. "Restoring Public Confidence: Restricting the Use of Conducted Energy Weapons in British Columbia. Regulatory Framework." Braidwood Inquiry (2009c). http://www.braidwoodinquiry.ca/report/ [Accessed June 26, 2014].

_____. "Restoring Public Confidence: Restricting the Use of Conducted Energy Weapons in British Columbia. Training On Conducted Energy Weapon Use." Braidwood Inquiry (2009d). http://www.braidwoodinquiry.ca/report/ [Accessed June 26, 2014].

Brandl, S. G. and M.S. Stroshine. "The Role Officer Attributes, Job Characteristics, and Arrest Activity in Explaining Police Use of Force." *Criminal Justice Policy Review,* 24, 5 (2012), pp. 551-572.

Brave, M.A. "How Much Force is Acceptable?" *LLAW International Inc.* (2002). http://www.ecdlaw.info/outlines/Brave%20-%20Article%20-%20How%20Much%20Force%20is%20Acceptable.pdf [Accessed: June 26, 2014].

British Columbia, Legislative Assembly. "Special Committee to Inquire Into the Use of Conducted Energy Weapons and to Audit Selected Police Complaints." (British Columbia: 4th Session, 39th Parliament, 2013).

Brown, G.R. *The Blue Line on Thin Ice: Police Use of Force in the Era of Camera Phones, 'Citizen Journalism' and Youtube* (MA Thesis) (Ottawa, ON: Carleton University, 2013).

Bulman, P. "Police Use of Force: The Impact of Less-Lethal Weapons and Tactics." *NIJ Journal,* Vol. 267 (2011). https://www.ncjrs.gov/pdffiles1/nij/233280.pdf (Accessed June 26, 2014).

Burch, A.M. *Arrest-Related Deaths, 2003-2009: Statistical Tables*. (Washington, D.C: U.S. Department of Justice, November, 2011).

Butler, C., *The Use of Force Model and its Application to Operational Law Enforcement: Where Have We Been And Where Are We Going?* (Calgary, AB: Calgary Police Services, n.d.) [Accessed: June 26, 2014].

Butler, C., and C. Hall. "Police/Public Interaction: Arrests, Use of Force By Police, and Resulting Injuries to Subjects And Officers—A Description of Risk in One Major Canadian City." *Law Enforcement Executive Form,* 8, 6 (2007), pp. 141-157.

Canadian Association of Chiefs of Police (CACP). *CACP Use of Force Advisory Committee.* (2013). https://www.cacp.ca/default/committees/viewcommittee?committeeId=29. [Accessed: June 26, 2014].

Ceyssens, P. *The Police Discipline Process: What Have We Achieved and Where Do We Go From Here?* (Presented to CACOLE Annual Professional Development Conference, October 6, 2003).

Chapman, C. "Use of Force in Minority Communities is Related to Police Education, Age, Experience and Ethnicity." *Police Practice and Research*, 13, 4 (2012), pp. 421-436.

Clifford, Katrina. "The Vulnerable Thin Blue Line: Representations of Police Use of Force in the Media." In I.Barklowiak-Theron and N. Asquith (eds) *Policing Vulnerability* (Annandale, AU: The Federation Press, 2012).

Coleman, T. *An International Review of Education and Training for Police Personnel to Prepare them for Interactions with Persons with Mental Illness (PMI).* (Ottawa, Ontario: Commission for Public Complaints Against the RCMP, 2010).

Coleman, T. and D. Cotton. *TEMPO: Police Interactions A Report Towards Improving Interactions between Police and People Living with Mental Health Problems.* (Ottawa, ON: Mental Health Commission of Canada, June, 2014).

_____. *Police Interactions with Persons with a Mental Illness: Police Learning in the Environment of Contemporary Policing*. Mental Health and Law Advisory Committee. (Ottawa, ON: Mental Health Commission of Canada, 2010).

Commission for Public Complaints Against the Royal Canadian Mounted Police. *RCMP Use of the Conducted Energy Weapon: January 1, 2010 to December 31, 2010.* (Ottawa: Special Report by the Commission for Public Complaints Against the Royal Canadian Mounted Police, 2012).

Compton, M. T., et al. "Use of Force Preferences and Perceived Effectiveness of Actions among Crisis Intervention Team (CIT) Police Officers and Non-CIT Officers in an Escalating Psychiatric Crisis Involving a Subject with Schizophrenia." *Schizophrenia Bulletin,* 37, 4 (2011), pp. 737-745.

Couyoumdjian, A., et al. *The Effects of Sleep and Sleep Deprivation on Task-Switching Performance.* (2009) http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2869.2009.00774.x/full [Accessed August 21, 2014]

Crow, Matthew S, and B. Adrion. "Focal Concerns and Police Use of Force: Examining the Factors Associated with Taser Use." *Police Quarterly,* 14 (2011), pp. 366.

Delgado, R.A. *An Ideal Use of Force Model For Law Enforcement: An Assessment of the Austin Police Department.* (MA Thesis, San Marcos, TX: Department of Political Science Texas State University-San Marcos, 2011).

Durbin, J., E. Lin, and N. Zaslavska. *Impact Study Final Report. A Study of Hospital Emergency Service Use, Crisis Service Delivery and Police Response after Mental Health System Enhancements*. (Toronto, ON: Health Systems Research and Consulting Unit: Centre for Addiction and Mental Health, 2010).

Durose, Mathhew et al. *Contacts Between Police and the Public*. (Washington, D.C.: U.S. Department of Justice- Bureau of Justice Statistics, April, 2005: NCJ207845).

Edwards, Anne. *Reported Use of Force by Queensland Police: Findings from the 1999 Queensland Defendants Survey*. (Brisbane, Australia: Queensland Criminal Justice Commission, 2000).

Engel, Robin. "The Effects of Supervisory Styles on Patrol Officer Behaviour." *Police Quarterly*, 3 (2000), pp. 262–293.

Eith, C., et al. *Contacts Between Police and the Public, 2008 (October).* (Washington, DC: U.S. Department of Justice, 2011).

Expert Panel on the Medical and Physiological Impacts of Conducted Energy Weapons. *The Health Effects of Conducted Energy Weapons*. Chair, The Honourable Justice Stephen T. Goudge. (Ottawa, ON: Council of Canadian Academies, 2013). http://www.scienceadvice.ca/uploads/eng/assessments%20and%20publications%20and%20news%20releases/cew/cew_fullreporten.pdf. [Accessed: June 26, 2014].

Frank, James, et al. *Street-Level Policing in Cincinnati: The Content of Community and Traditional Policing and the Perceptions of Policing Agencies*. (Cincinnati, OH: University of Cincinnati, 2001).

Friedrich, Robert J. "Police Use of Force: Individual, Situations, and Organizations*." Annals American Academy of Political and Social Science*, 452, 1 (1980), pp. 82-97.

Fyfe, James J. *Readings on Police Use of Force*. (Washington, DC: Police Foundation, 1982).

Garner, J. and C. Maxwell. "Measuring the Amount of Force Used by and Against the Police in Six Jurisdictions" in *Use of Force in by Police: An Overview of National and Local Data.* (Washington DC: U.S. Department of Justice, National Institute of Justice and Bureau of Justice Statistics, October 1999. NCJ 176330).

_____. *Understanding the Use of Force By and Against the Police in Six Jurisdictions.* (Washington, DC: U.S. Department of Justice, NCJRS, Document No.: 196694, Award Number: 95-IJ-CX-0066, 2002).

Garner, J., et al. "Measuring the Continuum of Force Used by and Against the Police." *Criminal Justice Review,* 20 (1995), pp. 146-168.

Garner, J., et al. "Understanding the Use of Force by and Against the Police.*" National Institute of Justice Research Brief* (Washington, DC: U.S. Department, November, 1996).

Garner, J., et al. "Characteristics Associated with the Prevalence and Severity of Force Used by Police." *Justice Quarterly,* 19, 4 (2002), pp.705-746.

Garner, J., et al. "Patterns of Police Use of Force as a Measure of Police Integrity." In M. Hickman, A. R. Piquero & J. R. Greene (Eds.), *Police Integrity and Ethics* (pp. 109-122). (Belmont, Calf: Wadsworth. 2004).

Greenfeld, L.A., et al. *Police Use of Force: Collection of National Data* (Washington, DC: U.S. Department of Justice, 1998).

Hall, C.A., et al. “Frequency of Signs of Excited Delirium Syndrome in Subjects Undergoing Police Use of Force: Descriptive Evaluation of A Prospective, Consecutive Cohort.” *Journal of Forensic and Legal Medicine,* 20, 2 (2013), pp. 102-107.

Hall, C.A., et al. “Incidence and Outcome of Prone Positioning Following Police Use of Force in a Prospective, Consecutive Cohort of Subjects.” *Journal of Forensic and Legal Medicine,* 1 (2012), pp. 83-89.

Hall, Christine and C. Butler. *National Study on Neck Restraint in Policing* (Ottawa, ON: Canadian Police Research Centre, 2007).

Hall, Christine and Kristine Voltova. *Prospective Analysis of Police Use of Force in Four Canadian Cities: Nature of Events and Their Outcomes.* (Ottawa, ON: Defence Research and Development Canada: DRDC CR 2013-011, 2013).

Henriquez M. *IACP National Database Project on Police Use of Force*. *Use of Force by Police: Overview of National and Local Data*. (Washington, DC: National Institute of Justice and Bureau of Justice Statistics, 1999), pp. 19–24.

Hickman, M.J., and L.T. Atherley. *Police Use of Force in Seattle, January 2008 – March 2011*. (Seattle: Seattle Police Force, 2012).

Hickman, M. J., et al. “Toward a National Estimate of Police Use of Non-Lethal Force.” *Criminology & Public Policy,* 7, 4 (2008), 563-604.

Ho., Jeffery E. et al. “Unexpected Arrest-Related Deaths in America: 12 Months of Open Source Surveillance.” *Western Journal of Emergency Medicine,* X, 2 (2009), 68-73.

Hoffman, Ron. “Canada’s National Use-of-Force Framework for Police Officers.” *The Police Chief*. (2004). http://www.policechiefmagazine.org/magazine/index.cfm?fuseaction=display_arch&article_id=1397&issue_id=102004 [Accessed: June 26 2014].

Howie, E.M., et al. *Upholding Our Rights: Towards Best Practice in Police Use of Force*. (Melbourne, AU: Human rights Law Centre, 2011).

Hunt, J. “Police Accounts of Normal Force”, Urban Life, 13, 4 (1985) 315-341 as excerpted and reproduced under the title “Normal Force” , pp. 132-141, in E. Rubington and M. Weinberg, eds., Deviance; The Interactionist Perspective, 5th. ed., New York: MacMillan, 1987.

Iacobucci, F. *Police Encounters with People in Crisis* 2014. Toronto, ON: Toronto Police Services, July 2014).

International Association of Chiefs of Police. *Emerging Use of Force Issues: Balancing Public and Officer Safety*. (Washington, DC: International Associations of Chiefs of Police, 2012).

_____. *Police Use of Force in America*. (Washington, D.C: International Association of Chiefs of Police, 2001).

Jefferies, E., et al. “Measuring Perceptions of Police Use of Force.” *Police Practice and Research,* 12, 1 (2011), pp. 81-96.

Johnson, J. L. “Force and the Fatigue Threshold: The Point of no Return.” *AELE Monthly Law Journal,* 6 (2010), pp. 501-508.

Johnson, R.A. *Phoenix Project: Predictors of Subject Use of Force*. (Washington, DC: U.S. Department of Justice, 2001).

_____. "Subject Mental Disorder and Police Use of Force." *Criminal Justice and Behaviour* 38, 2 (2011), pp. 127-145.

Juneau, A. *Police Shootings in Ontario: How Social, Psychological, and Situational Factors Lead to Pulling the Trigger.* MA Thesis. (School of Criminology, Faculty of Arts and Social Science, Simon Fraser University, 2013).

Kaminski, Robert J., et al. "The Use of Force between the Police and Persons with Impaired Judgement." *Police Quarterly,* 7, 3 (2004), pp. 311-338.

Kesic, D., et al. "Use of Nonfatal Force on and By Persons with Apparent Mental Disorder in Encounters with Police." *Criminal Justice and Behaviour,* 40, 3 (2013), pp. 321-337.

Kiedrowski, John et al. *Canadian Police Board Views on the Use of Police Performance Metrics.* (Ottawa, ON: Public Safety Canada, 2013)

Kiedrowski, John et al. *An Independent Review of the Adoption and Use of Conducted Energy Weapons by the Royal Canadian Mounted Police.* (Ottawa, ON: Compliance Strategy Group, 2008). Executive Summary available at http://www.rcmp-grc.gc.ca/ccaps-spcca/cew-ai/kiedrowski-report-rapport-eng.htm [Accessed on August 3, 2014]

Klahm IV, C.F. *Reconceptualizing Police Use of Force: Comparing the Determinants of Force Across Alternative Measures*. (University of Cincinnati, Ph.D Dissertation, 2009).

Klahm IV, C.F., and R. Tillyer. "Understanding Police Use of Force: A Review of the Evidence." *Southwest Journal of Criminal Justice,* 7, 2 (2010), pp. 214-239.

Klockars, C.B, et al. *Enhancing Police Integrity*. Dordrecht, N.L.: Springer, 2006.

Lee, H., et al. "An Examination of Contextual and Organizational Factors Influencing Police Use of Force: A Multilevel Model." *Policing: An International Journal of Police Strategies & Management,* 10, 1 (2010), pp. 1-18.

Lewallen, Susan,and Paul Courtright. "Epidemiology in Practice: Case-Control Studies. Community Eye." *Health Journal*, 11(28) (1998), pp. 57-58.

Lewinski, W. J., and A. Honig, *A Survey of the Research on Human Factors Related to Lethal Force Encounters: Implications for Law Enforcement Training, Tactics, and Testimony* (2008). http://www.forcescience.org/encounter.html [Accessed: August 21, 2014].

Law Enforcement Executive Forum. "Critical Issues of Use of Force by Law Enforcement (Special Edition)." *Law Enforcement Executive Forum,* 9, 3 (2009).

Luther, D.S. *Report of Inquiries into the Sudden Deaths of Norman Edward Reid and Darryl Brandon Power.* Provincial Court of Newfoundland and Labrador, December 16. (St. John's, NFLD: Department of Justice, 2003).

MacDonald, J. M., et al. "The Effect of Less-Lethal Weapons on Injuries in Police Use-of-Force Events." *American Journal of Public Health*, 99, 12 (2009), pp. 2268-2274.

Maxfield, Michael G. and Earl Babbie. *Research Methods for Criminal Justice and Criminology*. (Belmont, California: Wadsworth Publishing Company, 1995).

McEwen, T. *National Data Collection on Police Use of Force*. (Washington, DC: Bureau of Justice Statistics and U.S. Department of Justice, 1996).

Mesloh, Charlie et al. *Less Lethal Weapon Effectiveness, Use of Force, and Suspect and Officer Injuries: A Five-Year Analysis.* (Washington, DC: U.S. Department of Justice, September, 2008).

New South Wales Police Force. *Use of Conducted Electrical Weapons (Taser).* (New South Wales, AU: New South Wales Police Force, 2013).

Morabito, Melissa S., et al. "Crisis Intervention Teams And People With Mental Illness: Exploring The Factors That Influence The Use of Force." *Crime & Delinquency*, 58, 1 (2010), pp. 57-77.

Morrison, G.B. "Deadly Force Training: Faulty Foundation for Contemporary Programs." *Law Enforcement Executive Forum*, Vol.10, 4 (2010), pp. 83-100.

Nova Scotia, Department of Justice. *Subject Behavior-Officer Response*. (Nova Scotia: Public Safety and Security Division, January, 2014).

Ogloff, J. R .P, et al. "Policing Services with Mentally Ill People: Developing Greater Understanding and Best Practices." *Australian Psychologist,* 48 (2012), pp. 57-68.

Office of the Chief Coroner. *Verdict of Corner's Jury: Matthew Henry Roke.* (Ontario, April 22, 2014).

_____. *Verdict of Corner's Jury: Michael Eligon; Reyal Jardine-Douglas; Sylvia Klibingaitis*. (Ontario, October 15, 2013).

Office of Police Integrity. *Review of the Use of Force by and Against Victorian Police*. (Victoria, Australia: Victorian Government Printers, 2009).

Ontario Government. *Police Services Act: R.R.O. 1990, Regulation 926: Equipment and Use of Force. E-Laws.* (2013).

Ontario Government. *Policing Standards Manual: Use of Force.* (Ontario, 2013a).

Ottawa Police Services, *Use of Force: 2010 Annual Report (Revised)*. (Ottawa, ON: February 7, 2011).

Pate, Anthony, and L. Fridell, *Police Use of Force: Official Reports, Citizen Complaints, and Legal Consequences*. (Washington, DC: Police Foundation, 1993).

Paoline, E. A., and W. Terrill. "Police Education, Experience, and the Use of Force." *Criminal Justice and Behavior,* 34, 2 (2007) pp. 179-196.

Perreault, S. *Homicide in Canada, 2011*. (Juristat. Statistics Canada Catalogue no. 85-002-X, 2012.)

Pinizzotto, A. J., et al. "Law Enforcement Restraint in the Use of Deadly Force within the Context of 'The Deadly Mix.'" *International Journal of Police Science and Management*, 14, 4 (2012), pp. 285-298.

Plecas, D, J., et al. *RCMP Code of Conduct Cases in British Columbia: A Five Year Review: 2005-2009*. (Abbotsford, B.C.: University of the Fraser Valley, 2010a).

Plecas, D, J., *An Analysis of Complaints Against the RCMP in British Columbia: A 15-year Review: 1994-2008*. (Abbotsford, B.C.: University of the Fraser Valley 2010).

Police Executive Research Forum. *An Integrated Approach to De-Escalation and Minimizing Use of Force.* (Washington, DC: Police Executive Research Forum, 2012).

Prince Edward Island. *Excerpts from the Annual Report to the Minister* (2013).

Prenzler, Tim, et al. "Reducing Police Use of Force: Case Studies and Prospects." *Aggression and Violent Behavior* 18, (2) (2013): 343-356.

Reiss, Albert J., Jr. *The Police and the Public*. New Haven: Yale University Press, 1971.

Ross, D.L. "Emerging Trends in Police Failure to Train Liability Policing." *Journal of Police Strategies and Management*, 23, 2 (2000), pp. 169-193.

Royal Canadian Mounted Police (RCMP). *Incident Management/Intervention Model* (2009). http://www.rcmp-grc.gc.ca/ccaps-spcca/cew-ai/imim-migi-eng.htm [Accessed: June 26, 2014]

Rojek, J., G.P. Alpert, and H.P. Smith. "Examining Officer and Citizen Accounts of Police Use-of-Force Incidents." *Crime & Delinquency*, 58, 2 (2012), pp.301-327.

Rydberg, J. and W. Terrill. "The Effect of Higher Education on Police Behavior." *Police Quarterly,* 13, 1 (2010), pp. 92-120.

Saskatchewan. *Saskatchewan Use of Force Report*. (n.d.)

Scharf, P., and A. Binder. *The Badge and the Bullet: Police Use of Deadly Force*. New York: Praeger, 1983, pp. 139-179.

Schuck, A. "The Masking of Racial and Ethnic Disparity in Police Use of Physical Force: The Effects of Gender and Custody Status." *Journal of Criminal Justice*, 32 (2004), pp. 557–564.

Schwartz, J. C. "Myths and Mechanics of Deterrence: The Role of Lawsuits in Law Enforcement Decision making." *UCLA Law Review*, 59 (2009), pp. 1023.

Schwartz, J.C. "What Police Learn From Lawsuits." *UCLA Public Law and Legal Theory Series*. 2011. http://escholarship.org/uc/item/7rv248hq [Accessed: June 26, 2014].

Skogan, W.G. "Use of Force and Police Reform in Brazil: A National Survey of Police Officers." *Police Practice and Research: An International Journal*, 14, 4 (2013), pp.319-329.

Smith, Douglas. "The Neighborhood Context of Police Behavior." In Albert J. Reiss and Michael H. Tonry, eds., *Communities and Crime,* Vol. 8 (Chicago, IL: University of Chicago Press, 1986).

Smith, M. R. "Toward a National Use-of-Force Data Collection System: One Small (And Focused) Step is Better Than a Giant Leap." *Criminology & Public Policy*, 7, 4 (2008), pp. 619-627.

Smith, M. R., et al. *A Multi-Method Evaluation of Police Use of Force Outcomes: Final Report to the National Institute of Justice.* (Washington, DC: U.S. department of Justice, 2010).

_____. "The Impact of Conducted Energy Devices and Other Types of Force and Resistance on Officer and Subject Injuries." *Policing: An International Journal of Police Strategies and Management,* 30, 3 (2007), pp. 423-446.

Standing Advisory Subcommittee on the Use of Force. *Analysis and Recommendations for the Quebec Police Practice on the Use of Conducted Energy Devices*. (Quebec City, Quebec: Government of Quebec, 2007).

Stenning, P. *Police Use of Force and Human Rights*. Summary Report of the Second Meeting of the International Comparative Research Project on the Use of Force by Police. (Vancouver: Department of Justice Canada regional office, 17th - 20th April, 2002).

Taylor, Bruce and D. J. Woods. "Injuries to Officers and Subjects in Police Use-of-Force Cases: A Quasi-Experimental Evaluation." *Police Quarterly,* 13, 3 (2010), pp. 260-289.

Taylor, B., et al. *Comparing Safety Outcomes in Police Use-of-Force Cases for Law Enforcement Agencies That Have Deployed Conducted Energy Devices and a Matched Comparison Group That Have Not: A Quasi-Experimental Evaluation*. (Washington, DC: Police Executive Research Forum, 2009).

Terrill, W. "Police Use of Force: A Transactional Approach." *Justice Quarterly,* 22, 1 (2005), pp. 107-38.

_____. "Police Use of Force and Subject Resistance: The Micro Process of the Police-Subject Encounter." *Police Quarterly*, Vol. 6, 1 (2003), pp. 51-83.

_____. *Police Coercion: Application of the Force Continuum*. New York: LFB Scholarly Publishing. 2001.

Terrill, W., et al. "A Management Tool for Evaluating Police Use of Force: An Application of the Force Factor." *Police Quarterly,* 6 (2003), pp. 150.

Terrill, W., et al. "Examining Police Use of Force: A Smaller Agency Perspective." *Policing: An International Journal of Police Strategies & Management,* 31, 1 (2008), pp. 57-76.

Terrill, W., and E.A. Paoline III. "Less Lethal Force Policy and Police Officer Perceptions: A Multisite Examination." *Criminal Justice and Behavior.* 40, 10 (2013), pp. 1109-1130.

Terrill, W., et al. *Final Technical Report Draft: Assessing Police Use of Force Policy and Outcomes.* (Washington, DC: U.S. Department of Justice, 2012).

Terrill, W, and M.D. Reisig. "Neighborhood Context and Police Use of Force." *Journal of Research in Crime and Delinquency,* 40, 3 (2003), pp. 291-321.

The Force Options Research Group (2000). *A Less Lethal Options Program for Seattle Police Department*. http://www.seattle.gov/police/publications/forg/forg_report.pdf [Accessed June 10, 2014].

Thompson, B. and J. Lee. "Who Cares if Police Become Violent? Explaining Approval of Police Use of Force Using a National Sample." *Sociological Inquiry,* 74, 3 (2004), pp.381 - 410.

Toronto Police Services. *Use of Force Committee: Final Report*. 1998. http://www.torontopolice.on.ca/publications/files/reports/1998useofforce.pdf. [Accessed: June 26, 2014].

_____. *Professional Standards Annual Report, 2012*. http://www.torontopolice.on.ca/publications/files/reports/prs2012annualreport.pdf [Accessed, September 2, 2014).

Toronto Police Services. *Annual Statistical Report, 2012.* http://www.torontopolice.on.ca/publications/files/reports/2012statsreport.pdf [Accessed, September 2, 2014).

Travis, Jeremy, et al. *Use of Force by Police: Overview of National and Local Data.* (Washington, DC: U.S. Department of Justice: National Institute of Justice. NCJ 176330, 1999).

U.S. Department of Justice. *Use of Force by Police. Overview of National and Local Data*. (Washington, DC: U.S. Department of Justice, 1999).

Vilke, Gary M., et al. "Excited Delirium Syndrome (EXDS): Defining Based on a Review of the Literature." *The Journal of Emergency Medicine,* 43, 5 (2012), pp. 897-905. Retrieved from: http://www.jem-journal.com/article/S0736-4679(11)00196-X/abstract. [Accessed: June 26, 2014].

Westley, William. "Violence and the Police." *American Journal of Sociology,* 59, 1 (1953), pp. 34-41.

Wolf, R., et al. "Police Use of Force and the Cumulative Force Factor." *Policing: An International Journal of Police Strategies & Management,* 32, 4 (2009), pp.739-757.

Wortley, S. *Police Use of Force in Ontario: An Examination of Data from the Special Investigation Unit.* (Toronto: African Canadian Legal Clinic, nd).

Appendix A: List of Statements, List of Variables and Sources on the Use of Force

The following is a screen capture of an original, relational database created in MXExcel format.

Classes of Variables	Classes of Variables (2)	Variables	Measures	Measures (2)	Studies	Questions	Correlated with
A) Officer	1. Characteristics of the Officer				Alpert & Dunham (2004)	What were the officer characteristics and actions taken against the suspect?	Actions taken against the suspect
		Age of the Officer	30 years of age or under		Alpert et al. (2004)	What level of force is used by the police – not whether force was used?	Level of force
			30 years of age or over				
			measured in years		Avdi S. (2013)	What factors best predict the likelihood that police officers would use force on a suspect?	Likelihood that police officers would use force
					Chapman (2012)	Police officers who patrol in predominantly minority communities, to what extent educational level as well as other demographic factors (age, gender, and years of experience), are related to Officers' perspectives on the use of force?	Officers' perspectives on the use of force?
		Gender of the Officer			Klahm & Tillyer (2010)	What is the gender of the officer?	Use of force

			Male		Hickman & Garner (2008)	What factors are associated with increased rates of police use of force?	Increased rates of police use of force
			Female				
		Ethnicity of the Officer	White		Alpert et al. (2004)	What level of force is used by the police – not whether force was used?	Level of force used
			Visible Minority	Black			
				Hispanic			
					Klahn &Tillyer (2010)	What is the race/ethnicity of the officer? How does the difference in race/ethnicity between the officer and subject effect the level of force used?	Level of force used
		Height of the Officer			Garner & Maxwell (1999)(2002), Johnson (2001)	What is the relationship between the height of the officer and the level of force used? What is the effect of the height difference between subject and officer on the level of force used? (Garner)	Level of force used
		Level of Education of the Officer	High school		Chapman (2012)	Police officers who patrol in predominantly minority communities, to what extent to which educational level as well as other demographic factors (age, gender, and	Officer's perspective on use of force

						years of experience), are related to officers' perspectives on the use of force?	
			Associate's degree (2 year college)				
			Bachelor's degree	Type of major program			
			Master's degree				
			Other specialised training or education	Years of college			
					Klahn & Tillyer (2010)	What was the officer's level of education?	Use of force
					Rydberg & Terrill (2010)	What is the effect of an officer's education level on his or her propensity to arrest, search, and use force?	Propensity to arrest, search, and use force
						If there are significant educational effects in more than one outcome, where is the influence the strongest?	
		Level of experience of the Officer	0-2 years of experience as an Officer	New Officer	Alpert et al. (2004)	Police officers who patrol in predominantly minority communities, to what extent to which educational level as well	Use of force

						as other demographic factors (age, gender, and years of experience), are related to officers' perspectives on the use of force? (Chapman)	
			2-over years of experience as an Officer				
					IACP (2012)	What is the experience of the police officers involved in use of force incidents?	
		Type of training completed by the Officer	General		Lee et al. (2010), Angel et al. (2012)	What effect do organizational (training) factors have on the prevalence/intensity of police use of force?	Use of force
			Crisis Intervention/De-escalation Training		Braidwood Commission - BC (2009, a,b,c,d), Howie et al. (2011)	Has the officer received crisis intervention/de-escalation training?	
			Mental Health training		Morabito et al. (2012), Coleman & Cotton (2010) (2014), Coleman (2010)	To what extent does the adoption of crisis intervention teams (CIT) decreases the likelihood of the use of force in encounters with people with mental illness?	Likelihood of the use of force in encounters with people with mental illness
					Compton et al. (2011)	Do CIT trained officers select lower levels of force than non-CIT trained officers?	Level of force used

						Do CIT trained officers identify nonphysical actions as more effective than non-CIT trained officers?	Type of force used
						Do CIT trained officers perceive physical force as less effective in an escalating psychiatric crisis compared to non-CIT trained officers?	Type of force used
			Training non-violent and non-lethal responses		Howie et al. (2011), Lee et al. (2010)	What effect do organizational (training) factors have on the prevalence/intensity of police use of force?	Prevalence/intensity of use of force
			Training in communication and negotiation.		Howie et al. (2011), Lee et al. (2010)		
			Training use of force		Howie et al. (2011), Coleman & Cotton (2010) (2014), Lee et al. (2010)		
			CEW Training		Coleman & Cotton (2010) (2014), Coleman (2010)	Was the officer currently in training and certified to use the CEW?	
					Bulman (2011)	Can new technologies (e.g. CEW) decrease injuries to both the police and the suspect?	

		Job Characteristics of the Officer	Assigned shifts		Brandl and Stroshine (2012)	To what extent do the police Officer's background characteristics, job characteristics and arrest activity explain any variation in the frequency with which Officers use force?	Frequency of use of force
			Number of arrests made by the Officer				
			Number of complaints received				
			Number of UOF incidents in which the Officer was involved in a given year (2010)				
			Type of the department				
			Calls-for-service				
			Ethnicity demographics				
			Number of use of force incidents				
			Numbers of force related incidents				

			Complaint resolution				
			Types of less-than-lethal weapons authorized				
			Use of force training and policies in place				
			Administrative policies for use of force complaints.				

Classes of Variables	Classes of Variables (2)	Variables	Measures	Measures (2)	Studies	Questions	Correlated with
A) Officer	2. Officer knowledge & perception				Hall & Butler (2007), Hoffman (2004)	What are the factors the police officer needs to know before using force on a subject?	Use of force
		Officer anticipated violence			Terrill & Reisig (2003)	Was violence anticipated?	Use of force
						How successful is the force factor methodology to understand the police use of force?	Force factor methodology
		Police assessed Subject comorbidities	Alcohol intoxication		Hall & Votova (2013)	What is the relationship between the police-assessed subject comorbidities at the	Type of force used

		at the scene				scene and the type of force used?	
			Drug intoxication				
			Emotional distress/mental illness,				
			No comorbidities				
			Unknown				
		Officer's prior Knowledge of Location	No prior knowledge		Garner & Maxwell (1999)(2002), Terrill & Reisig (2003)	Do officers exercise force differently in some neighbourhoods as opposed to others?	Use of force
			Location believed to be non-threatening				
			Location known for criminal activity				
			Location believed to be hazardous to police				
		Officer's prior knowledge of Subject	No prior knowledge		Garner & Maxwell (1999)(2002)	How does the officer's prior knowledge of the subject and location effect his/her decision to use force?	Use of force

			Affiliated gang member				
			Confirmed gang member				
			Believed to be carrying weapons			Did the officer/subject use, display or threaten to use a weapon?	Use of force
			Believed to have a criminal record			How does the officer's prior knowledge of the subject and location effect his/her decision to use force?	Use of force
			Believed to be cooperative				
			Believed to be assaultive				
			Mental health		Office of the Chief Coroner (Ontario) (2014)	How did the police use force against persons whom are known to be mentally ill?	Use of force
		Social media (video recording)	Body-worn cameras on police Officers	Yes	Ariel (2013)	What are the effects of body-worn cameras on police use of force?	Use of force
				No			
			Video recording by public	Yes	Brown (2013)	What is the impact of public journalism on police use of force?	Use of force
				No			

			CEW Video Recording	Yes	Office of the Chief Coroner (Ontario) (2013), Eligon/Jardine-Douglas/Klibingaitais	Recommends body worn cameras and expert assessment of recordings	Recording CEW occurrence and mental ill person
				No			

Classes of Variables	Classes of Variables (2)	Variables	Measures	Measures (2)	Studies	Questions	Correlated with
A) Officer	3. Use of force by the Officer	Physical Force	(a) submission holds		Alpert & Dunham (2000), Chapman (2012), Garner & Maxwell (1999)(2002)	What was the type of force used by the officer?	
			(b) pressure point controls			Did police use physical force? Did police use or threaten force?	
			(c) nightsticks or batons			Is there a relationship between the subject's initial behaviour and the officer's response?	Subject's initial behaviour
			(d) impact weapons			Is the police force meeting its obligations and principle when it comes to the police use of force?	
			(e) chemical agents				

			(f) less-than-lethal bean bags (all with response options of 0, 1-2, 3-4, 5-6, 7+)				
			Physical control	Hard	Nova Scotia Department of Justice (2014)	What information are the police required to report?	
				Soft			
		Weapon used	Lethal	Firearm	Howie et al. (2011), Garner & Maxwell (1999)(2002), IACP (2001a), Delgado (2011)	Did the officer/suspect use, display to threaten to use a weapon?	
			Non-Lethal	Tasers (CEW)			
				Batons			
			Electronic				
			Impact				
			Chemical	OC spray/foam	MacDonald et al. (2009)	Is OC spray associated with the risk of injury to officers and/or suspects in use of force encounters?	Risk of injury to officers and/or suspects
						Is the use of OC spray associated with the odds of injury to police officers?	Injury to officers

						Is the use of OC spray associated with the odds of injury to civilians?	Injury to civilians
		Conducted Energy Weapon (CEW)	CEW Behaviour threshold for Deployment		Commission for Public Complaints Against the Royal Canadian Mounted Police (2012), Braidwood Commission - BC (2009,a,b,c,d), Saskatchewan (2012)	What factors account for whether or not the CEW is actually deployed (using either probes or stun mode)?	
			CEW Duration of Discharge			What are the relevant [incident] circumstances surrounding the CEW usage? Was the subject exhibiting behaviours of an emotionally disturbed or mentally ill person?	Subject exhibiting behaviours of an emotionally disturbed or mentally ill person
			CEW deployment type			What factors determine whether or not a subject, following an incident involving CEW deployment, is classified as injured or is offered medical transportation by the reporting RCMP member?	Subject classified as injured or is offered medical transportation
			CEW RCMP duty type				

			CEW RCMP Member rank				
			CEW threatened versus deployed				
			CEW Medical attention				
			CEW Number of occurrences				
			CEW Number of RCMP Members present				
			CEW use		Smith et al. (2010)	How did the use of the CEW impact upon injuries to officers and citizens?	Injuries to officers and citizens
			CEW deployment			Whether equipping officers with CEWs reduced injuries to officers or citizens compared to injury levels before CEWs were put into use	Injuries to officers and citizens
			CEW training			Should the officers provided with CEWs be shocked with the device during training or what effect such exposure may have on an officer's use of a CEW?	Officer training

			CEW use		MacDonald et al. (2009)	Is CEW use associated with the odds of injury to police officers?	Injury to officers
						Is CEW use associated with the odd of injury to civilians?	Injury to civilians
		Force Modality	Physical /stubs/strikes		Hall & Votova (2013)	What was the type of restraint modality used, all sites, all events?	
			Hobble				
			Vascular Neck Restraint				
			"oc" spray				
			Firearm pointed				
			ARWEN/BeanBag Rounds				
			Spit Hood				
			Police Canine (K9)				
		Level of physical force	2 for submission holds		Chapman (2012)	Police officers who patrol in predominantly minority communities, to what extent to which educational level as well as other	Patrol in predominantly minority communities, educational level, other demographic factors (age, gender, and years of

						demographic factors (age, gender, and years of experience), are related to officers' the use of force?	experience)
			3 for pressure point controls				
			5 for nightsticks, batons, fists, or impact weapons				
			6 for chemical agents or less-than-lethal bean bag				
			10 for deadly force				
					Garner & Maxwell (1999)(2002)	How much force is used? What level of force is used by the police?	
						What is excessive force? How does excessive force relate to the forms of violence and misconduct by police?	Violence and misconduct by police
					Lee et al. (2010)	What effect do individual level factors have on the prevalence/intensity of police use of	Individual level factors

						force?	
			0 = no force		Johnson (2011)	Is there evidence that force is used disproportionately against individuals with a mental disorder?	Physical resistance by a subject with a mental disorder
			1 = arm or wrist holds			Are mentally disordered suspects more likely than those without mental disorders to physically resist police officers?	
			3 = wrestling			Is suspect mental disorder a significant predictor of police use of force after controlling for suspect resistance and other relevant factors associated with use of force?	
			4 = punches or kicks				
			5 = chemical spray				
			6 = baton or flashlight strikes				
			7 = firearm threatened or used				

		Dominant and Accommodating force	Subject's level of resistance		Alpert et al.(2004), Garner & Maxwell (1999)(2002)	Is there a relationship between the subject's initial behaviour and the officer's response?	Subject's initial behaviour and the Officer's response?
			Officer's level of force				
					Terrill et al. (2007)	What is the extent of officer use of force and suspect resistance?	Use of force and suspect resistance
			Traffic stop				
			Drunk/Disorderly				
			Investigation				
			Disturbance				
			Investigation				
			Prisoner Transport				
			Arrest				
					Alpert et al. (2004), Hall & Votova (2013)	What level of force is used by the police? What is the relationship between the officer use of force and the nature of the encounter?	Nature of the encounter
		Nature of the call	Crime in Progress		Juneau (2013)		Use of force

			Domestic Violence incident				
			Person with a gun				
			Person with edged weapon				
			Robbery/burglary				
			Property offence				
			Stolen vehicle				
			Weapon		Hall & Butler (2007), Hall & Votova (2013), Hall et al. (2013)	What was the nature of the police call? What are the police-assessed subject disorders at the scene? What are the present features of excited delirium?	Police-assessed subject comorbidities or excited delirium
			Disturbance				
			APU event				
			Intoxicated (drugs and/or alcohol)				
			Domestic				
			Vehicle related				
			Unknown				

			Other call				
			Mental Health				
			Assault				
			B&E				
					Lee et al. (2010)	What effect do contextual factors have on the prevalence/intensity of police use of force?	Prevalence/intensity of police use of force
					Alpert et al. (2004)	What was the nature of the police call?	Use of force
		Officer Injuries	Officer injuries	Yes	Taylor et al. (2009)	What effect does law enforcement agencies' deployment of CEWs have on officer safety?	Deployment of CEW
				No		What effect does law enforcement agencies' deployment of CEWs have on suspect safety	
			Injury requiring medical attention	Yes			
				No			
			Injury requiring hospitalization	Yes			

				No			
					Smith et al. (2007)	To examine the effects of officer force, suspect resistance, and other situational variables on injuries, irrespective of the individual-level characteristics of the participants.	Officer force, suspect resistance, other situational variables
		Use of force guidelines			Delgado (2011)	Has the police force established a practical model to assess use of force policies and practices?	Use of force practices

Classes of Variables	Classes of Variables (2)	Variables	Measures	Measures (2)	Studies	Questions	Correlated with
B) Subject	4. Characteristics of the Subject	Age of the Subject			Avdi S. (2013), Johnson (2001), Chapman (2012), Garner & Maxwell (1999)(2002), IACP (2001), Juneau (2013),Klahm & Tillyer (2010)	What is the age of the subject?	Use of force
		Gender of the Subject				How does the gender of the subject affect the type and level of force used?	Type and level of force

		Ethnicity of the Subject			Klahm & Tillyer (2010)	What is the race/ethnicity of the subject? How does the difference between the ethnicity of subject and Officer affect the subject's use of force?	Subject's use of force
		Height of the Subject			Johnson (2001)	What is the relationship between height and level of force used?	Level of force used
		Level of education of the Subject	High school		Chapman (2012), IACP (2001)	What is the subject's education?	Use of force
			Associate's degree (2 year college)				
			Bachelor's degree	Type of major or program			
			Master's degree	Type of major or program			
			Other specialised training or education	Years of college			
					Paoline & Terrill (2007)	What effect does officer education have on their use of coercion?	Use of coercion
						What effect does officer experience have on their use of coercion?	

		Subject is associated with a Gang	Yes		Garner & Maxwell (1999)(2002)	Are officers more likely to use force against a subject who is known to be associated with a gang?	use of force
			No				
		Subject impairments	Drugs	Yes	Alpert & Dunham (2004), Garner & Maxwell (1999)(2002)	Was the subject under the influence of alcohol and/or drugs?	Use of force
				No		What was the effect of alcohol and or drug impairment on suspect behaviour?	
			Intoxication (Alcohol)	Yes	Alpert & Dunham (2004), Garner & Maxwell (1999)(2002)	Was the subject under the influence of alcohol and/or drugs?	
				No		What was the effect of alcohol and or drug impairment on subject behaviour?	Subject behaviour
			Not using prescribed medication	Yes	Atherley & Hickman (2014), Hickman & Atherley (2012)	How the interactions are distributed in terms of both suspect and officer actions?	Use of force
				No			
			Delusional	Yes			
				No			

		Subject known to be assaultive or resistive	Yes		Garner & Maxwell (1999)(2002)	What are the circumstances under which force is used to accomplish an arrest?	Use of force
			No				
		Subject known to have criminal record	Yes			Are officers more likely to use higher level of force against subjects who have a previous (known) criminal record?	Level of force
			No				
		Level of injury to Subject	Requiring medical treatment		Hall & Votova (2013), IACP (2001),	What was the subject injury? The level of injury assessed against the level of subject resistance and characteristics of the incident.	Level of Subject resistance and characteristics of the incident.
		Type of Mental illness of the subject	Schizophrenia		IACP (2001), Johnson (2011), Juneau (2013)Kaminski, et al. (2004), Kesic et al. (2013), Morabito et al. (2012),	First, is there evidence that force is used disproportionately against individuals with a mental disorder? Second, are mentally disordered subjects more likely than those without mental disorders to physically resist police officers? Third, is subject mental disorder a significant predictor of police use of force after controlling for subject resistance and other relevant factors associated with use of force?	level of force

			Emotionally disturbed			To what extent is the use of nonfatal force used against individuals suffering from mental illness? To what extent are mentally ill likely to be injured by the police?	Use of force, Subject injury
			Heightened emotion		Terrill & Reisig (2003)	Did the subject display a heightened state of emotion as manifested in terms of fear or anger?	Use of force

Classes of Variables	Classes of Variables (2)	Variables	Measures	Measures (2)	Studies	Questions	Correlated with
B) Subject	5. Subject behaviour	Threatening behaviour			Alpert & Dunham (2000), Braidwood Commission - BC (2009, a,b.c.d), Greenfeld et al. (1998), Garner & Maxwell (1999) (2002), Juneau (2013), Kaminski et al. (2004), Kesic et al. (2013), Office of Police Integrity, Victoria, Australia (2009)	What was the subject's behaviour (before, during and after the use of force encounter)? Is there a relationship between the suspect's initial behaviour and the officer's response (use of force)?	Use of force
		Not threatening					
		Upset/agitated/ angry					

		Verbally abusive					
		mild struggling					
		Combative/ assaultive					
		Cooperative			Commission for Public Complaints Against the Royal Canadian Mounted Police (2012)	Is there a correlation between subject behaviour and type of force used?	Use of force
		Passive resistant					
		Active resistance					
		Assaultive					
		Intention of death or grievous harm directed at Officer			Nova Scotia Department of Justice (2014)	What information are the police required to report?	Use of force
		Officer Assaulted			Braidwood Commission - BC (2009, a,b,c,d)	Was the officer assaulted?	Level of force used
		Potential Attack Signs (displayed by Subject)	Ignoring the Officer		Braidwood Commission - BC (2009, a,b,c,d)	Is there a relationship between potential attack sign displayed by the subject and the level of force used by the officer?	Level of force used

			aggressive verbalization				
			refusing to comply with a lawful request				
			invasion of personal space				
			Hiding				
		Disrespect	Calling the Officer names		Terrill & Reisig (2003)	Are the officers more likely to use force if the subject is being disrespectful to the officer?	use of force
			Making derogatory statements about the Officer or his family				
			Disparaging or belittling remarks				
			Slurs				
			Displaying the middle finger in the direction of the police				
			obscene gestures				

		Level of Subject's resistance	No resistance		Alpert & Dunham (2000) (2004)	What was the level and type of subject resistance?	use of force
			Attempting to flee				
			Resisting arrest				
			Assaulting Officer				
		Type of force used by Subject	Physical force	Trained fighting skills	Office of Police Integrity, Victoria, Australia (2009)	What was the type of force used against the officer?	Use of force
				Gouge/bite			
				Grapple/wrestle			
				pain compliance grip			
				Punch			
				Head butt			
			Weapon used/possessed	possessed	Garner & Maxwell (1999)(2002), Klahm & Tillyer (2010)	Was the subject in possession of a weapon? If so, what type of weapon? Was the weapon used against the officer? Self? Others?	Use of force
				displayed			
				threatened			

				used			
			Type of weapon	Edged weapon			
				Chemical weapon			
				Electronic weapon			
				Motor vehicle			
				Other			
		Level of force used by Subject	0. No Resistance		Hall & Butler (2007), Johnson (2001),	What was the level and type of resistance offered by the subject effect the use of force by the officer?	Use of force by Officer
			1. Psychological Intimidation				
			2. Verbal Non-Compliance				
			3. Passive Resistance				
			4. Defensive Resistance				
			5. Active Aggression				
			6. Firearms/Deadly Force				

Classes of Variables	Classes of Variables (2)	Variables	Measures	Measures (2)	Studies	Questions	Correlated with
C) Incident	6. Characteristics of the incident	Time of the incident	Morning		IACP (2001), Juneau (2013)	Where and at what time did these incidents occur? Are officers more likely to use force during incident which occur after dark?	Likelihood of use of force
			Afternoon				
			Night				
		Date of the incident					
		Number of Officers involved in the incident	Duty Status of the Officers involved in the incident			Multiple officers?	Use of force
			Type of assignment				
		Number of Subjects involved in the incident				Multiple subjects?	
		Number of third parties involved in the incident				Third parties?	
		Location of the incident				Location of incident?	

		Bystanders	Citizen audience		Terrill & Reisig (2003)	How does the presence of bystanders affect the officer/subject's use of force?	Use of force
			Officer audience			How does the number of officers present at the time of the incident affect the level of force used?	Level of force
		Level of Visibility due to weather conditions at the time of the incident	Excellent		Crow & Adrion (2011), Garner & Maxwell (1999) (2002)	How does the time of the incident effect the officer's decision to use force as it relates to the availability of backup, visibility, and other constraints associated with the characteristics of the incident?	Use of force
			Good				
			Moderate				
			Poor				
		Complaint filed			Plecas (2010)	How many use of force complaints are made against RCMP members in B.C.?	Use of force
		Code of Conduct violations				What are the nature and extent of recent Code of Conduct allegations against RCMP members in B.C.	Use of force

Classes of Variables	Classes of Variables (2)	Variables	Measures	Measures (2)	Studies	Questions	Correlated with
C) Incident	7. Characteristics of Interaction of Officer and Subject	Difference in Officer and Subject Ages			Johnson (2001)	What are the correlates between the characteristics of interaction of officer and subject and police use of force?	Use of force
		White Officer Black Subject					
		White Officer Hispanic Subject					
		Difference in Officer and Subject Height					
		Difference in Officer and Subject Weight					
		Officer and Subject Both Male					
		Barriers between Officer and subject			Luther (Sudden Deaths Of Norman Reid and Darryl Power) (2003)		

		Type of Injuries by Officer or Subject as a result of the incident	Pain		Garner & Maxwell (1999)(2002), Office of Police Integrity, Victoria, Australia (2009)	What were the injuries to the officer? Is there a relationship between the characteristics of the incident (location, time, etc.) and the level of injury by officer or subject? What were the injuries to the subject? What is the relationship between the nature of call and level of injury to the subject or officer?	Characteristics of the incident (location, time, etc.), nature of call
			Strained Muscle				
			Temporary Chemical Irritation				
			Bruise				
			Puncture				
			Burn				
			Gunshot				
			Internal Injuries				
			Concussion/Loss of Consciousness				
			Scratch				
			Broken Bone or Teeth				

			Knife Wound				
			Abrasion				
			Other Injury (specify)				
		Level of injury by Officer or Subject as a result of the incident	no visible injuries				
			minor-no treatment required				
			serious - medical treatment required				
			major-hospitalized				
			deceased				

Appendix B: Research Instruments

The Collection and Analysis of Police Use of Force Data

Objectives

Project objectives are as follows:

a) Develop a list of the most frequently asked and significant research questions regarding the use of force by, and against, police;

b) Identify what data needs to be collected to enable valid and reliable analysis at an aggregate level across agencies and jurisdictions.

Develop suggested approaches for analytical methods to present reliable and systematic analysis of interactions between officers and subjects in use of force encounters. The use of this information should be provided in a manner that can be used by trainers and operational policy makers.

To complete this work, the researchers will review published academic and institutional reports, recommendations of provincial or federal inquiries, conduct interviews with selected experts and key stakeholders, and review any internal analyses and documents they provide.

Methodology and Approach

Document Review: Scholarly Journals and Government Reports

To meet the first objective, the Project Team will conduct a substantial review of documents, articles, and other reports on police use of force dated between 2000 and 2014, to identify the key research or inquiry questions, the methodology, and the variables and units of measurement used.

The document review will include the following sources:

- Academic and peer-reviewed articles which will be identified through various database searches (e.g., sociofile, google scholar, social science citation index, and the Inter-University Consortium for Political and Social Research on police use of force) using key word searches (e.g., “use of force+police,” “police use of force” “law enforcement use of force” and “police-citizens encounters” etc.);
- “Grey literature” (e.g., conference paper indexes, bibliographic citations, dissertation abstracts);
- Select websites and blogs; and
- Documents/information identified by stakeholders (i.e., policing policy officials, policing experts). These would include national and provincial use of force frameworks, policies and guidelines etc.

Stakeholder Engagement

To help ensure that the document review is as comprehensive as possible, and to obtain further insight into the information gathered, input will be sought from a variety of stakeholders, including:

- The Federal/Provincial/Territorial (FPT) Working Group on Use of Force;

- Policing stakeholders (e.g. the Royal Canadian Mounted Police, The Canadian Association of Chiefs of Police (CACP) Use of Force Committee, the Commission for Public Complaints Against the RCMP, etc.; and
- Other experts as identified with assistance from the stakeholders listed above.

To facilitate engagement, an initial list of questions will be provided for completion for each target audience. Questions for the FPT Use of Force Working Group are listed at the end of this document. Select follow up interviews will be undertaken where required.

Input from stakeholders will focus on:

- Reviewing the bibliography (list of references identified at Annex A) to ensure that it is as complete as possible;
- Identifying key stakeholders who could provide expertise to the Project Team, for example:
    - Use of force trainers
    - Supervisors
    - Those responsible for reviewing/developing use of force policies at the operational level
- Those responsible for reviewing, maintaining data on use of force;
- Reviewing and providing input to research questions (Annex B) and variables (Annex C) related to use of force to ensure they are as complete as possible; and
- Providing feedback on the draft report and discussion of analytical methods once available.

Project Deliverable

The final deliverable will constitute a report that will include the information from the review of the literature (a maximum of 25 pages) and an annex containing the document review with the list of variables.

The Collection and Analysis of Police Use of Force Data

Research Instrument

Instructions

Please review the documents listed below before answering the questions identified in this document.

- A list of bibliographic references on police use of force (Annex A).
- A list of statements drawn from these documents that outline the research question, hypothesis being tested, or operational concern of the document (Annex B).
- A list of variables that would need to be collected to respond to each of these statements (Annex C).

You may provide your responses in the space under each question or in a separate document. Please refer to the question number if using a separate document.

Your participation is anonymous; any information will not be attributed to you personally. You are asked to send copies of any documents, internal reports, briefing notes etc. related to police use of force. Most of this information will be public documents, although the Project Team has a level of security clearance to assure secure handling of any internal or restricted documents. It is important to point out that all information (e.g., follow up interview notes and documents) will be stored in a locked cabinet and only the researchers will have access to the raw interview materials. The information that is provided will be destroyed at the end of the project. Only the researchers will have access to the completed forms.

Once you have completed this document, please send your responses and any documents by email to [redacted]. If documents are larger than 5 MB, they may need to be zipped or split into smaller documents. If you have any questions or problems sending the information please call John Kiedrowski at [redacted].

Your comments are important to us. Should you have any questions please contact me any time at [redacted]or by email at [redacted].

If you have any questions regarding the project, you may also contact [redacted] Community Safety and Countering Crime Branch at [redacted]or by email at [redacted] [redacted] or by email at [redacted].

Sincerely yours,

John Kiedrowski, M.A. CRM.

President

Compliance Strategy Group (CSG)

FTP Use of Police Force Working Group

Bibliographic References

In this section, you will be asked to provide comments on the list of references identified on police use of force as well as identify policing personnel that have expertise in use of force curriculum design or development and policy analyst/research.

References on Use of Force

Please review Annex A entitled “References - The Collection and Analysis of Police Use of Force.” Upon reviewing these references, please respond to the following questions:

1. Are you aware of any important public documents on the police use of force that are missing from the list?

   Public documents could be things such as published reports, peer review articles, doctorate dissertations or student Master’s thesis, articles published in magazines, etc.

   If yes, Please provide a copy of these documents

   OR,

   Please provide reference information to allow us to obtain a copy.

Name of Article/Source	Name of Person/Organization to get a copy	Telephone number(s)	Email address(s)

2. Are there any other reports on judicial inquiries, coroner’s inquests, or federal/provincial studies/reviews on police use of force which should be included?

   If yes, please provide a copy of these documents.

   OR

   Please provide a contact name, organization, telephone number or a reference to enable us to access this document.

Contact Name	Organization	Telephone Number	Email address(s)

3. Do you have any internal documents or use of force guidelines/policies that can be released for review and cited in this project? Internal documents could be things such as annual reports, briefing/issues notes, presentations to commissions, etc.

   If yes, please provide a copy of these documents.

   OR

   Please provide a contact name, telephone number or a reference to enable us to access this document.

Name	Position	Telephone Number	Email address(s)

Contacts for Police Use of Force Experts

As part of this study, there will be a need to contact individuals who have expertise in the police use of force in your jurisdiction. To help identify the appropriate contacts, please answer the following questions:

4. Beyond members of the FPT Use of Force Working Group, can you provide the names of any other individuals working for the provincial government who are responsible for policies, research or guidelines on police use of force?

   Please provide the name, position, employer, telephone and email address to enable us to make contact.

Name	Position	Employer	Telephone Number	Email address(s)

5. Can you please provide the names of police officers/civilians who are involved in the development or design of use of force curricula (e.g., training) in your jurisdiction?

   Please provide the name, position, employer, telephone and email address to enable us to make contact

Name	Position	Employer	Telephone Number	Email address(s)

6. Can you please provide the names of police officers or civilian police service members who are involved in the policy development or analysis of data or information related to use of force? Their responsibilities might include such tasks as preparing reports on the use of force, collecting the data from use of force reports, running analyses on use of force data, etc.

   Please provide the name, position, employer, telephone and email address to enable us to make contact

Name	Position	Employer	Telephone Number	Email address(s)

List of Statements / Research Questions to Capture and Measure the Police Use of Force

You should have received an attached file named “List of Research/Inquiry Questions” (Annex B) that provides a list of statements that were identified from reviewing various documents on police use of force. Please review this file.

7. Has the project Team identified all the relevant research questions on police use of force?

   If no, can you please provide additional question(s) that need to be included? Please provide your comments in the space below:

   If applicable, can you provide the source or reference(s) that explored the research question(s) you identified above?

Title	Journal/Publication	Year, volume, page #	Url link

List of Variables on Police Use of Force

You should have received an attached file named “List of Variable Names” (Annex C) that provides a list of variables that were identified from reviewing various documents on police use of force. Please review this file.

8. Has the Project Team identified all the relevant variables that capture or measure police use of force?

   If no, can you please provide the variable(s) that need to be included? Also, how is the variable defined or measured?

Name of Variable	Operational Definition	Unit of Measurement

9. Can you provide any sources or references for this variable(s)?

Title	Journal/Publication	Year, volume, page #	Url link

10. Do you have any comments or suggestions on the research questions or police use of variables? Please provide your comments in the space below:

Thank you in advance for your feedback

Please send your responses directly to John Kiedrowski at Compliance Strategy Group by Friday April 4, 2014. Information can be forwarded by email to [redacted] or [redacted]. Should there be any questions related to the feedback requested please call [redacted].

Police Experts on Use of Force

Bibliographic References

In this section, we ask you to comment on the list of references on police use of force provided. We also ask that you identify policing personnel with expertise in use of force curriculum development, or the design of policy analysis or research projects.

References on Use of Force

Please review the attached document (Annex A) called: “References - The Collection and Analysis of Police Use of Force.”

1. Are you aware of any important public documents on the police use of force that we are missing?

   Public documents could be include published reports, peer review articles, doctoral dissertations or master’s theses, articles published in magazines, etc.

   a) If yes, please provide a copy of these documents

   OR,

   b) Please provide reference information to allow us to obtain a copy.

Name of Article/Source	Name of Person/Organization to get a copy	Telephone number(s)	Email address(s)

2. Are you aware of any reports on judicial inquiries or coroner’s inquests on police use of force that we may be missing?

   a) If yes, please provide a copy of these documents.

   OR

   b) Please provide a contact name, organization, telephone number or a reference to enable us to access this document.

Contact Name	Organization	Telephone Number	Email address(s)

3. Are we missing any internal documents or guidelines that can be released for our review and cited in this project?

   Internal documents could include annual reports, briefing notes to management, court or tribunal submissions, presentations to commissions on the use of force, etc.

   a) If yes, please provide a copy of these documents.

   OR

   b) Please provide a contact name, telephone number or a reference to enable us to access this document.

Name	Position	Telephone Number	Email address(s)

List of Statements to capture and measure the police use of force

You should have received an attached excel file (Annex B) that provides a list of statements that were identified from reviewing various documents on police use of force. Please review this document to answer these questions.

4. Have we identified all the relevant research questions on police use of force?

   a) If no, please provide additional question(s) we need to include in the space below:

   If applicable, please provide the source or reference(s) that explored the research question(s) you identified.

Title	Journal/Publication	Year, volume, page #	URL link

List of Variables on Police Use of Force

You should have received an attached excel file (Annex B) that provides a list of variables that were identified from reviewing various documents on police use of force. Please review this document to answer these questions.

5. Have we identified all the relevant variables that capture police use of force concerns?

   a) If no, can you please provide the variable(s) we need to include? Here we are only looking for the variables which you collect, or collect differently, that we have missed. When responding, if possible, please indicate how variables are operationally defined and measured.

Name of Variable	Operational Definition	Unit of Measurement

   Please provide sources or references for any relevant variable(s) provided in question 6?

Title	Directives/Report/Journal/Publication	Year, volume, page #	URL link

Collection and presentation of use of force data

Collection of use of force data

This section focuses on questions to help us understand the type of data collected on police use of force and how this data is turned into information which can then be used in provincial reports, presentations, annual reports and other types of documents.

Please generally describe what use of force data you collect and attach copies of the forms or reporting formats you use to do so. There is no need to include actual data or the content of reports. We are interested only in the kinds of variables and units of measurement used and how you structure your collected data.

6. How do you capture subject use of force within the context of the police-subject encounter? Factors that might be of particular interest include whether the subject had a weapon and what type, and whether or not there was resistance and/or attempts to flee.

   a) If yes, please describe in the space below.

b) If no information connecting subject use of force and police use of force is collected, please explain why this is the case in the space below.

7. If your police organization does not collect subject's use of force information, would you please describe any views you may have with regard to the advantages and disadvantages of using such information from other jurisdictions?

   a) List any advantages

   b) List any disadvantages

8. Do you feel that the current use of force measures for the police and subjects are consistent within the province or territories? For example, comparing your police services with another one within your region or province.

   a) If you find that there are significant inconsistencies please note these and describe below any impact they may have had on training curricula or policy analysis in your region.

9. Do you feel that the current use of force measures for the police and subjects are consistent between provinces or territories? For example, comparing your police services with another one in another province.

   a) If you find that there are significant inconsistencies please note these and describe below any impact they may have had on training curricula or policy analysis in your region.

10. Besides the information collected from police use of force reports, are data or information from other internal or external sources used to better understand police use of force?

    External sources could include information from Statistics Canada, hospitals or medical clinics, and paramedics or ambulance staff. Internal sources could include record management or administrative information.

    a) If yes, can you please name as precisely as possible these sources of information?

Type of Source		Name of Source or database
Internal	External	

    b) If no, please provide your comments on why other sources are not be used in the space below:

11. Can you identify additional information or data not currently collected that would be useful in the design of training curriculum or development of policies on the police use of force?

    a) If yes, please provide your comments in the space below:

Presentations on the use of force data

Initial research has found that determinations regarding what use of force data should be collected often depend on the manner in which people believe the use of force information will be used. These questions focus on how the information collected on the use of force is analyzed and present in reports. These might be internal reports for police supervisors, analyses for use of force trainers, comparisons of trends upon the request

of police boards or inquiries, or joint studies conducted with academics using your data, amongst other possibilities.

12. When you compare, analyze or report on use of force incidents do you include incident characteristics?

    Incident characteristics might include the specific geographic location, district, type of neighbourhood, weather conditions, etc.

    a) If yes, please indicate in the space below which characteristics and why.

    b) If no, please explain in the space below why this information is not used in the comparisons, reports or analyses you produce.

13. When you compare, analyze or report on use of force incidents do you include subject characteristics?

    Subject characteristics can include gender, age, demeanour, previous criminal record, known history of mental disorder, use of drugs or alcohol, and signs of extreme agitation, etc.

    a) If yes, please indicate in the space below which characteristics and why.

    b) If no, please explain in the space below why this information is not used in the comparisons, reports or analyses you produce.

14. When you compare, analyze or report on use of force incidents do you include police officer characteristics?

    Police officer characteristics might include such factors as gender, age, rank, length of experience, or level of education.

    a) If yes, please indicate in the space below which characteristics and why.

    b) If no, please explain in the space below why this information is not used in the comparisons, reports or analyses you produce.

15. When you compare, analyze or report on use of force incidents do you include different levels of subject resistance within the context of the police-subject encounter?

    a) If yes, please explain in the space below.

    b) If no, please explain in the space below why different levels of subject resistance is not used in the comparisons, reports or analyses you produce.

16. When you compare, analyze or report on use of force incidents do you include police officer's different levels of use of force against a subject?

    a) If yes, please explain in the space below.

    b) If no, please explain in the space below why police officers different levels of use of force against a subject are not part of used in the comparisons, reports or analyses you produce.

17. When you compare, analyze or report on use of force incidents do you include the interaction patterns between the subject's behaviour and the police officer's response?

Examples of such interactions might include, for example, the number or percentage of subjects that do not offer resistance, the number or percentage of subjects that attempted to flee for each type/degree of force used by the police, or the subject behaviour matched to the degree of use of force used by the police, etc.

a) If yes, please explain in the space below.

b) If no, please provide in the space below your comments on why the interaction pattern between subject's behaviour and the police officer's response is not used in the comparisons, reports or analyses you produce.

18. When you compare, analyze or report on use of force incidents do you include other information between the subject's behaviour and the police use of force?

    Examples of other types of information might be things such as the type of pursuit that police officers engaged in to apprehend the subject.

    a) If yes, please explain in the space below.

    b) If no, please explain in the space below why other types of use of force information is not used in the comparisons, reports or analyses you produce.

19. Are there other ways to capture the subject's use of force?

    a) If yes, please describe other ways to capture this information in the space below.

20. Do you believe use of force data should be used to mainly describe individual use of force incidents or should the data be used to provide insights into general patterns of how the police and subjects use of force?

    Please circle (or highlight) which response more closely matches your views.

    This data should primarily be used to detail the circumstances around individual use of force incidents;

    Or

    This data should primarily be used to generate insights into how police and/or subjects use force.

    a) Why did you answer the way that you did?

21. Do you use any studies on the use of force to help explain factors in terms of their influence on the police officer's decisions to use force during encounters with subjects?

    Studies that you might use in the comparisons, reports or analyses you produce might include such sources as peer reviewed articles, reports from government agencies, and the like.

    a) If yes, is this information used to support/reject the data that you present on the police use of force? Please describe below.

    b) If no, please explain in the space below why this type of information is not used.

22. In the development of your training materials or in your reporting of information on the police use of force, do you ever make anecdotal as opposed to quantitative comparisons of subject and officer use of force? For example, create training materials or policies based on hearsay information provided by some front line police

officers versus create training materials or policies based on data collected and analyzed to that demonstrates the need for training or policies.

a) If yes, please explain why you use an anecdotal approach rather than quantitative information in the space below.

b) If no, please explain in the space below why this type of information is not used.

23. In the development of your training materials or reporting information on the police use of force, do you ever develop case studies?

    a) If yes, please explain the type of information you use to develop your case studies in the space below. In particular, please indicate whether or not you apply insights gained from comparisons, reports or analyses of use of force data.

    b) If no, please explain in the space below why this type of information is not used.

24. In your opinion, will the Department face legal risks in collecting certain types of data on use of force for analysis?

    a) If yes, please explain such risks in the space below.

    b) If no, please explain in the space below why such risks do not exist.

25. Do you have any final comments regarding how use of force data are currently collected and analyzed or any other significant related issue?

26. Can you please provide samples of any use of force analysis that you or your department has produced?

    This can include annual reports, internal documents, presentations, etc.

Contacts for Additional Police Use of Force Experts

As part of this study, we may need to contact other individuals who have particular types of expertise related to the use of force in your jurisdiction. To help identify these contacts we ask you to reply to the following questions:

27. Would you please provide the names of other police officers or civilian staff who are involved in the development or design of use of force training curricula?

    Please provide the name, position, employer, telephone and email address to enable us to make contact.

Name	Position	Employer	Telephone Number	Email address(s)

28. Would you please provide the names of police officers or civilian staff who are involved in the policy development or analysis of data or information related to use of force?

    This might include such tasks as preparing reports on the use of force or compiling the data from use of force reports.

    Please provide the name, position, employer, telephone and email address to enable us to make contact.

Name	Position	Employer	Telephone Number	Email address(s)

Please send your responses to John Kiedrowski at Compliance Strategy Group. You can send the information by email to [redacted] or [redacted]. If the document is larger than 5 MB, it may need to be zipped or split into smaller documents. If you have any questions or problems sending the information please call John Kiedrowski at [redacted].

THANK YOU

Appendix C: Acronyms

ARD	Arrest-Related Data
CACP	Canadian Association of Chiefs of Police
CEW	Conducted Energy Weapon
FF	Force Factor
FPT	Federal/Provincial/Territorial
LOS	List of Statements
LOV	List of Variables
NUFF	National Use of Force Framework (Canada)
OC Spray	Oleoresicum (Pepper) Spray
OPC	Ontario Police Commission
RCMP	Royal Canadian Mounted Police
RFCS	Resistance Force Comparative Scale
TPS	Toronto Police Services
UOF	Use of Force