Development of the interRAI Brief Mental Health Screener to Enhance the Ability of Police Officers to Identify Persons with Serious Mental Disorder

by

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis including any required final revisions, as accepted by my examiners.

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ABSTRACT

Background: Police officers are often the first to respond when persons experience a mental health crisis in the community. They must de-escalate volatile situations involving persons with serious mental disorder (PSMD) and bring the person to the attention of either the criminal justice or mental health care system. It is argued that issues such as repeated police contact, excessive emergency department (ED) wait times, and the criminalization of the mentally ill are evidence that the current system lacks the ability to meet the needs of PSMD. Critics have argued the source of the problem is inadequate police training, and insufficient and poorly organized community mental health services. Others claim that the underlying issue is that the current system for responding to PSMD is dysfunctional. The model is based on the concept that the best way to meet the needs of PSMD is through the integration of systems and services which to date, has remained an impossible goal. Given the current system will not be replaced anytime soon, efforts should be directed toward developing innovative ways to make it easier for the systems to work more effectively together.

Objectives: The major objective of this dissertation was to develop and pilot a new mental health screening form, the interRAI Brief Mental Health Screener (BMHS)* to enhance the ability of police officers to identify PSMD, and to support their decision-making. A second objective was to develop a model that best predicts which persons are most likely to be taken to hospital by police officers and which persons most likely to be admitted. A final objective was to analyze the impact that interacting with PSMD has on police resources in terms of the amount of time police officers spend on mental health related calls for service.

Methodology: Logistic regression analysis was used to identify 14 predictors of serious mental health disorders from 41,019 cases obtained from the main Resident Assessment Instrument for

Mental Health (RAI-MH) database. The RAI-MH is a comprehensive mental health assessment system that is currently used for all persons admitted into a psychiatric hospital in Ontario. Additional clinical, demographic and contextual items were added after consultation with an advisory committee composed of representatives from hospitals and police services resulting in a pilot version of the interRAI BMHS. The County of Wellington and the city of Guelph were selected as the setting for the pilot that included 4 general hospitals, 1 psychiatric facility and the participation of the Ontario Provincial Police (OPP) and the Guelph Police Service. After training police officers to use the new form, the interRAI BMHS was pilot tested over a seven month period commencing May 2011. Hospital records were also accessed to determine patient disposition. Logistic regression was used to develop an algorithm to identify the persons with the highest probability of being taken to hospital by police officers, and those persons who were most likely to be admitted.

Results: Police officers from the two jurisdictions in Ontario completed a total of 235 interRAI BMHS forms. Chi square analysis revealed the most common reasons why police officers take persons to hospital included the person considering performing a self-injurious act in the past 30 days, and family, and others were concerned the person was at risk for self-injury. Intoxication by drugs or alcohol and having symptoms of psychosis were not significant reasons for police officers to take a person to hospital. The variables most associated with being admitted after being taken to hospital, included indicators of disordered, such as lack of insight into their mental health problems, abnormal thought process, delusions and hallucinations. Overall, although the terminology differed, the same patterns emerged in the pilot study that previous research reported. Police officers tend to focus on dangerousness and public safety, while clinicians are concerned with indicators of disordered thought. Logistic regression analysis

revealed that the 14 variable algorithm used to construct the interRAI BMHS was a good predictor of who was most likely to be taken to hospital by police officers, and who was most likely to be admitted. Another important finding was that the reasons why police officers take persons to hospital were not the same as the reasons why persons are subsequently admitted. This suggests the criminal justice, health and mental health systems are not synchronized. The research also revealed that police officers spend a mean time of over three hours overall devoted to calls for service involving PSMD, and a mean time of just over three hours waiting in the ED.

Conclusion: The interRAI BMHS provides useful information for both police officers and ED staff regarding the variables significantly associated with serious mental disorder. It will help support police officer and ED decision-making, and it will contribute to enhancing the training provided to police officers and mental health service providers. Additional research and larger sample sizes will help to further refine the instrument. The interRAI BMHS is based on health system data and written in the language of the health system. As such, it has the potential to both enhance the ability of police officers and other mental health service providers to identify indicators of serious mental disorder, and to help synchronize the criminal justice and mental health care systems.

*interRAI stands for the international resident assessment instrument, in international collaborative to improve the quality of life of vulverable persons through a seamless comprehensive assessment system.

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DEDICATION

I would like to dedicate this dissertation to my wife Pam, for your love, support and patience, and for the many sacrifices you made over the years to allow me to achieve my dream.

I also dedicate this work to the memory of my mother, Beatrice, who with very little prior formal education obtained her Bachelor of Arts degree at the age of seventy-six. You exemplified life-long learning. I know you are as proud of me as I am of you.

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CHAPTER 1: INTRODUCTION

1.1 Study rationale

Since the 1960s when the process of de-institutionalizing psychiatric patients commenced in Ontario, policy-makers have been searching for innovative ways to meet the needs of people with serious mental disorder (PSMD) residing in the community. A succession of reports has revealed that many of the promised community mental health services and supports intended to replace institutional care never materialized. Moreover, advocates for PSMD have argued that the lack of community resources is directly linked to higher rates of homelessness, substance abuse, victimization and increased contact with the criminal justice system. In response to these criticisms, the government commissioned a series of major reports to review the issues and make recommendations to improve services for this population. Although there have been periodic increases in funding for new programs and services, PSMD and their families continue to have difficulty accessing mental health services in a timely and appropriate manner.

Today, at least 10 different ministries provide funding for mental health and addiction services and more than 300 community agencies are responsible for delivering these services (Ontario Select Committee, 2010). The model underlying the mental health care system is based on the concept of integration of systems and services (Wolff, 2002a) where service providers from the different ministries and agencies work collaboratively to respond to the needs of PSMD. Yet, true integration has yet to be achieved and the consequences are revealed most readily when PSMD come into contact with the criminal justice system.

As the frontline of the criminal justice system, police officers have become first responders to PSMD experiencing a mental health crisis in the community. Whether the cause of the crisis stems from lack of familial support, treatment resistance, or substance abuse, police officers are called upon to de-escalate the situation and then to determine whether psychiatric

assessment is required. The Mental Health Act (MHA, 1990) of Ontario gives police officers the authority to apprehend and detain persons who they believe have a mental health problem and to deliver him or her to Emergency Department (ED) personnel of a general hospital who represent the first point of contact for the health and mental health systems for PSMD experiencing a crisis.

The ED is a key juncture where the three systems - criminal justice, health care and mental health care - intersect. However, there are several factors that demonstrate the systems are not providing a coordinated response to PSMD. For example, it has been well documented that PSMD are over-represented in police shooting, stun gun incidents and fatalities and overall PSMD who are suspected of committing a criminal offence are more likely to be arrested compared with persons who have no mental illness (Mental Health Commission of Canada [MHCC], 2011). After making a MHA apprehension, both police officers and PSMD are often subjected to lengthy wait times in the ED which can led to further deterioration in the individuals' mental health status and if the individual exhibits threatening behaviour, it exposes other patients in the ED to possible discomfort and danger. Further, utilizing police resources in this manner has contributed to escalating costs of policing and has meant that police officers are not available to respond to other emergencies in the community. To compound the problem, there is often a lack of agreement between ED staff and police officers as to the true mental health status of the individual in question. This has resulted in early discharge and repeat confrontations with police officers. Consequently, persons with chronic mental health and substance abuse problems are often caught up in the "revolving door syndrome" with multiple contacts with criminal justice system (Provincial Human Services and Justice Coordinating Committee [PHSJCC], 2011). Finally, often at the request of family members, police officers

have had to resort to deliberately criminalizing PSMD as the only means of accessing mental health services.

It is argued that a major reason for the inability to meet the needs of PSMD is a fundamental lack of agreement between the systems on what constitutes serious mental disorder. This discord is readily observed in the ED where frontline personnel of the systems interact. The rationale underlying the current study is that if agreement can be reached on the specific indicators of serious mental disorder, it will help synchronize the systems leading to better identification of persons most in need of hospitalization and easing the transition from one system to the other. The agreement on the indicators will be made possible by the use of a new brief mental health screening form that police officers would complete when apprehending persons who they believe have a mental disorder. The screener would incorporate indicators obtained primarily from a Ministry of Health and Long-Term Care (MOHLTC) database and would represent the best available evidence related to identifying persons with serious mental disorder. The form would capture observations made at the time of the occurrence in the language of the health system. It would support police officer decision-making regarding the most appropriate course of action. Ultimately however, better synchronization of the systems will help to ensure that PSMD are able to access the appropriate system in a timely and efficient manner.

1.2 Purpose of dissertation

The major purpose of this dissertation is to develop, pilot and validate the interRAI Brief Mental Health Screener (BMHS) (see Appendix A) a new evidence-informed tool to improve the ability of police officers to identify and manage PSMD. The interRAI BMHS is based on data obtained from the Resident Assessment Instrument for Mental Health (RAI-MH) database (see

Appendix B). The RAI-MH is a comprehensive assessment instrument mandated in 2005 for use on every patient receiving psychiatric treatment in Ontario. There are over 300 items on the RAI-MH relating to sociodemographic, health, service utilization, and functional characteristics (Hirdes et al., 2000/2001; Hirdes et al., 2002). In the development of the interRAI BMHS, a sample of 41,019 cases (completed RAI-MH forms) was used to identify patient characteristics most associated with danger to self, danger to others and inability to care for self which became the *core* items on the screener.

After piloting the interRAI BMHS in Wellington County, Ontario over a 7 month period commencing in May, 2011, efforts commenced to validate the instrument. The ultimate aim was to determine if the items on the interRAI BMHS could predict which individuals had the highest probability of being taken to the hospital by police officers, and which persons were most likely to be admitted for psychiatric assessment. This necessarily involved comparing the characteristics of those persons taken to the ED by police officers and released, to the characteristics of those taken to the ED by police officers and admitted for psychiatric assessment. The comparison made between police officer ratings and clinicians' assessment was important for two reasons. First, if there was a substantial difference between the ratings it might provide evidence in support of the argument that the systems are not as synchronized as they should be. Second, and even more important, the comparison presented the opportunity to create an algorithm to predict which individuals have the highest probability of being detained for psychiatric assessment that was based on significant items from both sets of ratings. A final purpose of this dissertation was to analyze the impact that interacting with PSMD has on police resources. The interRAI BMHS contained items which enabled the collection of information pertaining to how much time police officers devoted to calls for service related to PSMD.

1.3 Terms used to describe mental disorder

There is inconsistency in the medical literature in regard to the terminology used to describe people who have a mental illness (Schinnar, Rothbard, Kanter, & Jung, 1990). The term that will be used in this dissertation will be "person(s) with serious mental disorder" or "PSMD". "Serious" is used in place of "severe" because it best describes the disorder from the police officer's perspective; that is, a situation or disorder that demands the officer's careful consideration. Alternatively, "severe" is a word used in the health system to describe a more extreme state that does not necessarily have to exist for a police officer to believe someone has a mental disorder. "Disorder" will be used instead of "illness" because it is more consistent with the legal system. For example, the term "mental disorder" is used in Section 17 of the MHA which describes a police officer's apprehension authorities (MHA, 1990). Similarly, the procedures and penalties for persons with mental disorders who are charged with criminal offences, are found in the "Mental Disorder Section" (S. 672.1) of the Criminal Code of Canada (Criminal Code of Canada [CCC], 1985). Finally, "indicators" will be used in place of "symptoms" again because the latter is a word more consistent with the health care system. Physicians typically diagnose *diseases* based on the presence of *symptoms* whereas police officers record observations which they believe may be *indicators* of *serious* mental *disorder*.

1.4 Overview of dissertation

The second chapter of this dissertation will be devoted to explaining why PSMD are not being well served by the system(s), and particular attention will be paid to challenges currently faced by general hospitals and police organizations. The third chapter will describe the collaborative development process that resulted in the creation of the interRAI BMHS while the fourth chapter will provide a descriptive analysis of the sample used in the study. This will be followed by a description of how the algorithm was created for predicting which individuals have the highest probability of being admitted to hospital, and the final chapter provides a summary, discussion and recommendations.

CHAPTER 2: CHALLENGES IN RESPONDING TO THE NEEDS OF PERSONS WITH SERIOUS MENTAL DISORDER (PSMD)

2.1 Introduction

Just as the establishment of institutions for persons with mental disorders was considered mental health reform of the 19th century, efforts to de-institutionalize such persons were viewed as mental health reform of the 1960s. There were a number of reasons why this shift in policy occurred including the introduction of antipsychotic drugs, well publicized reports of unhealthy conditions in insane asylums, overcrowding, insufficient staffing and inadequate funding (Goffman, 1961; Rochefort, 1984). This was also a period in history characterized by what might be referred to as an "anti-institutional" sentiment. Traditional institutions in society and particularly those for the mentally ill were viewed as instruments of oppression. They were depicted as "human warehouses" where patients were subjected to inhumane treatments such as the lobotomy and various forms of shock therapy.

Meanwhile, the idea began to emerge that a community setting might be a more conducive environment to facilitate recovery. This notion was supported by the theory of "normalization" which held that quality of life increases as access to culturally typical activities increases (Taylor, 2006). One of the first reports to formally endorse community treatment was produced by Dr. G. F. Heseltine, a psychiatrist appointed by the Ontario Minister of Health to examine the consequences of de-institutionalization (Lord, Nelson, & Ochocka, 2001). Heseltine recommended that hospitalization should only occur when "dictated by treatment or behavioural needs [and that] services should be provided in the least restrictive and disruptive settings as close to the patient's home as practical" (Ontario Ministry of Health [OMH], 1983, p. 205). Psychotropic medications therefore complimented de-institutionalization in that the new drugs could, at least in theory, control many of the major symptoms of mental illness permitting

patients to live outside the confines of institutions. Heseltine's report (1983) was followed by a succession of reports all of which endorsed the concept of community care (Health Services Restructuring Commission, 1999, 2000; Newman, 1998; OMH, 1988, 1998, 1993, 1999a, b; Ontario Ministry of Health and Long-Term Care [OMHLTC], 2000a, b, 2001; 2002; Provincial Community Mental Health Committee, 1988; Canada Commission on the Future of Health Care in Canada, 2002; Canada Senate Standing Committee on Social Affairs, Science and Technology [Senate Standing Committee], 2006).

Even during the period of de-institutionalization, many of those who had endorsed community treatment began to realize that there were insufficient community resources to meet the needs of discharged patients; and those that did exist were poorly organized (Simmons, 1990). It has been argued that the failure to meet the needs of PSMD has led to an increase in homelessness (Canadian Institute for Health Information Report [CIHI], 2007; Dennis, Buckner, Lipton, & Levine, 1991; Scott, 1993; Simmons, 1990); substance abuse (CIHI, 2007; Kessler, et al., 1996; Menezes et al., 1996); isolation and overburdened family networks (CIHI, 2007; Link, Cullen, Mirotznik, & Struening, 1992; Wolff, 2002a). It has also been argued that the inability to provide sufficient community mental health care resources and supports has contributed to escalating incidents of violence, victimization and a rise in the number of criminal charges laid against PSMD (Arboleda-Florez, Holley, & Crisanti, 1996; Canadian Mental Health Association [CMHA], 2004; Davis, 1992; Hartford, Heslop, Stitt, & Hoch, 2005; Riordan, 2004). Police officers have become by default, first responders when PSMD experience a mental health crisis which has led to deadly consequences. Further, evidence of higher rates of contact with the criminal justice system has been used to support the argument of the criminalization of PSMD and also trans-institutionalization where jails have replaced psychiatric hospitals (Robertson,

Pearson, & Gibb, 1996; Schellenberg, Wasylenki, Webster, & Goering, 1992; Teplin, 1984; Wachholz & Mullaly, 1993). It is safe to say that since the 1960s when the process of de-institutionalization commenced in the province, efforts to effectively meet the needs of PSMD have been unsuccessful.

The aim of this chapter is to examine the major obstacles to addressing the needs of PSMD. The first section will look at issues related to the mental health care system as a whole. Next, those challenges specific to policing organizations will be reviewed after which a summary will be provided along with recommendations in regard to promising new directions.

2.2 Literature Search Strategy

Academic search engines were accessed, ranging from Academic Search Premier (EbscoHost), Criminal Justice Abstracts and the Education Resources Information Centre (ERIC) database, through JSTOR, Military & Government Collection (EbscoHost) and PubMed, to Nature, PsycARTICLES and Sage Publications. Search engines for Statistics Canada, and extensive searches making use of Google, Google Scholar and Lycos were also undertaken. Many of the government reports were downloaded directly from the Ontario Ministry of Health and Long-Term Care (MoHLTC) and Health Canada websites. Major reports specific to issues related to police and PSMD were obtained from the following websites: Mental Health Commission of Canada (MHCC); Human Services and Justice Coordination Committee (HSJCC), and the Canadian Mental Health Association (CMHA). In addition, a search of the Scholars Portal EBook search engine was conducted. Though Canadian content was emphasized throughout the search, there appears to be limited academic research on police and mental health apprehensions.

The searches were restricted to English language publications between 1980 and 2012. A number of keywords were used depending on the section of the thesis. For chapters one and two the following combination of keywords was used: (de-institutionalization AND Ontario OR Canada); (de-institutionalization AND police OR criminal justice); (de-institutionalization AND issues OR challenge*); (mental illness* OR mental disorder* AND community resources OR services); (mental illness* OR mental disorder* OR psychiatric AND criminal justice OR police); (mental illness* OR mental disorder* OR psychiatric AND treatment OR refuse*); (mental illness* OR mental disorder* OR psychiatric AND hospitalization OR committal* OR detained); (mental illness* OR mental disorder* OR psychiatric AND criminalization*); (mental illness* OR mental disorder* OR psychiatric AND emergency room OR emergency department); (mental illness* OR mental disorder* OR psychiatric AND triage OR emergency triage); (mental illness* OR mental disorder* OR psychiatric AND triage OR emergency psychiatric); (mental illness* OR mental disorder* OR psychiatric AND police); (mental illness* OR mental disorder* OR psychiatric AND triage OR coroner* OR inquest); (mental illness* OR mental disorder* OR psychiatric AND police OR role); (mental illness* OR mental disorder* OR psychiatric AND police OR police training).

For chapter three which described the development of the interRAI BMHS, a search was conducted for mental health screeners using the following search terms: (mental health* AND screening instrument OR tool OR assessment); (brief AND mental health* AND screening OR assessment AND instrument). Chapter four is devoted to a description of the sample population and chapter six describes the development of an algorithm to predict admissions. Keyword terms used for this search included: (mental illness* OR mental disorder& OR psychiatric AND patient characteristics* AND admitted*); (mental illness* OR mental disorder* OR psychiatric* AND

police contact); (mental illness* OR mental disorder* OR psychiatric AND admission* AND decision-making); (mental illness* OR mental disorder* OR psychiatric AND hospitalization* AND release OR discharge); (mental illness* OR mental disorder* OR psychiatric AND hospitalization* OR committal*); (mental illness* OR mental disorder* OR psychiatric AND hospitalization AND repeat OR re-admission*); (mental illness* OR mental disorder* OR psychiatric AND youth OR adolescent* AND patient characteristics).

2.3 Systemic and procedural issues

2.3.1 Lack of systems coordination in the delivery of community mental health services

Putting People First (OMH, 1993) was one of the first major government reports outlining a long-term plan for community-based treatment. The report condemned the mental health system in Ontario for not being "system" at all but rather a collection of different services developed at different times and managed in different ways. It described the Provincial Psychiatric Hospitals (PPHs), general hospitals, community mental health programs and family practitioners / psychiatrists as "the four solitudes of mental health" (OMH, 1993, p. 5). The situation has not changed a great deal as evidenced by the Final Report of the Select Committee on Mental Health and Addictions (2010) [Ontario Select Committee] which noted that "one of the main problems in Ontario's mental health and addictions system is that there is, in fact, no coherent system" (p.3). According to the Select Committee, a major issue is the lack of any centralized control over the system to ensure that services are delivered consistently and comprehensively across Ontario (Ontario Select Committee, 2010).

Curiously, in the many reports that have been produced since de-institutionalization, very little is said about how mental health care agencies are to be organized in terms of a service delivery model. An exception is the model that has evolved in response to PSMD who come into

contact with the criminal justice system. Since the 1980s, the government has been aware of the unique needs of these individuals and the "revolving door syndrome". That is, the individuals who regularly cycle through and utilize costly resources in multiple systems including the police, courts, corrections, community services and mental health care systems (OMH, 1997). The government's response was to initiate the Mental Disorder and Justice Review Project, the final report of which is still referred to as "the policy blueprint for all operational and policy initiatives for people with mental disorder and/or mental disability who come into conflict with the law" (OMH, 1997, Preface). The model or management "strategy" that evolved from the report is based on the concept of integration of systems and services principally through the establishment of "human services and justice coordinating committees" (HSJCC). These committees which are established at the provincial, regional and local levels are jointly sponsored by different Ministries with membership comprised of representatives from the judiciary, police services, court services, correctional services, crown's office, and mental health and mentally disabled services. The primary goal of the HSJCCs is "to facilitate cross-sector service coordination in response to client needs, and identify and address issues such as access to and duplication of services" (OMH, 1997, p.7).

Though not explicitly stated, the same concept of "integration of systems and services" underlies the delivery of community programs and services in the mental health system as a whole. In fact, it appears to be taken for granted that the systems will work together to provide services which is based on the further presumption it is even possible to integrate systems and services. Yet, there is clear evidence to suggest that such a model will not work unless a concerted effort is made in several areas. For example, Wolff (2002a) identified a major barrier to integrating systems and services as "categorical, inadequate and inconsistent funding, and

bureaucratic intransigence" concluding pessimistically that, "why anyone would choose to continue a policy that has unequivocally failed for over 30 years, defies explanation" (p. 21). As part of the solution, Wolff (2002a) argued that the most promising organizational model involves an integration strategy based on unifying funding streams into "a single ownership model with a clear and comprehensive trustee mandate" (p.25). Interestingly, this was, in fact, a major recommendation of the more recent Select Committee on Mental Health and Addictions in Ontario (2010). The committee called for the creation of a new umbrella organization – Mental Health and Addictions Ontario (MHAO), responsible to the OMHLTC "to ensure that a single body is responsible for designing, managing, and coordinating the mental health and addictions system [so that] programs are delivered consistently and comprehensively across Ontario" (p.3). Given the current fiscal realities in Ontario it is not likely to happen anytime soon. Meanwhile, the lack of coordination in the delivery of mental health care services will continue to be a major obstacle to effectively addressing the needs of PSMD.

2.3.2 Restrictions to sharing information *across* systems

There are barriers to sharing, collecting and disclosing client information across the criminal justice, health and mental health care systems. According to the Personal Health Information and Protection Act (PHIPA) client consent is required before healthcare providers can disclose mental health information to police officers. The only exception is if the information is necessary for the purpose of eliminating or reducing a risk of serious bodily harm to individuals or the community. According to a recent report, the PHIPA disclosure provisions are ambiguous and a standard provincial protocol is needed (PHSJCC, 2011). The confusion over accessing mental health care information pertaining to a person's behaviour or risk level while in

the health care system means that police officers are essentially "cold-calling" when responding to calls for service involving PSMD.

2.3.3 Constraints on involuntary hospitalization

Under current Ontario legislation, admission to a psychiatric facility and the ability to treat PSMD are considered two distinct matters. The grounds for hospitalization, whether voluntary or involuntary, are found in the MHA while the authority to provide treatment is covered in the Health Care and Consent Act (HCCA). Historically, the criteria used for determining if someone needed to be committed to a psychiatric facility was based on whether a person was in "need of treatment". However, for various reasons during the 1960s the standard for civil commitment shifted to "dangerousness" (Bloom & Schneider, 2006; Harris & Lurigio, 2007; Monahan, 2006). One of the major reasons for this new emphasis on dangerousness was Steadman and Cocozza's (1974) landmark study of patients released from Dannemora State Hospital for the Criminally Insane in New York State.

In 1966 a patient by the name of Johnnie Baxstrom successfully challenged his post-sentence detention in a maximum security psychiatric facility on the grounds that it infringed upon his constitutional rights (*Baxstrom v. Herald*, 1966). In the aftermath of the Supreme Court decision, almost 1000 psychiatric patients were transferred from secure hospital-prisons to mental hospitals in New York State. Steadman and Cocozza (1974) subsequently conducted a 4 year follow-up study of 246 of the Baxstrom patients and were able to demonstrate that very few of the cohort of released patients acted out violently once in the community. The Baxstrom study together with other Supreme Court decisions helped to solidify the position that no one should be confined to an institution unless they were too dangerous to reside in the community. The changes to Ontario's MHA in 1967 reflected the new standard for civil commitment based on

potential for violence. Subsequent revisions in 1978 created two types of involuntary hospitalization: *detention* for the purpose of performing a psychiatric assessment and *commitment* if there is evidence of a severe mental illness (Frankenburg, 1982).

With the new emphasis on dangerousness critics have argued that because the grounds for hospitalization are so narrowly focused that only those who behave violently or represent a serious threat of *physical* harm are being admitted. Further, for the same reason many people who need continued treatment are released too early. It is suggested that, other non-physical "harms" are ignored. That is, people who exhibit signs of abnormal thinking or behaviour that are non-violent but will nonetheless lead to gradual deterioration in the person's mental health and overall health in general (Ontario Select Committee, 2012). An example would be the individuals who express suicidal ideation and are addicted to drugs or alcohol but deny wanting to harm themselves when questioned by authorities.

2.3.4 Right to refuse treatment

The fact that someone is committed to a psychiatric facility does not necessarily guarantee that s/he will receive treatment. This is because a fundamental principle of the Health Care Consent Act, 1996 (HCCA) is that people have the right to refuse treatment if they are considered capable of deciding whether to consent or refuse the treatment. The underlying presumption which was upheld by the Supreme Court of Canada in *Starson v. Swaize* (2003) is that everyone, including PSMD, is capable of making treatment decisions.

Unfortunately, many PSMD will not seek or accept treatment because the nature of their illness is to deny that they are ill. This means that if their behaviour remains unmanageable or threatening, continued contact with the criminal justice system may be inevitable. Even when PSMD have committed a crime and subsequently found to be Not Criminally Responsible

(NCR), they can still refuse treatment. They are committed to a psychiatric facility but cannot be released until evidence presented before a Review Board indicates they will not be a risk to society. If they do not accept treatment and continue to pose a threat to themselves or others, they will not be released. Justice McLachlin described the current legislation as leading to a "cruel paradox – freedom to refuse "medication" may in fact result in institutional confinement and continued debilitation" (McLachline, 2005, p. 10).

2.3.5 Criminalizing PSMD in order to access mental health care services

A trend has emerged in recent years where PSMD and their families have been encouraged to access mental health care services through the criminal justice system. That is, if the individual resists treatment or where the signs of mental disorder are not severe enough to warrant detention or committal, the family has been encouraged to have their family member arrested in order to qualify for forensic services (Select Committee, p.13). If an individual appears before the courts charged with an offence, they are declared a forensic patient and are therefore entitled to forensic services. These services include psychiatric assessments and treatment for those unfit to stand trial or who are found not criminally responsible (NCR).

Obtaining psychiatric services through the forensic mental health care system has resulted in an increased demand for funding to provide mental health care services. It has also led to an increase in the remand population many of whom are awaiting court ordered psychiatric assessments. Further, the practice validates the argument that PSMD are being criminalized because of lack of accessible programs and services in the community.

2.3.6 Lack of secure facilities outside of the correctional system

In Ontario, there are a number of facilities within the *correctional system* where PSMD are accommodated. The local *jail* has the longest history. According to the English model, each district had their own jail, which was intended to serve the local community. Of course, jails still exist in Ontario but they are gradually being replaced by larger regional *detention centres*. Jails, detention centres along with police service "lock-ups" or cells are used as temporary quarters for people awaiting trial, sentencing or other court matters. If a person is convicted of an offence and receives a sentence of less than two years, he or she will be transferred to one of the *correctional centres* run by the province. If the sentence is longer than two years, the individual will serve time in a federal *prison* operated by the federal government.

There are a number of reasons why PSMD are being confined in the correctional system. As mentioned in the previous section, many PSMD are in the remand population awaiting court ordered psychiatric assessments. Others may have mental disorders which were undetected by the courts and therefore they were not referred to the forensic mental health care system. In some instances, presumably the onset of their mental disorder occurred after sentencing while incarcerated. Finally, there are some PSMD confined in correctional centres simply because they are too dangerous and unmanageable for the psychiatric or forensic mental health care systems. Though exact figures are difficult to obtain, it is estimated that over 20 percent of the correctional system population has some form of mental disorder with the highest rates found among the growing population of remand offenders (Lahey, 2009).

The use of the correctional system to confine PSMD has been highly criticized particularly in regard to persons awaiting court ordered psychiatric assessments. There have been documented cases where people have served more time in remand than the term they would have

received if convicted of the original offence. Ontario Supreme Court challenges to the practice such as *Ontario v. Hussein* (2004) and *Orru v. Penetanguishene Mental Health Centre* (2004) have ruled that use of the correctional system in such a manner is unconstitutional because it violates the *Charter of Rights and Freedoms (1982).* It is argued that the practice is inhumane and that it contributes to further deterioration in mental health, criminalization and stigmatization (CIHI, 2007). Further, patient's rights advocates contend that it supports the argument of trans-institutionalization. This was acknowledged by former Senator Michael Kirby, when he commented that the streets and prisons have become the asylums of the 21st century (Senate Standing Committee, 2006). In recent years, the Ontario government has been making efforts to increase the number of forensic beds. However, there are still not enough to meet the demand (Simpson, 2010).

2.4 Issues related to the general hospital emergency department (ED)

The policy of de-institutionalizing psychiatric patients and the lack of community mental health care resources and supports have had a major impact on the role of the general hospital in Ontario. In the last three decades the general hospital ED has evolved into the gatekeeper of the mental health service care system (McArthur & Montgomery, 2004; Nurius, 1983; Sealy & Whitehead, 2004). The modern ED has been referred to as the default facility for persons experiencing a mental health crisis; however, there are several problems associated with the use of the ED that directly impact on the ability to effectively respond to the needs of PSMD (Clarke, Dusome, & Hughes, 2007; Senate Standing Committee, 2004).

2.4.1 Insufficient mental health care resources in the ED

Anderson & Brasch (2005) contacted all hospitals in Ontario designated to provide mental health care services in an effort to determine the amount of resources for people who

presented with mental health complaints in the ED. Given a 94 percent response rate to their survey, the investigators believed that the results revealed an accurate picture of the overall state of emergency psychiatric services in the province. Despite the fact that more than half of the hospitals reported they had between 50 and 300 mental health presentations per month, the researchers found an overall lack of resources to respond to these presentations including an insufficient number of inpatient psychiatric beds (Anderson & Brasch, 2005).

The investigators found that only eight hospitals had psychiatric emergency services or crisis units. Further, the majority of these hospitals were located in larger hospitals with a higher volume of psychiatric patient presentations. The authors speculated that the low number was probably due to cost and space requirements. The majority of hospitals reported that they managed psychiatric patients in the ED until beds became available. They also noted that this was a problem when patients were in a psychotic or agitated state. Given the lack of resources, the authors found it interesting that the overwhelming majority of facilities did not have a maximum capacity for the number of psychiatric patients. Further, only four facilities reported having a formal psychiatric diversion policy concluding, "this leaves the remaining 93 per cent of the facilities to cope with intermittent high volumes of psychiatric patients within the emergency department or crisis unit on an ad hoc basis" (p. 29). Thus, it would appear that despite the fact that the general hospital has become the default facility for PSMD in crisis, they are not equipped with sufficient resources to respond effectively to psychiatric presentations.

2.4.2 ED triage

2.4.2.1 Canadian Triage and Acuity Scale (CTAS)

The overall demand placed on general hospital EDs created by limited resources and overcrowding forced administrators to find more effective ways to sort or prioritize patients. This

was a major impetus behind the development of the Canadian Triage and Acuity Scale (CTAS) which is today used across the country (Canadian Triage and Acuity Scale [CTAS], 2008). Based on the Australian Triage Scale (ATS), the CTAS ranks patients by the severity of presenting conditions on a scale from 1-5. The ranking does not determine who should be admitted but rather the length of time a patient can safely wait until seen by a physician. The five levels are: 1 – resuscitation (immediate physician response), 2 – emergent (less than 15 minutes), 3 – urgent (less than 30 minutes), 4 – less urgent (less than 60 minutes), and 5 – non urgent (less than 120 minutes). Studies measuring the accuracy of the CTAS on *medical* presentations alone have found that it has very good validity and good to excellent inter-observer reliability (Beveridge, Ducharme, Janes, Beaulieu, & Walter, 1999; Christ, Grossmann, Winter, Bingisser, & Platz, 2010; Manos, Petrie, Beveridge, Walter, & Ducharme, 2002).

The accuracy of the screening process is very important because a poorly conducted clinical evaluation can lead to patients being either over-triaged or under-triaged (Chen et al., 2010). Over-triaging occurs when an ED nurse assigns a level of urgency resulting in the patient seeing a physician sooner than expected (Considine, LeVasseur, & Villanueva, 2004). Under-triaging occurs when the ED nurse assigns a level of urgency resulting in a patient having to wait longer than they should to see a physician. The consequences of under-triaging include further deterioration in the patient's condition and sometimes even death. It can also lead to situations where patients leave the hospital before being seen by a physician (Clarke, Brown, Hughes, & Motluk, 2006).

2.4.2.2 Effectiveness of the CTAS for mental health presentations

There is very little Canadian research on the effectiveness of using the CTAS on people presenting with mental health care complaints. In fact, only two studies could be found in the

literature. Clarke et al. (2006) revealed that triage ratings for mental health presentations were lower than those for medical presentations concluding that the CTAS fails to adequately guide triage nurses in their assessments. In fact, a major complaint has been that mental health patients are regularly under-triaged. This is because until very recently most psychiatric presentations with the exception of suicidal ideation and suicide attempts were rated as a level V category response in the CTAS – the very lowest level (Addictions Ontario et al., 2008). As a 2008 report to the Minister of Health noted, "the implications of this on wait times and quality of care, needs to be reviewed and remedied" (Addictions Ontario, 2008, p.5).

In the second study, Brown (2011) specifically set out to test the inter-rater reliability and accuracy of triage nurses' assignment of urgency rating using the CTAS. A common method to test for inter-rater reliability and accuracy is to use an expert panel who would assign urgency levels to simulated patient scenarios. These ratings would be later compared to urgency ratings made by ED nurses in a study sample. Given that Brown could find no Canadian studies that had integrated mental health scenarios into their research design, her intent was to fill the gap in the literature by developing and using mental health scenarios in her research project. The results of her study revealed an overall Fleiss kappa of 0.31 for her sample of triage nurses (n=18) representing poor agreement while the Kendall's coefficient was 0.68 suggesting moderate agreement (Brown, 2011).

Complaints over the under-triaging of PSMD and the overall accuracy of mental health triage were no doubt contributing factors that led to revisions to the mental health category of the CTAS (Bullard, Unger, Spence, & Grafstein, 2008). The stated reasons for the revisions were concerns over ambiguous definitions and insufficient content in the CTAS educational package. Although it is too early to tell if the changes will make an important difference in practice, some

insight might be gleaned from the Australian experience particularly since the CTAS was based on the ATS. Australian studies had also found that inter-rater reliability among triage nurses assigning urgency ratings to mental health scenarios was lower than those for medical presentations (Broadbent, Jarmin, & Berk, 2002; Broadbent, Moxham, & Dwyer, 2010; Clarke et al., 2006; Happell, Summers, & Pinikahana, 2002; Happell, Summers, & Pinikahana, 2003; Hay, Bekerman, Rosenberg, & Peled, 2001). The Australians responded in a way that was similar to the Canadian experience. That is, revisions were made to the ATS to enhance the mental health category (Australasian College for Emergency Medicine 2000). However, despite these changes, research continues to demonstrate that the ATS is unreliable when used on mental health presentations (Broadbent, Creaton, Moxham, & Dwyer, 2009). This led to the current effort which is the integration of a mental health triage scale into the ATS. The resulting Mental Health Triage Scale (MHTS) has been successfully implemented in the Australian state of Victoria (Broadbent et al., 2002) and efforts are currently directed toward building the case for its use in all Australian emergency departments (Broadbent et al., 2009).

2.4.3 Excessive ED wait times

Mental health patients and their families have long argued that they receive lower urgency ratings than patients who are triaged for physical ailments alone (Clarke et al., 2007). This sentiment was reflected by Senator Kirby when he stated that people with mental health presentations are believed to be "sent to the back of the line in emergency departments, even if they are in serious distress" (Canada, Senate, Standing Committee, 2008, p12). There is strong evidence to support the argument that people presenting with mental health problems spend more time in the ED than those presenting with medical problems. Australian investigators for example, revealed that overall, mental health patients were more likely to wait longer than 8

hours in the ED, a finding they believed was consistent with other studies conducted in their country (Shafiei, Gaynor, & Farrell, 2011). In a Canadian study, Clarke et al. (2006) reported that the wait time in the ED for mental health patients was on average approximately 2 hours longer than for medical patients. In a retrospective cohort study from the United States, Slade, Dixon, & Semmel (2010) reported that the average length of time people with mental health care complaints waited in the ED was 42% longer than non-mental health care visits (4.3 hours compared to 3.0 hours respectively). Finally, in another more recent American study, Weiss et al. (2012) found that in their prospective study of 1,092 adults, psychiatric patients spent more than 11 hours in the ED on average while waiting to see a physician.

It is evident that the ability to accurately triage persons presenting at Ontario EDs with mental health care complaints is questionable. If revisions to the CTAS prove to be as ineffective as those that were made to the ATS, patients with mental health presentations will continue to be inaccurately triaged. This will in turn lead to longer stays in crowded waiting rooms (Kerrison & Chapman, 2007) contributing to further deterioration of presenting conditions, increased fear, anxiety, overstimulation (Clarke et al., 2007) in addition to more patients leaving before being seen by a physician (Ding et al., 2006).

2.4.4 Resistance from ED staff

Two studies reported that many nurses believe that managing PSMD who are in an agitated state or who have substance abuse issues is one of the most challenging and stressful aspects of their job (Farrell et al., 2010; Shafiei et al., 2011). Other studies have shown that ED staff regard patients with mental health problems as the most undesirable (McNeil et al., 1991; Meadows, Calder, & Van Den Bos, 1994; Reinish & Ciccone 1995, Lamb et al., 2002; Watson, Segal, & Newhill, 1993). Kerrison and Chapman (2007) reported that triage nurses admitted they

were reluctant to make direct inquiries of mental health patients, actively avoided them, and assumed their issues were more behavioural in nature. It has also been shown that ED nurses often perceive mental disorders as less severe or "life-threatening" than physical ailments which usually take precedence (Coristine, Hartford, Vingilis, & White, 2007; Heslop et al., 2000; Vingilis et al., 2007). A common theme in the literature, according to Heslop (2000), is the reluctance of the ED staff to accept that interacting with PSMD is part of their job. She believes that nurses still view the primary function of the ED is to cater to those who are physically ill or injured or in other words, to stop the bleeding and repair broken bones.

2.4.5 Inadequate training for ED staff on mental health issues

Several studies have revealed that many triage nurses do not feel they have the necessary skills, training or resources to effectively manage mental health patients (Farrell, Shafiei, & Salmon, 2010; Heslop, Elsom, & Parker, 2000; Kerrison & Chapman, 2007; Pich, Hazelton, Sundin, & Kable, 2011). The Ontario Select Committee (2010) recognized that family physicians and community nurses are the health care professionals most often contacted by people seeking mental health and addiction services. Yet, they noted that they receive little relevant training in their formal academic programs. The issue of insufficient training for ED staff was also raised at the 2005 Coroner's Inquest into the death of Cythnia Oster (Office of the Chief Coroner [Oster Inquest], 2005). Testifying at the inquest, Michael Bay, former Chair of the Consent and Capacity Board of Ontario, argued that training for both ED physicians and police officers is inadequate (Lawyer Suggests Training, 2006). Oster was taken to hospital by police officers who believed she had a mental disorder. The ED physician did not, however, feel Oster's disorder was severe enough to warrant detention. After she was discharged from hospital, she drove her

vehicle the wrong way down a major highway and crashed into another vehicle killing her, and four other people.

According to Bay, ED physicians also need better training on understanding their authority to detain. He stated that there is often unnecessary hesitation among physicians over depriving people of their constitutional right not to be unnecessarily detained. He explained that the physician does not need conclusive evidence of the presence of a mental disorder to sign an order or assessment, only a belief that the individual may be a risk to themselves or others (Lawyer Suggests Training, 2006). Similarly, Dr. Russell Fleming, psychiatrist-in-chief at the Waypoint Centre for Mental Health (formerly the Mental Health Centre at Penetanguishene) who also testified at the inquest stated that ED mental health assessments are often flawed. He described the Oster examination as 'cursory, procedurally flawed and incomplete.' Further, he asserted that it was a global problem in the health care system and not restricted this particular case (Dyer, 2005).

2.5 Issues related to police organizations

2.5.1 Background to the police role

The 1850s were important in the province's history for two reasons. It was a time when many police organizations were first established, but it also marked the commencement of the asylum era. The Provincial Lunatic Asylum opened its doors in 1850 and would remain the primary means of responding to PSMD until the 1960s when the process of de-institutionalization commenced. A great deal is known about the early history of the Provincial Lunatic Asylum and the emergence of similar institutions in the province. However, very little is known about the police role in relation PSMD and the institutions that catered to them.

Initially, there would have been too few police officers in the province for them to have a substantial role. Most police organizations were restricted to larger cities and even by the turn of the century, there were less than two dozen police officers in the rural areas of the province (Sewell, 1985). As to their duties, policing organizations were established in the wake of industrialization and urbanization primarily to respond to labour unrest. The duties of Ontario police officers would have been broadly similar to those of their counterparts in England where the model of contemporary policing first emerged. When not attending to labour disruptions, day to day policing activities involved overseeing licensing, dealing with public drunkenness, prostitution, keeping the peace and performing any other duties assigned to them by the local magistrates (Sewell, 1985).

If a person with a mental disorder committed a crime or was potentially violent, police officers would have responded as they would with any other individual. They would arrest the person and place him or her in the local jail where they would remain until the local magistrates made a decision as to whether or not to commit the person to the Provincial Lunatic Asylum (Grebner, 1970). It is conceivable that if a magistrate ordered the person to be confined to either the jail or asylum, police officers would have been requested to assist. If the courts were not involved, it is more likely that the person's family assumed the responsibility for physically taking them to the asylum because that was the practice in England (Barlett, & Wright, 1999). Thus, during the asylum era police interactions with PSMD would have been rare and for the most part it would not have been considered a core function of the police officer's job.

De-institutionalization and the lack of adequate community mental health care services and supports are the two most important factors accounting for police officers becoming the point of first contact for PSMD (Cotton & Coleman, 2008). The following sections describe

police authorities to intervene into the lives of PSMD and the factors that continue to affect the role of police officers. The extent of current involvement will then be discussed followed by the challenges police officers face in effectively meeting the needs of PSMD.

2.5.2 Police authorities to intervene into the lives of PSMD

Common law is case law or precedent law consisting of similar previous court decisions. When the province was first established in 1792, like most other English colonies, it adopted English common law. There are two common law principles that give police officers authority to intervene into the lives of PSMD. The first is the fundamental common law authority to keep the peace and protect the public. This broad common law principle continues to guide much of police action. The second common law principle is that of *parens patriae* which is a Latin term used to describe the inherent right of the Crown to act as the parent or guardian to vulnerable persons or those who need to be protected. This common law principle gives authority to police officers as agents of the government to intervene into the lives of PSMD and if necessary, to deprive them of their liberty. Often both of these common law principles are involved when police are dealing with PSMD who pose a threat of danger to the community or to themselves (Lamb, Weinberger, & DeCuir, 2002).

Police officers also have both federal and provincial legislative authority to intervene into the lives of PSMD. The Canadian Parliament enacted the *Criminal Code* in 1892 which was the first of its kind in a self-governing jurisdiction of the British Empire (CCC, 1985). It was revolutionary in countries that had adopted English common law because it integrated existing statute and common law in what was thought to be a rational and systematic format (Brown, 1989). Police officer powers of arrest are set out in sections 494 and 495 of the Criminal Code. Section 31 of the Criminal Code gives police officers the authority to arrest persons found

committing a breach of the peace and those believed to be about to join in or renew a breach of the peace. These arrest authorities are often used when interacting with PSMD. Once the person is in custody, police officers must decide whether to charge the person criminally, deal with the case informally or to invoke provisions of the MHA and transport the person to an appropriate facility for psychiatric assessment.

Provincial legislation in the form of the MHA provides police officers legislative authority to detain PSMD for the purpose of obtaining a psychiatric assessment. The 1935 Mental Hospitals Act, the precursor of today's MHA, contains one of the first references to the role of police officers and civil commitment (Ontario Royal Commission, 1938). It included the provision that police officers had the authority to *arrest without warrant* a person *apparently mentally ill* who is "conducting himself in a manner which in a normal person would be disorderly" (Ontario, Royal Commission, p. 13). The police officer was to bring the person before a magistrate who in turn, was required to appoint two *qualified medical practitioners* to conduct an *examination*. If both physicians agreed and other evidence corroborated the presence of a mental disorder, the magistrate had the power to *certify him to a mental hospital* (p 14).

This legislation is important because it shows that the role of police officers was initially to assist the magistrates at arriving at a decision by providing evidence of the person's state of mind. According to Frankenburg (1982), the 1935 Mental Hospitals Act also provided evidence of the emerging trend to recognize a mental disorder as a mental *illness* and commitment as a *medical* decision.

Today, there are a number of situations where the MHA requires police officers to intervene into the lives of PSMD. In Ontario, if a physician believes that a person has a mental disorder s/he will complete a Form 1 or "Application by Physician for Psychiatric Assessment".

The Form 1 authorizes the "apprehension, detention and assessment" of the person for up to 72 hours. Police officers are authorized under Section 15 to apprehend a person who is subject to a Form 1. Alternatively, when PSMD will not voluntarily agree to see a physician, family members or other concerned individuals can provide evidence through sworn testimony before a justice of the peace. The justice of the peace has the authority to issue a "Form 2" under Section 16 which authorizes the police to apprehend the person and take her/him to an appropriate place, usually the emergency room of a local hospital for the purposes of psychiatric evaluation. A police officer also has the authority under Section 17 to apprehend if s/he has reasonable grounds to believe that a person has a mental disorder. The police officer is to take the person to a general hospital in the hope that the attending physician will sign a Form 1. The criteria that a police officer must satisfy in order to apprehend a person with a mental disorder are basically the same as those needed by a physician who signs a Form 1 and the justice of the peace who issues a Form 2. It is based on what is known as the "serious harm test" which has three basic components: the person must be a danger to self, a danger to others and demonstrate an inability to care for him or herself. Police officers have the additional requirement that there must be some urgency to the situation. That is, there is insufficient time to wait to proceed by way of a Form 2.

Ontario police officers also have apprehension authorities pertaining to situations where PSMD have been absent without leave from a psychiatric facility (Section 28), escorting patients from one psychiatric facility to another (Section 29), and apprehending persons who are not abiding by the conditions of their community treatment order (Section 33.3 and 33.4). In regard to community treatment orders, a Form 47 is issued authorizing police officers to take the person back to the physician who issued the order.

2.5.3 Factors impacting on the role of the police

2.5.3.1 Revisions to the Mental Health Act

By 1967 the Mental Hospitals Act had been replaced by the MHA and, during the intervening years, subtle changes were made that directly affected the role of police officers. The trend that began in the 1935 Mental Hospitals Act had been fully realized. The authority to certify and civilly commit a person to a psychiatric hospital gradually became that of the medical profession alone. That is, police officers no longer brought PSMD before magistrates but rather to medical doctors. This was an important turning point because police officers now had to provide evidence of a person's state of mind to a physician as opposed to a magistrate. Also, included within the revisions was the additional duty that the apprehending police officer(s) "retain custody of the person until the facility takes custody of him or her...." (MHA, s. 33). Today, police officers cannot leave until the *facility* or in reality until the attending physician makes a decision as to patient disposition. Revisions to the MHA continue to impact on the role that police officers play in responding to PSMD and one of the major drivers to these revisions has been Coroner's inquest recommendations.

2.5.3.2 Coroner's inquests

Coroner's inquest recommendations have had a major impact on the police role as it pertains to interactions with PSMD. A coroner's inquest is a public hearing held under the authority of the *Coroners Act* (Coroners Act, 2009). The purpose of a coroner's inquest is to examine the circumstances surrounding a death. Evidence is presented to a jury of five members of the community who make recommendations as to how to prevent the reoccurrence of a similar tragedy. Inquests are mandatory whenever a death occurs while in the custody of police or the correctional system.

Coroner's inquests are one of the few ways of revealing how the system is actually functioning and inquest recommendations have led to substantial changes in legislation and procedures. Since the 1980s, there have been many well publicized coroner's inquests investigating incidents where police officers have been involved in the death of individuals with mental disorders. For example, the inquest into the death of Jonathen Yeo demonstrated how inquest recommendations can directly affect the role of police officers (Office of the Chief Coroner, 1992). Yeo was involved in a murder suicide and one of the key issues was police discretion in regard to whether to criminally charge versus apprehend under the MHA. That is, if a police officer encounters a person with mental disorder who has committed a criminal offence, a police officer may have the choice of either laying a criminal charge or apprehending under the MHA. A key recommendation of the inquest was to compel police officers to lay a criminal charge whenever there are reasonable grounds to believe that a PSMD has committed a violent crime. This recommendation was integrated into the Ontario provincial *Policing Standards Manual* and has since been adopted by every police service in the province (Ontario, Ministry of Community Safety [Policing Standards Manual], 2000). The relevance of this procedural change was that it effectively removed police discretion when PSMD have committed a violent crime.

Another example of the power of a Coroner's inquest to bring about changes in police practices is the Brian Smith Inquest (Office of the Chief Coroner, 1997). An ex-hockey player and popular sports broadcaster in Ottawa, Smith was killed by an individual who had paranoid delusions. Inquest recommendations directly led to revisions to the MHA. Prior to the inquest police officers had to directly observe the indicators of a disordered mind in order to apprehend someone believed to have a mental disorder. This was often problematic because the individual might appear quite well in the presence of the police officer. As a result of the inquest, the

grounds for apprehension were changed so that a police officer need only have *reasonable grounds to believe* someone has a mental disorder (MHA, 1990). This meant that police officers could use information obtained from other sources to support their decision-making. A second major impact of this inquest was the introduction in the province of community treatment orders (CTO) (Ontario, MoHLTC, 2000). A CTO is issued when a person with mental disorder agrees to abide by the conditions of release from a psychiatric facility as set out by a physician. If there is evidence that the person is failing to abide by the conditions, an order can be issued authorizing police officers to apprehend the person and bring s/he back to the physician who issued the CTO.

2.5.3.3 Introduction of standards and guidelines

The development of standards and guidelines has acted to further refine the police role in responding to PSMD. In 1993, the Ontario government introduced a series of mandated use-of-force standards requiring every police officer in the province to receive a minimum of eight hours of use-of-force training annually to re-qualify as a police officer. Contained within the new standards were training guidelines for use of force at the recruit and refresher levels. In the areas of communication skills, police officers were to be trained in "mental illness/communication awareness" (Policing Standards Manual, 2000). The use-of-force standards were subsequently integrated within the more comprehensive Policing Standards Manual published in 2000 which forms the basis of police service policies and procedures. This document contains guidelines to assist police organizations, police services boards, and chiefs of police with their understanding and implementation of the Police Services Act which governs the conduct of police officers in the province (Policing Standards Manual, AI-012, 2000). The manual also contains the Adequacy and Effectiveness of Police Services Regulation outlining the responsibilities that

police organizations have in responding to persons with mental disorders. Section LE-013 and 13 (1) (g) outlines the requirements that police services boards and chiefs of police have to create policies and procedures on the police response to persons who are emotionally disturbed or have a mental illness or a developmental disability (p. 1).

The chiefs of police are specifically required to:

> "a) work, where possible, with appropriate community members and agencies, health care providers, government agencies, municipal officials, other criminal justice agencies, and the local Crown to address service issues relating to persons who have a mental illness or developmental disability;
>
> b) establish procedures and processes that address the police response to persons who are emotionally disturbed or have a mental illness or a developmental disability; and
>
> c) ensure that the police service's skills development and learning plan addresses the training and sharing of information with officers, communications operators/dispatchers and supervisors on:
>
> i. local protocols;
>
> ii. and conflict resolution and use of force in situations involving persons who may be emotionally disturbed, or may have a mental illness or developmental disability. (Policing Standards Manual, LE-013, 2000" (p. 1).

In addition to provincial government standards, in 2006 the Canadian Association of Chiefs of Police (CACP) released *Contemporary Policing Guidelines for Working with the Mental Health System* providing guiding principles for police services for responding to persons with mental disorders (Canadian Association of Chiefs [CACP], 2006). The CACP wanted these

guiding principles to be implemented by every police service across Canada regardless of size or geographical location. A central tenet of these guidelines is that:

> "Each police organization should foster a culture in which mental illness is viewed as a medical disability not a moral failure, and in which people with mental illnesses are treated with the same degree of respect as other members of society" (p. 4).

2.5.3.4 Changing role of police in society

The fact that the role of police officers in society is constantly evolving has an impact on how police respond to PSMD. The traditional role that police officers perform can be categorized into three broad areas:

> "1. crime control – responding to and investigating crimes and patrolling the streets to prevent offenses from occurring;
> 2. order maintenance – preventing and controlling behaviour that disturbs the public peace, including quieting loud parties, settling domestic disputes and intervening in conflicts that arise between citizens;
> 3. service provision – providing a wide range of services to the community, often as a consequence of the 24-hour availability of the police, including assisting in the search for missing persons and acting as an information/referral agency" (Griffiths & Verdun-Jones, 1994, pp. 70-71).

Since the 1970s there has been a gradual shift from an emphasis on crime control to service provision. This shift occurred at the same time many police services began experimenting with the concept of community policing. Community policing is a broad concept involving problem-solving with an emphasis on developing community partnerships. Through a collaborative process police organizations work with members of the community to tackle what

are believed to be the underlying causes of crime such as physical and social disorder, fear of crime and neighbourhood decay (Palmiotto, 2000; Trojanowicz & Bucqueroux, 1990). The latest community policing initiative in the province was the introduction of the government endorsed *Mobilization & Engagement Model of Community Policing*, which is used to train police officers in techniques designed to mobilize members of the community to engage in crime prevention activities (Ontario, Ministry of Community Safety, 2011-2012).

Proponents of community policing argue that it is not a new concept but rather it was popularized by Sir Robert Peel the founder of modern policing. In 1829, Peel established the Metropolitan Police Force in London, England basing it on nine principles, one of which was crime prevention. Unfortunately, Peel never used the phrase community policing and there also appears to be some doubt as to whether he actually wrote the nine principles. In fact, Lentz, & Chaires (2007) found that the nine principles are largely an invention of twentieth century textbook authors. Regardless, even if Peel had penned the nine principles it is more likely that he would have defined crime prevention in terms of increased visibility of police officers on the streets as opposed to contemporary ideas involving *strategies to mobilize the community.*

The shift from an emphasis on service provision together with efforts to implement community policing initiatives has meant an expansion of the traditional role of police to include responding to non-criminal matters. It has become accepted practice that police officers engage in activities promoting crime prevention, but also a host of other duties including acting as school liaison officers, providing assistance and counselling to victims of crimes, conducting environmental assessments to reduce crime, and counselling youth and their parents (Brown and Seguin, 2002; Cordner, 1989; Shearing, 1984). Many interactions that police officers have with PSMD are also of a non-criminal nature and include what Andoh (1998) classified as provision

of social support. He believes that because of the complexity of police work, police officers have become essentially 'all-purpose public servants'. As it will be discussed in an upcoming section, this expansion of the police role, in particular as it pertains to interactions with PSMD comes with a substantial financial cost.

2.5.4 Extent of current involvement with PSMD

There are a number of different circumstances where police officers interact with PSMD. A recent study found that approximately 1 in 20 police dispatches were in relation to PSMD, more than half of which involved an individual experiencing a mental health crisis. The same study also revealed that about half of these interactions involve an alleged criminal offence and about 40% of PSMD have been arrested in their lifetime (Mental Health Commission of Canada [MHCC], 2011).

If a person is arrested and it is determined that a mental health problem is related to the commission of the offence, the arresting police officers have several options. If the mental impairment is severe enough or if there is a medical condition the police officer(s) will take the person directly to the ED of the nearest general hospital. Given that the person has been arrested, the police officer(s) must remain at the hospital until the accused is discharged at which time, and if the offence is serious enough, the person will be taken to a local jail for police lock-up. When they appear before the court, if evidence pertaining to the person's state of mind is presented, the presiding judge can invoke the mental disorder section of the criminal code of Canada (CCC, 1985). That is, the court can order a psychiatric assessment and if found unfit to stand trial, treatment can be imposed in order to bring the person to a state of fitness.

If the police officers elect to proceed by way of the MHA, as mentioned previously, they must have reasonable grounds to believe the person has a mental disorder and if so, they are

required to take the person to the ED of the nearest general hospital. Police officers are also authorized to intervene and make an apprehension in response to a Physician's order (Form 1), a Justice of the Peace order (Form 2), and a contravention of a CTO (Form 47). Additionally, they may be required to escort patients from one psychiatric facility to another, and to locate and return patients absent without leave from a psychiatric facility.

Police officers also engage in activities authorized under common law. For example, increasingly police officers are called upon to assist ED staff deal with potentially violent patients (PHSJCC, 2011). They may also be called upon to escort high risk mentally disordered accused and offenders for the purposes of making court appearances, medical appointments , transfers to other psychiatric facilities, and to obtain court-ordered psychiatric assessments (PHSJCC, 2011).

Pre-charge diversion is also an option for less serious offences. This could involve anything from taking the person home, releasing him/her into the care of a mobile crisis intervention team (MCIT), contacting the police service's victim services unit, or connecting the person with a local community mental health care service provider. Transporting the PSMD to a safe bed is additional pre-charge or post-charge diversion option. Safe beds are places to accommodate PSMD in the community which are intended to be alternatives to jails. Safe bed staff assists PSMD in resolving their crisis and linking them with available supports in the community (MoHLTC, 2005). These pre- and post-diversion options can also be used when no criminal acts have been involved.

Although police encounters involving the use of force are rare, PSMD are over-represented in police shootings, stun gun incidents, and fatalities (MHCC, 2011). Partly due to use of force incidents, specialized police response programs and strategies have evolved. For

example, MCITs consist of a mental health care worker and a plain clothes police officer co-responding to situations involving PSMD experiencing a crisis in the community. The COAST program in Hamilton, Halton, Peel and Niagara regions (COAST, Hamilton, Halton, Peel, Niagara, n. d.), the Lanark County L.E.A.D. program (n. d.), and the Chatham-Kent HELP team (n. d.) provide examples of this collaborative approach. Programs such as COAST often involve follow-up services in the community to ensure that the PSMD has no further contact with the criminal justice system. Another popular approach based on a model developed by the Memphis Tennessee police department is the use of Crisis Intervention Teams (CIT) (Memphis Police Department, 2012). This approach involves soliciting volunteers from the ranks who receive additional training usually up to a week on how to respond to PSMD. Dispatchers will then direct mental health calls to CIT trained officers.

A trend among police services in the province is to appoint a designated mental health liaison officer or coordinator who acts as the primary contact between the police service and mental health care service providers in the community. The police service mental health coordinator would also sit on local committees, such as those organized by the CMHA and the HSJCCs. The latter committees include inter-agency representatives who discuss how to respond to hard to serve PSMD who have had contact with the criminal justice system.

Police officers play a pivotal role because they have discretion in terms of whether to proceed by way of the criminal justice system or the mental health care system. It is because of this discretion that they have been referred to as the "gatekeepers to the mental health and the criminal justice systems" (Lamb et al., 2002). Moreover, being a constant presence in the community by virtue of the fact that they work 24 hours a day, seven days per week, police

officers may be the only members of society capable of bringing PSMD to the attention of the mental health care system.

2.5.5 Challenges faced by police organizations in responding to PSMD

The Chiefs of Police associations at both the national and provincial levels have been increasingly vocal in their concerns over police officers interacting with PSMD. In 2003, the Ontario Association of Chiefs of Police (OACP) issued a resolution calling on the Ontario government to recognize the

> "inappropriateness of enmeshing the criminal justice system, and particularly police services with health issues and that the current state of affairs has resulted in vulnerable individuals being at risk of increased involvement in the criminal justice system. This contact has resulted in the criminalization of behaviours associated with mental illness" (OACP, Resolution 03-03, 2003).

The OACP admonished the government for failing to provide adequate funding for community mental health care services and for the "inherently flawed approach to the treatment of individuals with mental illness" (OACP, Resolution 03-03, 2003). Similarly, in a 2005 presentation to the Senate Standing Committee on Social Issues, Science and Technology, the Canadian Association of Chiefs of Police (CACP) called on the government to recognize that "the police should not be the de facto first line of support for most people with mental illnesses" and that "appropriate mental health services" must be put in place to permit officers to get individuals the help they need in a "timely manner" (Canadian Police Mental Health Liaison, Presentation, 2005, p. 11). Further, as recently as 2011, the OACP issued a second resolution requesting that the government "de-emphasize the role of police in mental health and addiction

cases, as individuals are best served by health care professionals in the community and by a robust mental health and addiction system" (OACP, Resolution 11-01, 2011).

Although the Chiefs' associations expressed concern over the criminalization of PSMD and the lack of community resources, there are other challenges faced by policing organizations in their attempts to meet the needs of PSMD.

2.5.5.1 Ambiguity over the police role in responding to PSMD

The increasing expansion of the police role from the traditional emphasis on crime control to non-criminal, service-provision tasks has led to confusion among police officers as to their proper role in regard to PSMD. Although there are some studies that indicate that police officers accept their role in regard to PSMD, there are many more that suggest the opposite. On the acceptance side, Lamb et al. (2002) reported that police officers reluctantly perform their role as "street-corner psychiatrists". Watson, Corrigan, and Ottati, (2004) found that police officers view persons with schizophrenia as being less responsible for their situation, and more worthy of help, but they do see them as more dangerous than persons who have no mental disorder. Additionally, in a survey of Canadian police officers, Cotton (2004) found that police officers were actually more positive in their attitude toward the mentally ill than was the general public.

On the other hand, many studies reveal attitudes similar to those expressed by the OACP and CACP, that police officers should not be the primary responders to incidents involving PSMD. These police officers believe that the major reason why police organizations have had to do the job is because of a broken mental health care system and they feel it is the responsibility of the mental health care system to fix it (Gillig, Dumaine, Stammer, Hillard, & Grubb, 1990). Borum (2000) reported that many police officers expressed reluctance and resentment when tasked with responding to mental health calls for assistance. In Cotton's 2004 survey she

suggested that many police officers believe that responding to PSMD is not 'real' police work. To support her argument she referred to the fact that approximately 50% of police officers in her survey believed that calls for assistance involving PSMD are more time-consuming and resource intensive and 38% of police officers assigned the blame for such calls on inadequate mental health care services. Trovato (2000) also reported on the ambivalent feelings of Canadian police officers, who on the one hand felt a profound obligation toward PSMD while, on the other hand, they felt the public needs protection from them. Ruiz and Miller (2004) reported that a substantial proportion of police officers believed that PSMD are dangerous which caused them to feel uncomfortable, anxious, and threatened in their interactions with them. Finally, Hylton (1995) suggested that the ambivalent feelings that police officers express contributes to a sense of frustration which has led to improper decisions in responding to PSMD.

There is clear evidence to indicate that many police officers appear conflicted over their role in regard to PSMD and to suggest that not all police officer's view interacting with PSMD as a core function of their job. It is difficult to believe that this attitude does not in some way affect how many of them respond to PSMD.

2.5.5.2 Training issues

Assertions that police officers receive inadequate training has been referred to as the single most commonly cited issue accounting for the negative consequences of encounters between the police officers and PSMD (Lamb et al., 2002). Recommendations for enhanced training for police officers emanate from various sources. As mentioned earlier, experts who testified at Coroner's inquests recommended that police officers need better training on the MHA and how to communicate with PSMD. In the media coverage reporting on coroner's inquests (Tapper, 2011) and other incidents involving negative outcomes between police and PSMD

questions are inevitably asked about the adequacy of police training. For example, the following comments appeared in a 2012 *Toronto Star* article reporting on the deaths of three people with mental disorder who were shot by Toronto police.

> "Do front-line officers receive the right training? If they are taught to de-escalate confrontations with the mentally ill, as senior officials insist, why do some continue to bark orders, behave aggressively and make threatening moves? That can put officers themselves at additional risk, as well as those they are confronting" (Probe into police shootings of the mentally ill, 2012, August 19).

Police officers themselves have expressed frustration over what they feel is the inadequacy of their training. Cotton (2004) reported that 80% of the police officers she surveyed believed that they should be appropriately trained (Cotton, 2004). Similarly, a U.S. study by Vermette, Pinals, and Appelbaum, (2005) found that police officers were interested in learning more about interacting with persons with mental illness. Representatives of patient's groups have also recommended enhanced training for police officers. In a unique Canadian study, investigators set out to determine how people with mental disorder perceive and interact with the police (MHCC, 2011). The investigators found that of those with "lived experience" who were interviewed for the study, 90% (n=54) believed that police training was 'very' or 'extremely' important. Participants recommended that training include how to handle situations involving people with mental illness: (a) effective communication skills, (b) understanding mental illness and its effects, (c) treating people with compassion and respect, and (d) non-violent conflict resolution skills (MHCC, 2011).

In a survey of Canadian police academy training, Cotton and Coleman (2008) revealed that there is evidence to indicate that not all Canadian police officers have received consistent

and adequate training. They found that training on mental health issues was covered in basic recruit programs across the country, but that less than half of the academies had introduced this training only in the past 10 years. Thus, many long-serving police officers had no training on mental health issues at the recruit level. The number of hours devoted to mental health training ranged from 5 or less to over 20 hours with an average of 10 hours devoted to mental health issues. Ontario placed below average offering 7 hours mental health training through the Ontario Police College, Basic Constable Training Course. In a subsequent follow-up study, Coleman and Cotton (2010) focused on in-service police officer training and again, they found a wide variety of learning programs with variations in quality and availability from no in-service training to comprehensive training programs. Unfortunately, however, they concluded that overall only a small fraction of police personnel received the training (Coleman & Cotton 2010).

Cotton and Coleman (2008) acknowledged the lack of empirical research establishing a link between hours of training and job performance. They also recognized the importance of other factors related to the quality of the training that must be taken into consideration. These would include the style of delivery (e.g. adult education versus lecture), the use of technology (e.g. e-learning and training videos), the use of role play or simulations and the inclusion of representatives of the patient group which has been proven to enhance training. These factors were not taken into consideration in the Cotton and Coleman (2008) study. Nevertheless, the Cotton and Coleman studies (2008, 2010) are relevant because they revealed that the inclusion of mental health training is a relatively new development in the policing world and there currently exists a great deal of inconsistency in the amount and quality of training delivered across the country.

Given the broad base of support for more training there is a surprising lack of research devoted to evaluating the effectiveness of such training. Although there is some evidence that training may enhance police officers' knowledge about working with PSMD, the ability of such efforts to substantially change behaviour has not been established (Canada. Commission for Public Complaints against the RCMP, 2010). Cotton and Coleman (2008) and Watson, Morabito, Draine, and Ottati, (2009) also noted the absence of empirical studies addressing the question of how much training should be required and even the larger question of whether additional training/education leads to better outcomes.

Some investigators have suggested that even with enhancements to training, police behaviour will remain essentially unchanged because of the very nature of the job. Borum (2000) asserted, "...education programs and crisis intervention training are probably not harmful and may be helpful, but there is good reason to believe that they are not sufficient to change fundamentally the nature of police encounters with mentally ill persons in crisis (p. 333)." The reason for Borum's (2000) pessimism stems from the fact that police officers are trained to fulfil their fundamental common law duty to protect life and property. When they resort to lethal force options, they do not receive training designed to maim, but rather to remove the threat completely. The underlying rationale is that if the person is only partially incapacitated there is a continued threat that innocent bystanders might be inadvertently injured. Even with prior knowledge that a person has a mental health disorder if s/he presents as a threat to life, police officers will do fundamentally what they have been trained to do, which is to eliminate the threat. The fact that a person has a mental disorder will *always* be secondary to the fact that he or she is a threat to life. Thus, although enhancements to training may have some beneficial effect,

training in and of itself, may not be the great panacea that many think it is (Dupont & Cochran, 2000; Wells & Schafer, 2006).

2.6 Summary and recommendations

The interface between the criminal justice system and health system provides an example of the inability to integrate systems and services to effectively respond to the needs of PSMD. It is argued that issues such as excessive wait times in the ED, the "revolving door syndrome", police shootings and general overreliance on police organizations to manage PSMD are indicators of a dysfunctional system. Systemic and procedural issues such as the inability to share information about a person's health status across systems, restrictions on involuntary hospitalization, and the right for a patient to refuse treatment, have made it more difficult to obtain mental health services and forced many families into a position where they can only access mental care services through the criminal justice system.

Issues related to the ED such as insufficient mental health care resources, the apparent inaccuracy of the CTAS, evidence of resistance from some ED staff, lack of adequate training and the physical restrictions of the ED to handle violent patients are challenges to effectively responding to the needs of PSMD. On the policing side, de-institutionalization has meant that police officers have become the point of first contact for PSMD experiencing a crisis. There is ambiguity among some police officers regarding their role in relation to PSMD. Further, evidence from various sources indicates a possible need for more training on the MHA, PHIPA, and de-escalation strategies. Yet, it has been argued that no additional training will fundamentally change the police response. Their common law duty is to protect life and when faced with a threat to life they *will* respond accordingly regardless of the presence of a mental disorder. Police administrators are also well aware of the expansion of the role of police into non-

traditional service provision duties including those involving PSMD and the excessive costs this entails.

It has been suggested that a major reason why the government has been unable to respond more effectively to the needs of PSMD is that the mental health care system lacks cohesion and centralized control (Ontario Select Committee, 2010). According to Wolff (2002b), however, the current model of integration of systems and services is not going to be replaced in the foreseeable future. In the meantime, she suggested that efforts should be directed toward developing innovative ways to help make it easier for systems to work more effectively together. The subject of this thesis represents one such effort.

CHAPTER 3: DEVELOPMENT OF THE interRAI BRIEF MENTAL HEALTH SCREENER

3.1 Introduction

When a person with mental health problems presents with disruptive, dangerous or criminal behaviour, police officers are often called to de-escalate the situation, determine whether to lay criminal charges, and to bring the person to the attention of the mental health care system when needed. Much criticism has been directed toward the police over their handling of calls for service involving PSMD. Wolff (2002a) however, views this criticism, and the negative consequences of such encounters as symptomatic of a more fundamental problem that she described as dysfunction at the *systems* level: the needs of PSMD are not being met because of a failure to effectively integrate systems and services.

The development of the interRAI BMHS represents an effort to facilitate more effective integration of systems and services, but also to improve the ability of police officers to identify indicators of serious mental disorder. The aim of this chapter is to describe the underlying rationale and process that led to the creation of the interRAI BMHS. After providing a conceptual framework, the criteria needed to satisfy the needs of frontline police officers will be discussed. The benefits of such a tool will be outlined along with an overview of mental health instruments currently in use. This will lead to a discussion of the benefits of using the RAI-MH as the platform from which to develop a brief mental health screener. Next, the statistical analyses used to identify key items from the RAI-MH database will be presented. Finally, the principles underlying the interRAI BMHS and the consultative process that led to the creation of a draft version suitable for piloting will be described.

3.1.1 Conceptual framework

The ED has been referred to as the gateway to the mental health system for PSMD experiencing a mental health crisis (Marson, McGovern, & Pomp, 1988). Prior to entering the system, however, an assessment must be made to determine the nature and severity of the presenting mental health complaint. In fact, three assessments typically occur. Police officers must assess the person's mental state to determine whether the condition is serious enough to take the person to hospital. ED triage nurses assess to determine how long the person can safely wait in the ED before being seen by a physician. Finally, ED clinicians assess the person to determine if it is necessary to admit him/her for psychiatric evaluation or treatment, to discharge the person, or to refer to an alternative community mental health service.

Police officers are a major source of referrals to emergency psychiatric services (Maharaj, Gillies, Andrew, & Obrien, 2011; Way, Evans, & Banks, 1993). Yet, despite the fact that they bring so many people to the hospital with mental health complaints, there are no standardized guidelines to assist police officers in determining the severity of a person's mental health status. The MHA is vague requiring only that officers have "reasonable and probable grounds to believe that a person is acting or has acted in a *disorderly manner*" that is *apparently* due to a mental disorder (MHA, s. 17). Further, the MHA emphasizes violence potential in that the person must be *potentially dangerous* to him or herself or to others. There is also a requirement is that there is some urgency to the situation in that waiting to apply for a court order would be inappropriate (MHA, 1990). Although training is provided to police officers on how to recognize and respond to PSMD, some have argued that it is inadequate and inconsistent (Cotton & Coleman, 2010).

The situation is somewhat different for ED nurses who have the Canadian Triage and Acuity Scale (CTAS) to use as a guide. However, the focus of the CTAS is not specifically on assessing the nature and severity of a mental health disorder, but rather it is to determine how long the person can safely remain in the ED before being seen by a physician. The CTAS does, in fact, assign higher ratings to mental health presentations (Bullard et al., 2008); however, evidence such as lengthy ED wait times suggest that there are problems with triaging PSMD (Brown, 2011, Mood Disorders Society of Canada, 2008).

The final assessment is conducted by ED clinicians and there has been a considerable amount of research on the factors that enter into their assessment of mental health presentations. They too are concerned with danger to self or others (Hillard, Slomowitz, & Deddens, 1988; Lyons et al., 1997; Mulder, Koopmans, & Lyons, 2005; Way & Banks, 2001). However, they also focus on: a) severity of symptoms (Lyons et al., 1997; Marson et al., 1988; Mulder, Koopmans, & Lyons, 2005); b) diagnoses such as schizophrenia and psychosis (Hillard, Slomowitz, & Deddens, 1988; McNiel, Myers, Zeiner, Wolfe, & Hatcher, 1992; Mezzich, Evanczuk, Mathias, & Coffman, 1984; Schnyder, Klaghofer, Leuthold, & Buddeberg, 1999; Way & Banks, 2001); c) whether the person was brought to the hospital by police officers (Friedman et al., 1981; Lee, Brunero, Fairbrother, & Cowan, 2008; Sheridan, & Teplin, 1981; Way et al., 1993); d) family or friend's desire for admission (Mulder et al., 2005); e) previous admissions (Marson et al., 1988; Mulder et al., 2005; Schnyder et al., 1999); f) availability of beds (George, Durbin, Sheldon, & Goering, 2002; Mulder et al., 2005); and, g) whether alternative community resources are available (Chaput, Paradis, Beaulieu, & Labonte, 2008; George et al., 2002).

It can be seen from the above overview, that there are differences in the mental health assessments made by police officers, ED nurses, and ED physicians. Police officers' assessments, which are based on the MHA and whatever training they might receive, are vague with an emphasis on dangerousness to self or others. ED triage nurses are guided by the CTAS which is not intended as a tool to specifically recognize mental health disorders but rather to determine how long a person can safely wait in the ED before being seen by a physician. Finally, ED physicians are focused on diagnoses, symptom severity, and other factors such as the source of referral, previous admissions and availability of beds.

It is argued that the difference in the mental health assessments made by police officers, ED nurses, and ED physicians is a major factor underlying the problems encountered when PSMD attempt to enter the mental health system. The current model is based on the concept that the most effective way to meet the needs of PSMD is through the integration of systems and services. However, as Wolff (2002b) argues, true integration of systems and services has yet to be achieved. Given that the situation is unlikely to change anytime soon, she argues, in the meanwhile, efforts should be directed toward developing innovative ways to help promote more effective and efficient delivery of services. This dissertation represents one such effort. Specifically, the interRAI BMHS was developed as a new mental health screening instrument to be used by police officers. Core items were abstracted from the RAI-MH which is the mental health assessment system currently used across Ontario. The interRAI BMHS is therefore an evidence-informed tool to identify individuals with the greatest probability of falling into a high risk category based on indicators of risk of harm and disordered thought. The interRAI BMHS standardizes observations made by police officers and acts as a framework to enable officers to articulate their reasonable and probable grounds to believe a person has a serious mental

disorder. Further, because the terminology used on the form is consistent with the health system, the language itself will act as common currency between the systems promoting better integration of systems and services.

3.1.2 Criteria for mental health screener

There are basic criteria that must be met if a screening tool is to be adopted for general use by police officers. First and foremost, the screener must incorporate the basic elements of police officer authorities to apprehend PSMD as found in the MHA (S. 17, MHA, 1990). That is, the screener must include items pertaining to danger to self or others, and indicators of mental disorder. There must also be some means of capturing the urgency of the situation. Finally, if it is to assist in establishing *reasonable and probable grounds* that a person has a mental disorder, the form must be able to capture police officer observations, but also allow for input from secondary sources. A second major requirement is that the health system language used on the screener be understood by police officers. Training would therefore be required for police officers to learn the terminology and it was decided that a portion of the interRAI BMHS would be devoted to defining terms used in the form.

There are several additional criteria that would help to secure a commitment from police organizations and most importantly frontline police officers. First, a 2012 national survey involving 4500 Canadian police officers from 25 different police services across the nation confirmed the long held view that police officers have a strong dislike for paperwork (Duxbury & Higgins, 2012). Thus, the interRAI BMHS should be a quick and easy tool to use. It would be stressed that the instrument would make their job easier in two tangible ways. It would help them to more effectively document their observations in a language consistent with that used in the health system. Moreover, the form could be used as a framework to help them articulate their

reasonable and probable grounds to believe that a person has a mental disorder and needs to be assessed or treated.

Police officers are often required to wait excessive periods of time in the ED. This is a source of frustration for frontline police officers. Police administrators are also disturbed over having to deal with added fiscal demands, and in general, to compensate for having fewer officers available to take calls for service. It is difficult to argue that using the form would translate into less time spent in the ED. The most that could be said is that if police officers and ED staff both agree on the indicators of serious mental disorder it should, at least in theory, streamline the process of transferring patients from the criminal justice system to the health system. But still there could be no guarantee of less time spent in the ED. Consequently, it was decided that in lieu of the inability to argue that using the form would translate into less time spent in the ED, the form be used to capture the *amount* of time officers spend in the ED and on mental health related calls in general. This would make it easier for police services to calculate the associated costs.

To summarize, if the screener is to be effectively used by police officers it should be an evidence-informed tool to support officer decision-making in regard to determining an individual's mental health status and potential for risk of harm. The form should be able to quickly and easily capture police officer observations in the language of the health system albeit with some additional training. Finally, although there is no guarantee that the use of the interRAI BMHS will accelerate the process of transferring PSMD from one system to another, it has the potential to streamline the process and if items were included to capture the amount of time devoted to such calls, the information could be valuable to police administrators.

3.1.3 Overview of mental health screening instruments

Numerous instruments have been developed that are designed to assess health status. It is important to survey these instruments to determine if any might be suitable or adaptable for use by police officers particularly in light of the criteria outlined in the last section.

3.1.3.1 Instruments to assess violence risk

Webster and Hucker (2007) differentiated between two kinds of violence predictions. The first are those made by frontline personnel working in general and psychiatric emergency services; the second are those they describe as the more "reasoned" type of predictions made by mental health and correctional staff who "compile their prediction pictures" with the luxury of time (p. 15). In regard to the latter kind of violence prediction, since the 1980s there has been much research aimed at developing risk assessment tools, both actuarially-based, and those which fall under the heading of "structured professional judgement" (SPJ) (Grann, Belfrage, & Tengstrom, 2000; Ho, Thomson, & Darjee, 2009). Examples of such instruments include the Level of Service/Case Management Inventory (LSI/CMI) (Andrews, Bonta, & Wormith, 2004), Historical Clinical Risk - 20 (HCR-20) (Webster, Douglas, Eaves, & Hart, 1997), and the Violence Risk Scale (VRS) (Wong & Gordon, 2006), and the Short-Term Assessment of Risk and Treatability (START) (Webster, Martin, Brink, Nicholls, & Middleton, 2004).

Violence risk assessment instruments have proven to be superior to unstructured clinical assessments (Campbell, French, & Gendreau, 2009; Douglas, Yeomans, & Boer, 2005; Gendreau, Goggin, & Law, 1997; Gendreau, Little, & Goggin, 1996; Gendreau, Goggin, & Smith, 2002). However, for the most part, they were not intended for use by frontline personnel such as police officers. Instead, they were primarily designed for use by clinicians, correctional staff and mental health professionals to predict the likelihood of violence at some later date and

time. For example, they are commonly used to support release decision-making by organizations such as the Ontario Review Board and Parole Board (Grove & Meehl, 1996).

The second type of violence risk prediction recognized by Webster and Hucker (2007) is that made by frontline staff. Although they refer to it as a *type* of violence prediction, they do not elaborate. Instead, they refer to research focusing on how to restore calm "during rapidly developing and escalating emergencies" (p. 15). Indeed, there are few evidence-informed instruments that are intended to predict imminent or immediate risk as opposed to long-term risk assessment. The exception would be instruments developed in relation to domestic violence (Campbell, Webster, & Glass, 2009; Centre for Research, 2010; Hilton, Harris, & Rice, 2010), and more recently, those used to predict psychiatric inpatient aggression (Neufeld, Perlman, & Hirdes, 2012). Although domestic violence instruments have become increasingly popular, a meta-analytical study by Hanson, Helmus, and Bourgon (2007) concluded that "despite the claims of those who promote particular scales, the most accurate approach to risk assessment has yet to be established" (p. 2). As to efforts to predict psychiatric inpatient violence, Neufeld et al. (2012) found that the Risk of Harm to Others Clinical Assessment Protocol (RHO CAP) was useful in identifying patients at greater risk of displaying physical aggression. The RHO CAP is a risk assessment algorithm incorporated within the Resident Assessment Instrument-Mental Health (RAI-MH) which is a comprehensive mental health assessment system. The RAI-MH (earlier version of the interRAI MH) is currently used with all patients admitted into a psychiatric bed in the province of Ontario and will be discussed in more detail in an upcoming section.

3.1.3.2 Screening instruments related to mental health

Screening instruments related to mental health can be divided into those designed to identify symptoms of mental disorder, those used to detect substance abuse problems and those used to assess for general level of need. They can also be further sub-divided into observer-rating scales and self-reporting scales. The latter type of scales will not be reported on because they are not appropriate for emergency situations and they require expertise to administer and interpret.

Two popular rating scales to identify symptoms of mental disorder are the Brief Psychiatric Rating Scale (BPRS) designed to measure psychiatric symptoms (Overall & Gorham, 1962), and the Positive and Negative Syndrome Scale (PANSS) for schizophrenia (Kay, Fiszbein, & Opler, 1987). These rating scales require considerable training and expertise to administer and interpret and were designed to be used by clinicians and researchers. Similarly, there are two popular Psychotic Symptoms Rating Scales (PSYRATS) (Haddock, McCarron, Tarrier, & Faragher, 1999), which are used by clinicians in structured interviews to measure dimensions of hallucinations and delusions. Finally, there are a number of scales used to measure depression and suicide potential such as Beck's Suicidal Intent Scale (BSIS) (Beck, Kovacs, & Weissman, 1979), and Beck's Hopelessness Scale (BHS) (Beck, Resnik, & Lettieri, 1974). Unfortunately, however, they are self-report rating scales. Addiction rating scales are also predominantly self-reporting scales designed as diagnostic tools and therefore not of practical use to police officers.

3.1.3.3 Mental health screening instruments to assess general level of need

Instruments designed to assess general level of need are typically used to support care planning. Examples of such instruments currently used in Ontario include the Ontario Common Assessment of Need (OCAN) which is partly based on the Camberwell assessment of need

(Phelan et al., 1995), and the RAI-MH (Hirdes et al., 2000/2001). The OCAN is used to measure needs in community mental health settings while the RAI-MH was mandated for use in inpatient psychiatric settings. Neither of these instruments is intended for use in psychiatric *emergency* settings; however, the interRAI Emergency Screener for Psychiatry (ESP) is a derivative of the RAI-MH that can be used in these settings.

3.1.3.4 Summary and recommendations

None of the violence assessment or mental health rating scales that were reviewed meet the criteria necessary for a brief screener to be appropriate for use by police officers. Though most are brief, they are not designed to capture observations or to assess for imminent or immediate situations. Instead, they were primarily designed for use by clinicians or researchers in structured interviews and require expertise and considerable training to administer and interpret. Further, a fundamental problem is that except for the more comprehensive instruments designed to assess for general level of need such as the OCAN and the RAI-MH, none of them are capable of simultaneously assessing for violence risk, mental health status and substance abuse or addictions. Thus, a new form would have to be created as opposed to adapting an existing form. Given the comprehensiveness of the OCAN and the RAI-MH, they were viewed as a good starting point from which to develop a new brief mental health screening suitable for police use. Between the two instruments the RAI-MH became the natural choice because it has undergone the most comprehensive psychometric testing and it is currently being used by Ontario hospitals. The next section provides a more detailed discussion of the background, rationale and benefits of using the RAI-MH to develop a new brief mental health screening tool.

3.1.4 The Resident Assessment Instrument – Mental Health (RAI-MH)

3.1.4.1 Background

The RAI-MH is a comprehensive mental health assessment system that was mandated in 2005 by the Ministry of Health and Long-Term Care (MoHLTC) with all persons admitted to Ontario hospitals for inpatient psychiatric care. The development of the RAI-MH was led by a core team of Canadian investigators with input from five interRAI countries. The process involved a number of methods and procedures including literature reviews, the formation of an expert working group and overview committee, utilizing expert co-authors/consultants and frontline clinicians, evaluating training, debriefing sessions and surveys of RAI-MH assessors (Hirdes et al., 2000/2001). In a subsequent study, Hirdes et al (2002) found acceptable or higher than average levels of inter-rater reliability and good evidence of convergent validity for the components that were examined. A follow-up study on the second generation of the RAI-MH showed even stronger performance for inter-rater reliability (Hirdes et al., 2008).

The RAI-MH 2.0 includes several components: the Minimum Data Set – Mental Health (MDS-MH), Clinical Assessment Protocols (CAPs), Quality Applications and the System for Classification of In-Patient Psychiatry (SCIPP), and a case mix algorithm for mental health funding. It is used in hospital settings for acute, long-stay, forensic and geriatric patients to provide a comprehensive mental health assessment, but also an assessment of social, environmental, and medical issues. The mandated use of the RAI-MH in 2005 was also accompanied by the introduction of the Ontario Mental Health Reporting System (OMHRS) which is a reporting system of the Canadian Institute for Health Information (CIHI). Completed RAI-MH forms are submitted quarterly to CIHI.

3.1.4.2 Benefits of creating a brief mental health screener based on the RAI-MH

There are many features of the RAI-MH that make it suitable as a basis from which to develop a brief screening instrument. First, because the RAI-MH is linked to interRAI, efforts to develop a new instrument would benefit from the expertise of an international group of researchers with extensive experience in instrument development. Second, a problem with current instruments is that they cannot simultaneously measure mental health, violence risk and addictions. The comprehensiveness of the RAI-MH means that it would have items pertaining to all three areas of interest. Third, the RAI-MH is linked to interRAI instruments in other sectors such as long-term care and home care thereby supporting an integrated health information system. Also, other instruments have been created based on the RAI-MH, including the interRAI ESP for acute mental health emergency screening, and the interRAI Community Mental Health (CMH) designed for community care settings. A brief mental health screener based on the RAI-MH would be compatible with these instruments and would therefore help to promote a seamless system of care. Fourth, a feature of the interRAI instruments not found in other mental health assessment instrument is the use of algorithms that "trigger" care planning and interventions referred to as Mental Health Clinical Assessment Protocols (CAPS) (formerly, Mental Health Assessment Protocols (MHAPs)) (Martin et al., 2009; Mathias, Hirdes, & Pittman, 2010). The concept underlying CAPS might be adapted for use by police officers for training purposes in that they would describe evidence-informed best practice response guidelines. Fifth, embedded within the RAI-MH are validated assessment scales that have some relevance to police officers including those pertaining to danger to self or others, and inability to care for self. Sixth, there is an extensive database of completed RAI-MH assessments that could be analyzed to abstract those characteristics most associated with the persons police officers would encounter. Finally,

most ED mental health staff should have some knowledge of the RAI-MH and if it was made known that brief screener for police officers was based on their own data and instrument, it may promote acceptance of the new brief screener for police officers.

3.2 Methods

There were several stages to the development of the interRAI BMHS including identifying the criteria used to select candidate items, a focused literature review, an analysis of the RAI-MH database, and the creation of a research team and advisory committee to determine if any additional items would be required, and to further guide its development through to the pilot stage. Input was also solicited from interRAI member researchers and in particular the interRAI Network of Excellence in Mental Health (iNEMH) which was established in 2005 to support research and implementation of the interRAI mental health instruments. The iNEMH is comprised of about 30 researchers and clinicians from nine countries (Canada, United States, Finland, Iceland, Netherlands, Australia, Brazil, Chile, Peru, Russia) with a broad range of expertise in mental health services. Current research projects include development of supplements to existing instruments (e.g., forensic and child/youth justice supplements); evaluation of mental health needs of persons in prisons; case-mix systems for mental health; mental health quality indicators; quality of life in mental health settings; and cross-national comparisons of outcomes in inpatient and community mental health (iNEMH, 2013).

3.2.1 Criteria used to identify candidate items for the interRAI BMHS

There were several criteria used to guide selection of items for the interRAI BMHS. First, given that police officers derive their authority to apprehend persons with mental disorders from the MHA, candidate items must reflect these authorities. Second, items were considered if the scientific literature identified them as predictors of dangerousness and mental health status. The

literature review would also help to determine if items had to be added aside from those already in the RAI-MH. Third, items were considered if the statistical analyses of the RAI-MH database identified them as significant predictors of persons most likely to be apprehended by police officers and those most likely to be admitted for psychiatric assessment or treatment. Finally, items were included if they were recommended by the research team and an advisory committee comprised of senior police officials, mental health professionals and researchers. The next two sections are devoted to the literature review and analyses of the RAI-MH database while input from the research team and advisory committee will be reported in the Discussion section.

3.2.2 Empirical research on indicators of mental health status and dangerousness

As noted earlier, there is a substantial body of research on violence risk assessment. There is also a great deal of research examining the relationship between mental illness and violence (Hodgins, 1992; Link, Andrews, & Cullen, 1992; Monahan 1992a; Mulvey, 1994; Tehrani, Brennan, Hodgins, & Mednick, 1998; Silver, 2006; Swanson, Holzer, Ganju, & Jono, 1990). There is strong evidence in favour of a link between violence potential and sub-categories of mental disorder such as psychosis and specific symptoms such as hallucinations and delusions (Douglas, Guy, & Hart, 2009). The relationship between psychosis and violence has been supported by narrative reviews (e.g. Junginger, 1996; McNiel, 1994; Monahan, 1992b; Mulvey, 1994; Taylor, 1995; Wessely, 1993). Additional support can be found in a meta-analytic study by Fazel, Gulati, Linsell, Geddes, and Grann (2009) who found that the risk of violence for persons having schizophrenia or related disorder was four to five times greater than the general population. They reported that violence risk was mediated by substance abuse, which substantially increased the risk. A second meta-analytic study published in the same year by Douglas et al. (2009) found that psychosis was reliably associated with a 49% - 68% increased

likelihood of violence. They also found that co-morbid psychosis and substance-related diagnoses produced substantially larger effect sizes than did psychosis alone. Two additional risk factors that have been well documented as predictors of future violence are treatment non-compliance (Swartz et al., 1998), and prior violence or criminality (Monahan et al., 2001).

To sum, the best available evidence would suggest that major predictors of violence would include serious mental disorder such as, psychosis, particularly if symptoms such as delusions and hallucinations are active. Prior violent behaviour, criminal activity, substance abuse, and medication non-compliance are also well established as predictor variables. All of these items are included in the RAI-MH.

3.2.3 Analysis of the RAI-MH database

A major aim of the statistical analysis of the RAI-MH database was to identify characteristics of persons most likely to be apprehended by police officers and taken to a hospital. Given that police officers are primarily concerned with risk of harm to self or others, the first step in the analysis was to create a Risk of Harm (RoH) variable based on three of the validated scales embedded in the RAI-MH: Severity of Self-harm, (SOS), Risk of Harm to Others (RHO), and the Self Care Index (SCI) (Hirdes et al., 2011). All three scales are scored on a scale ranging in severity from 0-6, the higher the score the more severe the condition. To focus on the most severe cases, only the highest categories of the scales were included and three levels of RoH were created. The highest level of RoH was a score of 6 in *any* of the three scales (RoH-*high*). A score of 5 in *any* of the three scales was considered a medium risk (RoH-*medium*). A low level of risk was indicated when there was a rating of less than 5 for all three scales (RoH-*low*).

The next step was to identify individual variables from the RAI-MH database that were correlated with RoH-*high*. The aim was to find the subset of RAI-MH items most predictive of being high risk in RoH. Due to the large number of variables on the RAI-MH, the analysis was restricted to the top 20 variables that had the strongest association with RoH-*high*. These items were then considered candidates for inclusion in the interRAI BMHS depending on the results of further analyses on their performance in multivariate models.

3.3 Results

As can be seen in Table 1, except for a slight difference in ordering, the same variables are predictive of scoring either a 6 only or a 5 or a 6 on the three risk scales. Using RoH-*high* as the basis of a model, it was possible to reduce the number of variables to 14 because of redundancy of some of the items. For example, *Episodes of disorganized speech* and *Periods of altered perception* were removed because each is correlated ($r > 0.25$) with *Cognitive skills for daily decision-making*, *Degree of insight*, *Delusions*, and *Hallucinations.* Similarly, *Hygiene* was removed because it is correlated to *Abnormal thought process* and *Degree of insight* ($r > 0.25$). *Easily distracted* and *Labile affect* were removed because each is correlated to *Abnormal thought process* ($r > 0.25$). Finally, *Physical abuse* was removed because its accurate recognition requires the expertise of someone with a mental health background.

Logistic regression analysis was used on the 14 variable algorithm (see Table 2), which produced a c-statistic of 0.89. The c-statistic is used to compare the goodness of fit of logistic regression models. Values range from 0.5 to 1.0 and models are typically considered reasonable when the C-statistic is higher than 0.7 and strong when C exceeds 0.8 (Hosmer & Lemeshow, 2000).

Table 1: Top 20 variables from RAI-MH database correlated to Risk of Harm (RoH), *n*=41, 019

Variable	RoH (score 5 or 6)		RoH-*high* (score 6 only)	
	r	*p*	*r*	*p*
1. Self-injurious attempt – in last 7 days	0.44	<.0001	0.35	<.0001
2. Considered performing a self-injurious act in last 30 days	0.40	<.0001	0.29	<.0001
3. Intimidation of others or threatened violence	0.33	<.0001	0.35	<.0001
4. Family, caregiver, friend, or others express concern that person is at risk for self-injury	0.30	<.0001	0.25	<.0001
5. Violent ideation	0.28	<.0001	0.31	<.0001
6. Violence to others	0.27	<.0001	0.30	<.0001
7. Cognitive skills for daily decision-making	0.25	<.0001	0.30	<.0001
8. Verbal abuse	0.24	<.0001	0.27	<.0001
9. Abnormal thought process	0.22	<.0001	0.29	<.0001
10. Degree of insight into mental health problem	0.22	<.0001	0.27	<.0001
11. Delusions	0.20	<.0001	0.29	<.0001
12. Hallucinations	0.20	<.0001	0.25	<.0001
13. Socially inappropriate or disruptive behaviour	0.20	<.0001	0.23	<.0001
14. Irritability	0.19	<.0001	0.23	<.0001
15. Physical abuse	0.19	<.0001	0.21	<.0001
16. Episodes of disorganized speech	0.18	<.0001	0.23	<.0001
17. Periods of altered perception or awareness of surroundings	0.18	<.0001	0.22	<.0001
18. Hygiene	0.17	<.0001	0.21	<.0001
19. Easily distracted	0.17	<.0001	0.21	<.0001
20. Labile affect	0.16	<.0001	0.20	<.0001

Table 2: Logistic regression analysis modelling for the highest level of Risk of Harm (RoH-*high*) after reducing the algorithm to 14 variables

Variable	Parameter Estimate	Standard Error	OR (95% CI)	*p* value	*c* value
1. Self-injurious attempt – in last 7 days	0.62	.01	1.86 (1.82, 1.91)	<.0001	0.89
2. Considered performing a self-injurious act in last 30 days	1.75	.04	5.74 (5.33, 6.19)	<.0001	
3. Intimidation of others or threatened violence	0.30	.01	1.35 (1.32, 1.39)	<.0001	
4. Family, caregiver, friend, or others express concern that person is at risk for self-injury	0.21	.03	1.24 (1.17, 1.31)	<.0001	
5. Violent ideation	0.29	.01	1.33 (1.30, 1.37)	<.0001	
6. Violence to others	0.25	.01	1.29 (1.26, 1.33)	<.0001	
7. Cognitive skills for daily decision-making	0.54	.01	1.72 (1.68, 1.76)	<.0001	
8. Verbal abuse	0.10	.02	1.09 (1.05, 1.12)	<.0001	
9. Abnormal thought process	0.24	.01	1.28 (1.25, 1.31)	<.0001	
10. Degree of insight into mental health problem	0.54	.02	1.72 (1.65, 1.79)	<.0001	
11. Delusions	0.43	.01	1.53 (1.49, 1.57)	<.0001	
12. Hallucinations	0.24	.01	1.28 (1.25, 1.31)	<.0001	
13. Irritability	0.04	.01	1.04 (1.02, 1.06)	0.0008	
14. Socially inappropriate or disruptive behaviour	0.05	.02	1.05 (1.01, 1.08)	0.01	

The next step was to create a variable that would be representative of those individuals who would be brought to hospital by police officers. The new variable referred to as, Police Escort to Hospital (PEH) would have to include indicators of RoH *and* indicators of Disordered Thought if it was to truly represent police officer authorities as per the MHA. To accomplish this, the 14 variable algorithm was divided into Indicators of RoH (variables 1-6, Table 2) and Indicators of Disordered Thought (variables 7-14, Table 2).

The final step in the analysis was to examine the relationship between the 14 variable algorithm and Reason for Admission on the RAI-MH. Using the sample of 41,019 cases, a strong relationship was revealed between PEH and the Reason for Admission items (Tables 3, 4, & 5). Of those who were admitted because of Threat or Danger to Self, 67% (χ^2= 3849.6, df = 1, p <.0001) were classified as PEH; of those who were admitted because of Threat or Danger to Others, 71% (χ^2 = 1882.5, df = 1, p <.0001) met the criteria for PEH; and, when the reason was Inability to Care for Self, 57% (χ^2 = 393.3, df = 1, p <.0001) met the criteria for PEH.

3.4 Discussion

The 14 items in the model became the core items on the interRAI BMHS to be evaluated in a pilot study. The next step involved the formation of a research team (see Appendix C), which included representatives from interRAI, the Ontario forensic mental health system and the Ontario correctional system. A fourth member of the team was added because of her expertise in the development and delivery of the educational materials that support interRAI research projects. An advisory committee was also established (see Appendix D), which refined the instrument over a period of about twelve months commencing in the fall of 2009.

Table 3: Relationship between Police Escort to Hospital (PEH) and Reason for Admission – Threat or Danger to Self using sample from RAI-MH database, *n*=41,019

Police Escort to Hospital (PEH)	Threat or Danger to Self		*df*	χ^2	*p* value
	No % (*n*)	Yes % (*n*)			
No	63.4 (14149)	32.6 (6097)	1	3849.6	<.0001
Yes	36.6 (8178)	67.4 (12595)			

Table 4: Relationship between Police Escort to Hospital (PEH) and Reason for Admission – Threat or Danger to Others using sample from RAI-MH database, *n*=41, 019

Police Escort to Hospital (PEH)	Threat or Danger to Others		*df*	χ^2	*p* value
	No % (*n*)	Yes % (*n*)			
No	54.9 (17760)	28.7 (2486)	1	1882.6	<.0001
Yes	45.1 (14588)	71.3 (6185)			

Table 5: Relationship between Police Escort to Hospital (PEH) and Reason for Admission – Inability to Care for Self due to mental illness using sample from RAI-MH database, *n*=41, 019

Police Escort to Hospital (PEH)	Inability to Care for Self		*df*	χ^2	*p* value
	No % (*n*)	Yes % (*n*)			
No	53.2 (13443)	43.2 (6803)	1	393.3	<.0001
Yes	46.8 (11814)	56.8 (8959)			

3.4.1 Additional variables included on the interRAI BMHS

During deliberations to create the several iterations of the draft interRAI BMHS some additional items were added (see Table 6). There was general agreement that command hallucinations, hyper-arousal, pressured speech, intoxication by drugs or alcohol, squalid living conditions, suicide plan, failure to take prescribed medication and homelessness are common problems encountered by police officers. Therefore, the research team decided to include them on the draft screener. Previous police contact, use of weapons and police action (e.g. lay a criminal charge or apprehend under the MHA) were not assessed on the RAI-MH. However,

because these are concerns of the police, it was decided to include them as well. There was a variable pertaining to whether the police contact was due to an existing order, such as a court order (Form 2) for psychiatric examination. There were also several items that were included to meet the administrative needs of both hospital staff and police services including the person's name, address, incident numbers and location, birth date, sex, police action and time of arrival at scene, time of arrival at the ED and the time the call was completed.

Thus, the final draft version of the interRAI BMHS included 14 items from the analysis of the RAI-MH database, 9 additional clinical variables recommended by the advisory committee and 10 administrative and contextual variables.

3.4.2 Principles underlying the development of the interRAI BMHS

The development of the interRAI BMHS was guided by several underlying principles. First and foremost, as already noted, the items to be included in the instrument had to be consistent with police officer authorities to apprehend persons under the MHA. A second principle underlying the interRAI BMHS is that similar to RAI-MH, it is not designed to replace police officer decision-making. Although the RAI-MH describes items of interest, it was left to the individual clinician's professional judgment to determine the most accurate source of information. It was hoped that this would both foster a greater buy-in from clinicians, but also permit her/him to use alternative sources of information for patients unable or unwilling to provide the information. The same rationale applies to the interRAI BMHS. The interRAI BMHS is used to capture and organize police officer observations made at the time of the occurrence. It will support rather than replace a police officer's decision-making. A third principle is related to the administration of the interRAI BMHS.

Table 6: Variables selected for the pilot version of the interRAI Brief Mental Health Screener (interRAI BMHS)

Identified through analysis of RAI-MH database, *n* = 41,019	Items recommended by the Advisory Committee	
Clinical	Clinical	Administrative
1. Irritability	1. Command hallucinations	1. Name
2. Hallucinations	2. Hyper-arousal	2. Sex
3. Delusions	3. Pressured speech	3. Birth date
4. Abnormal thought process	4. Intoxication by drug or alcohol	4. Address
5. Socially inappropriate or disruptive behaviour	5. Home environment-Squalid conditions	5. Homeless
6. Verbal abuse	6. Suicide plan	6. Apprehension made under existing order for psychiatric evaluation
7. Degree of insight into mental health problem	7. Refused to take some or all of prescribed medication in last 3 days	7. Police action (e.g. lay a criminal charge or apprehend under MHA)
8. Cognitive skills for daily decision-making	8. Previous police contact in last 30 days	8. Time of arrival at scene
9. Violent ideation	9. Person has been known to carry or use weapons(s)	9. Time of arrival at the ED
10. Intimidation of others or threatened violence		10. Time call ended
11. Violence to others		
12. Self-injurious attempt – in last 7 days		
13. Considered performing a self-injurious act in last 30 days		
14. Family, caregiver, friend, or others express concern that person is at risk for self-injury		

Given the historical distaste that police officers have for additional "paperwork" any new form must be valid, user-friendly and least time-consuming. Similarly, though it is recognized that the language is meant to act as common currency, there must be some attempt to find a middle ground so that both systems are comfortable with terminology. That is, some attempt must be made to convert medical and legal terms into language that is acceptable and understood by both systems.

3.4.3 Next steps

With a draft version of the interRAI BMHS created, the task of the research team was to work with the advisory committee to determine the viability of a pilot project and to deal with issues regarding implementation which is the subject of the next chapter.

CHAPTER 4: PILOT STUDY OF THE interRAI BRIEF MENTAL HEALTH SCREENER

4.1 Introduction

The process to develop the interRAI BMHS involved a number of methods and procedures including an analysis of the RAI-MH database, a literature review, the formation of an expert panel, and an advisory committee consisting of police officers, hospital staff and researchers. The interRAI BMHS is based on the RAI-MH which is currently used for all patients admitted into a psychiatric bed in the province of Ontario (CIHI, 2010-2011). The data analysis identified items from the RAI-MH database significantly associated with risk of harm, which became core items on the draft version of the interRAI BMHS with additional items added by the advisory committee.

A major goal underlying the development of the interRAI BMHS is to provide police officers with an evidence-informed tool to assist in the identification of PSMD. Police officers could use the interRAI BMHS as a framework to capture their observations and because the language on the form is that of the health system, it provides the opportunity to help synchronize the criminal justice and mental health care systems. There were several reasons why a pilot of the interRAI BMHS was deemed necessary. First and foremost, the pilot study would provide the opportunity to determine if the items on the interRAI BMHS accurately capture the demographic, clinical and contextual characteristics of PSMD who are apprehended by police officers. Further, it would be possible to identify the characteristics of the subgroup of persons who are admitted to hospital for psychiatric assessment or treatment. Second, the characteristics of the sample population could be compared to characteristics identified in the literature. Third, the pilot study could help to determine if any of the items on the interRAI BMHS could be removed leading to a more parsimonious model potentially reducing administrative burden on

the part of police officers. Finally, the interRAI BMHS documents the amount of time police officers devote to calls for service involving PSMD. Given the current lack of data on this subject, information from the pilot study could help to more accurately assess resource expenditures.

The next section is devoted to a discussion of the empirical evidence regarding the characteristics of persons with mental health problems who were apprehended by police officers and taken to hospital and those persons who were subsequently admitted.

4.1.1 Background

Research studies have examined the characteristics of persons brought to the ED by police officers and compared them to referrals from other sources, such as family, friends, or self referral (McNiel, Hatcher, Zeiner, Wolfe, & Myers, 1991; Redondo & Currier, 2003; Sales, 1991). The terminology used in the literature is "police referred" versus "others referred" to the ED. There have also been studies focusing on the characteristics of persons referred by police who were subsequently hospitalized for psychiatric assessment or treatment (Redondo & Currier, 2003; Way et al., 1993). Almost all of the studies have been carried out in the United States, Australia and Europe. No Canadian studies could be found in the literature. Typically, the studies are retrospective in design and use chart audits to compare patient characteristics. In terms of data analysis, initially there appears to have been a heavy reliance on univariate and bivariate analysis to compare demographic, clinical and contextual variables of persons referred from various sources with patient disposition. However, since the early 1990s, multivariate analyses, which take into account intercorrelations between variables have become more common. The following sections highlight the major findings from the studies employing univariate and

bivariate analyses which will be compared to the results obtained from the pilot study. Studies using multivariate methods will be discussed separately in next chapter.

4.1.1.1 Characteristics of persons referred to the ED by police officers

Persons referred by police to the ED tend to be males (Kneebone, Rogers, & Hafner, 1995; Lee et al., 2008; Redondo & Currier, 2003; Sales, 1991; Shafiei et al., 2011; Way et al., 1993) who are between 33 and 40 years of age (Broussard, McGriff, Demir Neubert, D'Orio, & Comptom, 2010; Lee et al., 2008; McNiel, Hatcher, Zeiner, Wolfe, & Myers, 1991). Intoxication and substance abuse has been significantly associated with police referrals (Lee et al., 2008; Maharaj et al., 2011; Reinish & Ciccone, 1995; Shafiei et al., 2011; Way et al., 1993). Symptoms of psychosis (Meadows el al., 1994; Sales, 1991; Watson et al., 1993; Way et al., 1993) and an overall higher level of psychiatric symptom severity has also differentiated police referrals from referrals from other sources (McNiel et al., 1991; Meadows et al., 1994; Watson et al., 1993). The most common characteristic associated with police referrals is violent or aggressive behaviour toward self or others (Broussard et al., 2010; Citrome, & Volaka, 1999; Kneebone et al., 1995; Lee et al., 2008; McNiel et al., 1991; Meadows et al., 1994; Redondo & Currier, 2003; Reinish & Ciccone, 1995; Sales, 1991; Watson et al., 1993; Way et al., 1993).

4.1.1.2 Characteristics of persons referred to the ED by police and admitted

Reinish and Ciccone (1995) compared the demographic and clinical characteristics of involuntarily hospitalized police referrals and police referrals that were discharged. They found that police referrals who were hospitalized were significantly more impaired as measured by the Global Assessment of Functioning Scale (GAF), and significantly more likely to have been diagnosed with a major psychiatric disorder (major depressive episode, bipolar affective disorder, schizophrenia, or other psychosis). These patients were also more likely to be violent

both before and during the psychiatric evaluation in the ED and more likely to be restrained and secluded during the assessment. Violence on its own, however, is not grounds for hospitalization. McNiel, Myers, Zeiner, Wolfe, and Hatcher, (1992) found that clinicians tend to hospitalize the most severely disturbed patients usually with psychiatric diagnoses of schizophrenia or manic disorders. According to McNiel et al. (1992), the results of their study were consistent with established clinical practice that when assessing a patient who has violent tendencies, the effort is made to identify the underlying source of the violent behaviour. If the underlying source is considered treatable, it is more likely that the person will be hospitalized. If the underlying source cannot be identified, it is more likely that the patient would be diverted to outpatient treatment, drug or alcohol programs or the legal system (McNiel et al., 1992).

A controversial characteristic of persons referred to the ED by police officers and admitted has been the very fact that they were brought to the hospital by police officers. There is considerable debate in the literature over the perceived influence that police officers have over hospitalization decision-making. Some researchers have suggested that the fact that a large proportion of admissions are police referrals (Friedman et al., 1981; Sheridan & Teplin, 1981) is evidence that police officers exercise undue influence over admission decisions (Durham, Carr, & Pierce, 1984) resulting in what has been referred to as the *psychiatrization* of criminal behaviour (Marcos, & Cohen, 1986; Steadman, Morrissey, Braff, & Monahan, 1984). Research by Watson et al. (1993), however, demonstrated that patients brought to hospital by police were, in fact, appropriate for that setting. They reported that persons referred by police were more psychiatrically impaired and *less* likely to have a criminal record compared to patients referred from other sources.

4.1.1.3 Summary

Persons who are typically taken to hospital by police officers are males in their mid to late 30s. They are more likely to be intoxicated or have substance abuse issues. They present with psychotic symptoms and are considered more severely psychiatrically disturbed than referrals from other sources. The most common characteristic associated with police referrals as opposed to referrals from other sources is violent or aggressive behaviour toward self or others.

Persons who are brought to hospital by police officers and subsequently admitted are also considered dangerous and aggressive towards self or others, although violence alone is not a major factor leading to hospitalization. There is also evidence of drug or alcohol problems and a greater degree of psychiatric impairment. The differentiating factors appear to be the emphasis placed by police officers on dangerousness to self or others versus the emphasis that clinicians place on psychiatric diagnoses, and symptoms of major mental disorder. Clinicians appear to place greater emphasis on psychosis, and other indicators of disordered thought such as impulsivity, irritability, thought content disorder, formal thought disorder and bizarre behaviour.

4.2 Methods

4.2.1 Setting and sample

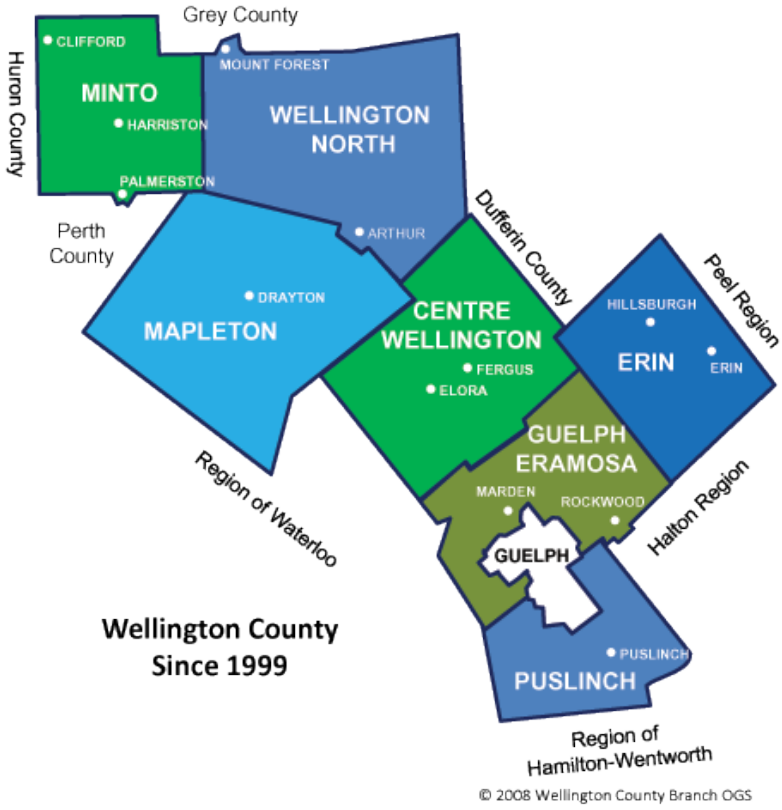
The setting for the pilot study was Wellington County and the City of Guelph (see Figure 1). These two jurisdictions were chosen because they are representative of the province of Ontario on a number of important variables. For example, there is rural and urban representation. The City of Guelph is located 100 kilometres west from the City of Toronto and has a population of about 122,000 inhabitants (City of Guelph, Community Profile, 2011). On the other hand, Wellington County is a mixture of rural areas and smaller towns. According to Statistics Canada, *rural* includes towns and municipalities outside the commuting zone of urban centres with a

population of 10,000 or more (du Plessis, Beshiri, Bollman, & Clemenson, 2001). Wellington County is comprised of seven towns and townships and spans 2,569 square kilometers bordering the counties of Grey, Bruce, Huron, Perth and Dufferin, the cities of Guelph and Hamilton and the regions of Waterloo, Halton and Peel (Reichert, 2011).

As seen in Appendix E, the demographics of the two jurisdictions are similar to each other and also similar to the province. There is very little difference in age, gender, marital status, average educational level, household income, family size and number of children at home. Although both jurisdictions are comparable to the provincial median household income, the northern region of Wellington County has slightly lower household income than the southern portion of the County. Both Wellington County and the City of Guelph have one of the lowest unemployment rates in the province and Canada. There are some differences in regard to the ethnicity of the pilot sites as compared to the province. That is, there is a slightly higher percentage of people in the pilot sites whose mother tongue is English and where English is the most common language spoken in the home (Reichert, 2011).

In terms of policing services, the two jurisdictions are representative of other jurisdictions in the province. The Ontario Provincial Police (OPP) provides policing services for Wellington County while the Guelph Police Service (GPS) serves the City of Guelph. The number of OPP officers in Wellington County and the City of Guelph is comparable to the number in other similar jurisdictions in the province (Appendix E). In regard to crime, as can be seen in Appendix F, both jurisdictions have crime rates that are low compared to the province and the rest of Canada.

Figure 1: Wellington County and the City of Guelph



As to access to health care, again there are similarities to the provincial averages. The number of family physicians and psychiatrists practicing in the two jurisdictions is similar to comparable jurisdictions in the province. Guelph General Hospital (GGH), one of two general hospitals in Guelph was chosen because of its proximity to Homewood Health Centre (HHC), a 312-bed Schedule 1 Facility which offers a number of programs to treat a range of mental health and addiction issues. Residents of the City of Guelph who present with mental health complaints are usually first medically cleared at the ED in GGH, and if hospitalization is required due to a mental disorder, they are admitted directly to HHC or the Emergency Mental Health Unit (EMHU) within GGH. EMHU is operated by HHC within the GGH ED and provides mental health crisis services to residents of Wellington County.

There are three smaller hospitals in Wellington County which took part in the pilot study: Groves Memorial Community Hospital (GMC) (Town of Fergus); Palmerston and District Hospital (PDH) (Town of Palmerston); and, Louise Marshall Hospital (LMH) (Town of Mount Forest). None of the smaller hospitals are designated facilities (Schedule 1) for admitting mental health patients. Just as other similar jurisdictions in the province, if psychiatric admission is required, patients are transported to the nearest psychiatric facility which in this case would be EMHU/HHC or to the ED at GGH to be first medically cleared.

4.2.2 Ethics

Full ethics approval was obtained from the University of Waterloo, Office of Research Ethics, HHC, GGH, GMCH, PDH, and LMH. Additionally, research agreements were signed with the OPP and GPS.

4.2.3 Data Collection

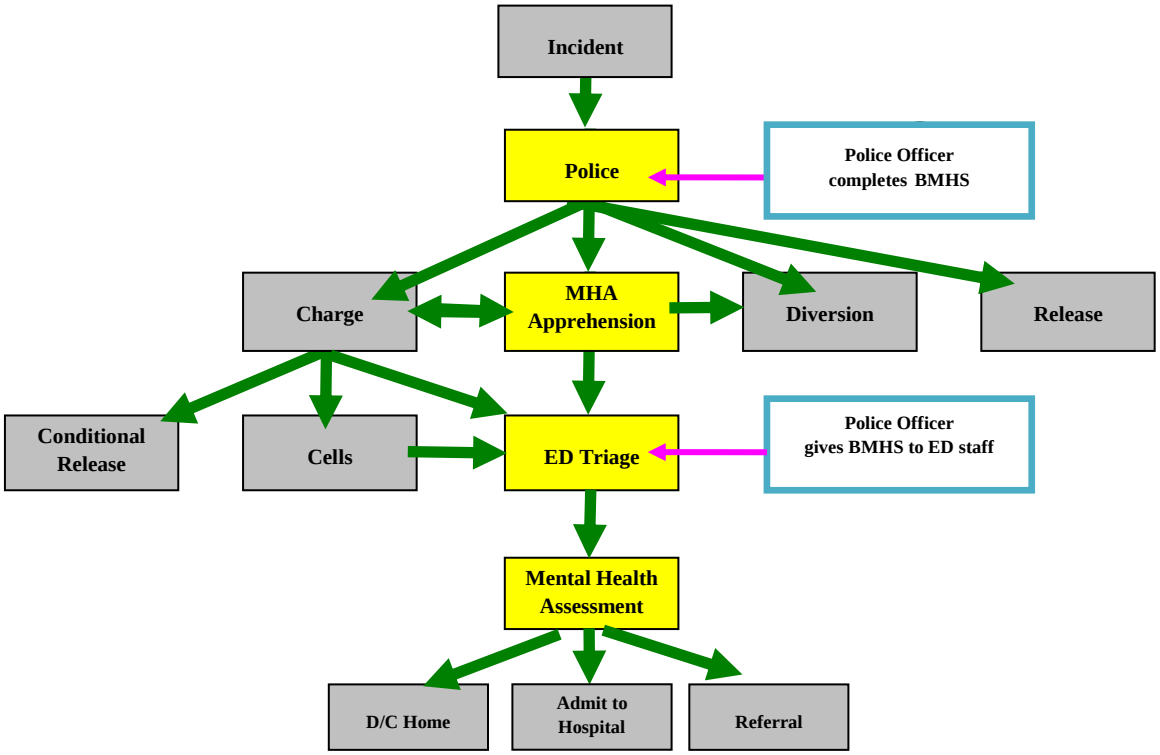
Communiqués were distributed notifying police personnel, staff working in the ED in all of the general hospitals and HHC staff advising them of the pilot project. Information meetings were held with ED staff to explain the aims of the study and their role. Training was provided to police officers on how to use and process the interRAI BMHS. Police officers were instructed to complete the interRAI BMHS for *all* individuals they encountered who they had reasonable grounds to believe had a mental health disorder. In the cases where the police officer(s) decided to apprehend the person under the MHA, the person was transported to the local general hospital where the officer provided ED staff with a *copy* of the interRAI BMHS (see Figure 2). The police officer retained the *original* copy of the interRAI BMHS which was later submitted to a person designated to collect the forms at the respective police station at the end of each shift or as soon as practical thereafter.

At predetermined intervals, the researcher attended the police stations to collect the interRAI BMHS forms. While at the station, patient information was transferred from the interRAI BMHS to a Tracking Sheet (see Appendix G) including patient name, sex, date of birth, and the Unique Study ID # from the bottom of the interRAI BMHS form. The hard copy of the interRAI BMHS forms was de-identified before leaving the police station by covering personal identifiers with black marker. Computer access to patient information was protected by a password and the use of a data encryption program. The de-identified interRAI BMHS forms were locked in a cabinet at the University of Waterloo until they were scanned into a secure database. Finally, the Tracking Sheet was used to conduct an electronic patient chart audit at the general hospitals to determine patient disposition.

4.2.4 Data Analysis

Univariate analysis was used to describe how individual items on the interRAI BMHS performed. The distributions of the variables were calculated for Indicators of Disordered Thought, and Indicators of Risk of Harm. Chi square analysis was used to examine the relationship between individual variables on the interRAI BMHS and sex, and police service. Chi square analysis was also used to examine the association between variables on the interRAI BMHS and characteristics of persons taken to the hospital by police officers, characteristics of those persons who were admitted.

Figure 2: Process involved when police officers escort person(s) to hospital who they have reasonable grounds to believe have a serious mental disorder



4.3 Results

A combined total of 300 interRAI BMHA forms were completed between March 2011 and January 2012 by police officers in Wellington County (OPP) and the city of Guelph (GPS). Some forms were not included in the analysis. For example, if a person had multiple contacts with police officers during the study period, only the first contact was used. interRAI BMHS forms were not included in the analysis if the sole reason for the police officer being involved was for transportation purposes, assisting ED staff, acting as a backup officer, or if the person was turned over to ambulance personnel. Thus, after considering the above factors, 235 completed forms were included in the final analysis.

One of the first problems encountered prior to analysis was the necessity of collapsing some variables. For example, just as with the RAI-MH, the interRAI BMHS has categories for determining when observed behaviours were exhibited that include: "Present", "Present but not exhibited in last 24 hours" and "Exhibited in last 24 hours". Given the small sample size, and resulting reduced statistical power, the latter two categories were collapsed into one so that the behaviour was marked as either "present" or "not present".

The second issue was whether the forms completed by the OPP and GPS could be combined into one dataset. The number of forms completed by each police service was very similar. Of the 235 interRAI BMHS forms, 53% (125) were completed by the Wellington County OPP, and 47% (110) were filled out by the GPS (Tables H1-H3, Appendix H). In terms of differences, OPP officers in Wellington County encountered persons who were significantly more likely to take their prescribed medication in the last 3 days ($\chi^2 = 6.4$, $df = 1$, $p = 0.01$) and OPP officers were significantly more likely to use diversion (e.g. community mental health resources, family, friends) ($\chi^2 = 6.1$, $df = 1$, $p = 0.01$) than police officers in the city of Guelph.

Conversely, police officers in the city of Guelph were more likely to encounter persons who had previous police contact in the last 30 days ($\chi^2 = 3.7$, $df = 1$, $p = 0.05$), and GPS officers were more likely to apprehend persons under the MHA ($\chi^2 = 13.5$, $df = 1$, $p = 0.0002$) than OPP officers in Wellington County. Given that there was only one significant clinical factor (medication non-compliance), and also the fact that Wellington County and the city of Guelph are demographically very similar, the decision was made to combine the forms from the two sites into one dataset.

Univariate analyses of the demographic, contextual and clinical characteristics of the sample population are presented in Tables 7-9. The average age was 38.7 (SD=17 years; range 10-96 years). The majority of the contacts (85.5%) occurred between the hours of 8 a.m. and 12 a.m., and there were slightly more contacts on Mondays (17.4 %) and Fridays (16.6%) compared to other days of the week which averaged about 13%. There were only 10 (4.3%) reported cases of homelessness. In terms of clinical variables, more than 50.0% of the sample population exhibited irritability (62.9%), abnormal thought process (54.9%), and a lack of insight into their mental health problem (60.4%). Further, 51.7% had considered performing a self-injurious act in the last 30 days and in 61.8% of the cases, family, caregiver, friend, or others expressed concern that the person was at risk for self-injury.

Table 7: Demographic and contextual variables related to the sample population, *n*=235

Variable		Frequency	%	Missing data
Police service	OPP	125	53.2	0
	GPS	110	46.8	
Age categories (years)	0-17	20	8.5	0
	18-24	40	17.0	
	25-44	89	37.9	
	45-64	70	29.8	
	65 +	16	6.8	
Sex	Male	134	57.0	0
	Female	101	43.0	
Homeless	No	223	95.7	2
	Yes	10	4.3	
Existing order*	No	194	91.5	23
	Yes	18	8.5	
Day of week	Sat	33	14.0	0
	Sun	30	12.8	
	Mon	41	17.4	
	Tues	30	12.8	
	Wed	28	11.9	
	Thurs	34	14.5	
	Fri	39	16.6	
Shift	12-8 am	34	14.5	0
	8-4 pm	103	43.8	
	4-12 am	98	41.7	
Police action	Diversion	63	27.8	9
	Apprehension	160	68.1	0
	Charge	7	3.1	6

*The person was apprehended by police under authority of an existing order for psychiatric examination (e.g. an order for psychiatric examination issued by a Justice of the Peace (Form 2), or an order for examination issued by a physician in regard to a Community Treatment Order (Form 47).

Table 8: Distribution of variables from the Indicators of Disordered Thought section of the interRAI BMHS, *n*=235

Variable	Frequency	%	Missing data
Irritability			
No	87	37.1	0
Yes	148	62.9	
Hallucinations			
No	197	83.8	0
Yes	38	16.2	
Command hallucinations			
No	220	93.6	0
Yes	15	6.4	
Delusions			
No	185	78.7	0
Yes	50	21.3	
Hyper-arousal			
No	164	69.8	0
Yes	71	30.2	
Pressured speech or racing thoughts			
No	158	67.2	0
Yes	77	32.8	
Abnormal thought process			
No	106	45.1	0
Yes	129	54.9	
Socially inappropriate or disruptive behaviour			
No	131	55.7	0
Yes	104	44.3	
Verbal abuse			
No	146	62.1	0
Yes	89	37.9	
Intoxication by drug or alcohol			
No	145	61.7	0
Yes	90	38.3	
Degree of insight into mental health problem			
No (full insight)	93	39.6	0
Yes (limited to none)	142	60.4	
Cognitive skills for daily decision-making			
No (independent)	150	66.4	6
Yes (any impairment)	79	33.6	

Table 9: Distribution of variables from the Risk of Harm section of the interRAI BMHS, *n*=235

Variable	Frequency	%	Missing data
Police contact in last 30 days			
No	162	68.9	0
Yes	73	31.1	
Person has been known to carry or use weapons(s)			
No	166	82.6	34
Yes	35	17.4	
Violent ideation			
No	158	67.2	0
Yes	77	32.8	
Intimidation of others or threatened violence			
No	161	68.5	0
Yes	74	31.5	
Violence to others			
No	177	75.3	0
Yes	58	24.7	
Self-injurious attempt – in last 7 days			
No	167	71.9	2
Yes	66	28.1	
Considered performing a self-injurious act in last 30 days			
No	113	48.3	1
Yes	121	51.7	
Suicide plan - in last 30 days			
No	153	66.2	4
Yes	78	33.8	
Family, caregiver, friend, or others express concern that person is at risk for self-injury			
No	89	38.2	2
Yes	144	61.8	
Home environment – Squalid condition, e.g., extremely dirty, infestation by rats or bugs			
No	211	93.0	8
Yes	16	7.0	
Refused to take some or all of prescribed medication in last 3 days			
No	158	69.9	9
Yes	68	30.1	

Tables I1 – I3 (Appendix I) reports on the relationship between sex and the items on the interRAI BMHS. Fifty-seven percent (134) of the sample were males and 43.0% (101) were females. Males were significantly more likely to be intoxicated by drug or alcohol (44.8% versus 29.7.0 for females) ($\chi^2 = 5.5$, $df = 2$, $p = 0.02$), and to have violent ideation (39.6% compared to 23.8% for females) ($\chi^2 = 6.5$, $df = 2$, $p = 0.01$).

To more closely examine the characteristics of persons taken to hospital by police officers and those who were admitted, two groups were created with all persons brought to the hospital by police in one group, referred to as "Police Escort to Hospital" (PEH) (n=195) and second group referred to as "Admitted" (n=40). By separating the two groups, it was possible to compare the variables associated with the decision by police officers to take a person to hospital, to variables associated with the clinician's decision to admit.

As reported in Tables 10-12, a significantly higher percentage of persons were escorted to the hospital by police who exhibited the following characteristics: socially inappropriate or disruptive behaviour (49.2%) ($\chi^2 = 11.5$, $df = 1$, $p = 0.0007$); verbal abuse (42.6%) ($\chi^2 = 10.7$, $df = 1$, $p = 0.001$); violent ideation (36.9%) ($\chi^2 = 9.0$, $df = 1$, $p = 0.003$); violence to others (27.7%) ($\chi^2 = 5.6$, $df = 1$, $p = 0.02$); self-injurious attempt – last 7 days (33.2%) ($\chi^2 = 12.9$, $df = 1$, $p = 0.0003$); considered performing a self-injurious act in last 30 days (58.8%) ($\chi^2 = 22.6$, $df = 1$, $p = <.0001$); suicide plan - last 30 days (38.7%) ($\chi^2 = 12.2$, $df = 17.6$, $df=1$, $p = 0.0005$); and, others were concerned that the person is at risk of self-harm (67.9%) ($\chi^2 = 17.6$, $df = 1$, $p = < 0.0001$).

As to the subset of people brought to the ED by police officers who were subsequently admitted (see Tables 13 -15), the following variables were significantly associated with hospitalization: hallucinations (28.6%) ($\chi^2 = 10.5$, $df = 1$, $p = 0.001$); delusions (32.9%) ($\chi^2 = 9.2$, $df = 1$, $p = 0.002$); abnormal thought process (68.6%) ($\chi^2 = 6.0$, $df = 1$, $p = 0.01$); and, lack of

insight into their mental health problem (74.3%) ($\chi^2 = 6.9$, $df = 1$, $p = 0.008$). Persons were significantly less likely to be admitted if they had the following characteristics: intoxication by drug or alcohol (28.6%) ($\chi^2 = 6.5$, $df = 1$, $p = 0.01$) and self-injurious attempt in last 7 days (24.3%) ($\chi^2 = 3.9$, $df = 1$, $p = 0.05$).

Table 10: Association of demographic and contextual variables with persons escorted to hospital by police officers

Variable		Police Escort to Hospital		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
		No	Yes					
		17.0% (*n*=40)	83.0% (*n*=195)					
Age categories (years)	0-17	12.5 (5)	7.7 (15)	4	21.6	0.0002	0.61 (0.42, 0.88)	0
	18-24	2.5 (1)	20.0 (39)					
	25-44	20.0 (8)	41.5 (81)					
	45-64	52.5 (21)	25.1 (49)					
	65 +	12.5 (5)	5.7 (11)					
Sex	Male	62.5 (25)	55.9 (109)	1	0.6	0.44	1.32 (0.65, 2.65)	0
	Female	37.5 (15)	44.1 (86)					
Homeless	No	97.5 (39)	95.3 (184)	1	0.4	0.54	1.91 (0.24, 15.50)	2
	Yes	2.5 (1)	4.7 (9)					
Existing order*	No	100.0 (37)	89.7 (157)	1	4.2	0.04	>999.99 (<.001, >999.99)	23
	Yes	0.0 (0)	10.3 (18)					
Shift	12-8 am	10.0 (4)	15.4 (30)	2	1.7	0.43	0.99 (0.61, 1.62)	0
	8-4 pm	52.5 (21)	42.0 (82)					
	4-12 am	37.5 (15)	42.6 (83)					
Day of week	Sat	25.0 (10)	11.8 (23)	6	8.3	0.23	1.21 (1.02, 1.45)	0
	Sun	15.0 (6)	12.3 (24)					
	Mon	17.5 (7)	17.4 (34)					
	Tues	7.5 (3)	13.9 (27)					
	Wed	15.0 (6)	11.3 (22)					
	Thurs	12.5 (5)	14.9 (29)					
	Fri	7.5 (3)	18.4 (36)					

Table 10: (con't)

Variable	Police Escort to Hospital		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
	No	Yes					
	17.0% (*n*=40)	83.0% (*n*=195)					
Diversion							
No	55.0 (22)	75.8 (141)	1	7.1	0.008	0.39 (0.19, 0.79)	9
Yes	45.0 (18)	24.2 (45)					
Mental Health Act apprehension							
No	100.0 (40)	18.0 (35)	1	102.8	<.0001	Not applicable - empty cells	0
Yes	0.00 (0)	82.0 (160)					
Criminal charges pending							
No	100.0 (40)	96.3 (182)	1	1.5	0.22	Not applicable - empty cells	6
Yes	0.0 (0)	3.7 (7)					
Police Service							
OPP	80 (32)	47.7 (93)	1	13.9	0.0002	4.39 (1.92, 10.00)	0
Guelph PS	20.0 (8)	52.3 (102)					

*The person was apprehended by police under authority of an existing order for psychiatric examination (e.g. an order for psychiatric examination issued by a Justice of the Peace (Form 2), or an order for examination issued by a physician in regard to a Community Treatment Order (Form 47).

Table 11: Association of variables from the Indicators of Disordered Thought section of the interRAI BMHS with persons escorted to hospital by police officers

Variable	Police Escort to Hospital		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
	No	Yes					
	17.0% (*n*=40)	83.0% (*n*=195)					
Irritability							
No	50.0 (20)	34.4 (67)	1	3.5	0.06	1.91 (0.96 - 3.80)	0
Yes	50.0 (20)	65.6 (128)					
Hallucinations							
No	87.5 (35)	83.1(162)	1	0.5	0.49	1.43 (0.52 - 3.91)	0
Yes	12.5 (5)	16.9 (33)					
Command hallucinations							
No	95.0 (38)	93.3 (182)	1	0.2	0.69	1.36 (0.29 - 6.26)	0
Yes	5.0 (2)	6.7 (13)					
Delusions							
No	77.5 (31)	79.0 (154)	1	0.04	0.84	0.92 (0.41 - 2.08)	0
Yes	22.5 (9)	21.0 (41)					
Hyper-arousal							
No	77.5 (31)	68.2 (133)	1	1.4	0.24	1.61 (0.72 - 3.58)	0
Yes	22.5 (9)	31.8 (62)					
Pressured speech or racing thoughts							
No	77.5 (31)	65.1 (127)	1	2.3	0.13	1.84 (0.83 - 4.10)	0
Yes	22.5 (9)	34.9 (68)					
Abnormal thought process							
No	55.0 (22)	43.1 (84)	1	1.9	0.17	1.62 (0.82 - 3.20)	0
Yes	45.0 (18)	56.9 (111)					
Socially inappropriate or disruptive behaviour							
No	80.0 (32)	50.8 (99)	1	11.5	0.0007	3.88 (1.70 - 8.84)	0
Yes	20.0 (8)	49.2 (96)					

Table 11: (con't)

Variable	Police Escort to Hospital		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
	No	Yes					
	17.0% (*n*=40)	83.0% (*n*=195)					
Verbal abuse							
No	85.0 (34)	57.4 (112)	1	10.7	0.001	4.20 (1.69 - 10.47)	0
Yes	15.0 (6)	42.6 (83)					
Intoxication by drug or alcohol							
No	72.5 (29)	59.5 (116)	1	2.4	0.12	1.80 (0.85 - 3.80)	0
Yes	27.5 (11)	40.5 (79)					
Degree of insight into mental health problem							
No (full insight)	47.5 (19)	37.9 (74)	1	1.3	0.26	1.48 (0.75 - 2.93)	0
Yes (limited to none)	52.5 (21)	62.1 (121)					
Cognitive skills for daily decision-making							
No (independent)	69.2 (27)	64.7 (123)	1	0.3	0.59	1.23 (0.58 - 2.58)	6
Yes (any impairment)	30.8 (12)	35.3 (67)					

Table 12: Association of variables from the Indicators of Risk of Harm section of the interRAI BMHS with persons escorted to hospital by police officers

Variable	Police Escort to Hospital		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
	No	Yes					
	17.0% (*n*=40)	83.0% (*n*=195)					
Previous police contact in last 30 days							
No	70.0 (28)	68.7 (134)	1	0.03	0.87	1.06 (0.51, 2.23)	0
Yes	30.0 (12)	31.3 (61)					
Person has been known to carry or use weapons(s)							
No	85.7 (30)	81.9 (136)	1	0.3	0.59	1.32 (0.47, 3.70)	34
Yes	14.3 (5)	18.1 (30)					
Violent ideation							
No	87.5 (35)	63.1 (123)	1	9.0	0.003	4.10 (1.54, 10.93)	0
Yes	12.5 (5)	36.9 (72)					
Intimidation of others or threatened violence							
No	77.5 (31)	66.7 (130)	1	1.8	0.18	1.72 (0.77, 3.83)	0
Yes	22.5 (9)	33.3 (65)					
Violence to others							
No	90.0 (36)	72.3 (141)	1	5.6	0.02	3.45 (1.17, 10.14)	0
Yes	10.0 (4)	27.7 (54)					
Self-injurious attempt – in last 7 days							
No	95.0 (38)	66.8 (129)	1	12.9	0.0003	9.42 (2.20, 40.28)	2
Yes	5.0 (2)	33.2 (64)					
Considered performing a self-injurious act in last 30 days							
No	82.5 (33)	41.2 (80)	1	22.6	<.0001	6.72 (2.83, 15.90)	1
Yes	17.5 (7)	58.8 (114)					
Suicide plan - last 30 days							
No	90.0 (36)	61.3 (117)	1	12.2	0.0005	5.69 (1.95, 16.65)	4
Yes	10.0 (4)	38.7 (74)					

Table 12: (con't)

Variable	Police Escort to Hospital		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
	No	Yes					
	17.0% (*n*=40)	83.0% (*n*=195)					
Family, caregiver, friend, others concerned that person is at risk for self-injury							
No	67.5 (27)	32.1 (62)	1	17.6	<.0001	4.39 (2.12, 9.08)	2
Yes	32.5 (13)	67.9 (131)					
Home environment – Squalid condition, e.g., extremely dirty, infestation by rats or bugs							
No	97.5 (39)	92.0 (172)	1	1.5	0.22	3.40 (0.44, 26.52)	8
Yes	2.5 (1)	8.0 (15)					
Refused to take some or all of prescribed medication in last 3 days							
No	82.0 (32)	67.4 (126)	1	3.3	0.07	2.21 (0.92, 5.30)	9
Yes	18.0 (7)	32.6 (61)					

Table 13: Demographic and contextual variables related to persons who are escorted to hospital by police officers and who were subsequently admitted for psychiatric assessment or treatment

Variable		Admitted		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
		No	Yes					
		64.1% (*n*=125)	35.9% (*n*=70)					
Age categories (years)	0-17	12.0 (15)	0.0 (0)	4	9.2	0.06	1.33 (0.98, 1.80)	0
	18-24	19.2 (24)	21.4 (15)					
	25-44	40.0 (50)	44.3 (31)					
	45-64	23.2 (29)	28.6 (20)					
	65 +	5.6 (7)	5.7 (4)					
Sex	Male	60.0 (75)	48.6 (34)	1	2.4	0.12	1.59 (0.88, 2.86)	0
	Female	40.0 (50)	51.4 (36)					
Homeless	No	95.2 (118)	95.7 (66)	1	0.02	0.88	0.89 (0.22, 3.70)	2
	Yes	4.8 (6)	4.3 (3)					
Existing order*	No	94.6 (105)	81.3 (52)	1	7.8	0.005	4.04 (1.43, 11.36)	20
	Yes	5.4 (6)	18.7 (12)					
Shift	12-8 am	16.8 (21)	12.9 (9)	2	3.9	0.14	0.88 (0.58, 1.32)	0
	8-4 pm	36.8 (46)	51.4 (36)					
	4-12 am	46.4 (58)	35.7 (25)					
Day of week	Sat	12.8 (16)	10.0 (7)	6	6.4	0.38	1.06 (0.92, 1.23)	0
	Sun	14.4 (18)	8.6 (6)					
	Mon	18.4 (23)	15.7 (11)					
	Tues	12.0 (15)	17.1 (12)					
	Wed	9.6 (12)	14.3 (10)					
	Thurs	12.0 (15)	20.0 (14)					
	Fri	20.8 (26)	14.3 (10)					

Table 13: (con't)

Variable	Admitted		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
	No	Yes					
	64.1% (*n*=125)	35.9% (*n*=70)					
Diversion							
No	74.8 (89)	77.6 (52)	1	0.2	0.67	0.86 (0.42, 1.74)	9
Yes	25.2 (30)	22.4 (15)					
Mental Health Act apprehension							
No	19.2 (24)	15.7 (11)	1	0.4	0.55	1.28 (0.58, 2.79)	0
Yes	80.8 (101)	84.3 (59)					
Criminal charges pending							
No	95.9 (117)	97.0 (65)	1	0.2	0.70	0.72 (0.14, 3.82)	6
Yes	4.1 (5)	3.0 (2)					
Police Service							
OPP	49.6 (62)	44.3 (31)	1	0.5	0.48	1.24 (0.69, 2.23)	0
Guelph PS	50.4 (63)	55.7 (39)					

*The person was apprehended by police under authority of an existing order for psychiatric examination (e.g. an order for psychiatric examination issued by a Justice of the Peace (Form 2), or an order for examination issued by a physician in regard to a Community Treatment Order (Form 47).

Table 14: Association of items from the Indicators of Disordered Thought section of the interRAI BMHS with persons who were escorted to hospital by police and subsequently admitted for psychiatric assessment or treatment

Variable	Admitted		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
	No	Yes					
	64.1% (*n*=125)	35.9% (*n*=70)					
Irritability							
No	36.8 (46)	30.0 (21)	1	0.9	0.34	1.36 (0.73, 2.54)	0
Yes	63.2 (79)	70.0 (49)					
Hallucinations							
No	89.6 (112)	71.4 (50)	1	10.5	0.001	3.45 (1.60, 7.47)	0
Yes	10.4 (13)	28.6 (20)					
Command hallucinations							
No	95.2 (119)	90.0 (63)	1	2.0	0.16	2.20 (0.71, 6.84)	0
Yes	4.8 (6)	10.0 (7)					
Delusions							
No	85.6 (107)	67.1 (47)	1	9.2	0.002	2.91 (1.44, 5.89)	0
Yes	14.4 (18)	32.9 (23)					
Hyper-arousal							
No	72.0 (90)	61.4 (43)	1	2.3	0.13	1.62 (0.87, 3.00)	0
Yes	28.0 (35)	38.6 (27)					
Pressured speech or racing thoughts							
No	68.0 (85)	60.0 (42)	1	1.3	0.26	1.42 (0.77, 2.60)	0
Yes	32.0 (40)	40.0 (28)					
Abnormal thought process							
No	49.6 (62)	31.4 (22)	1	6.0	0.01	2.15 (1.16, 3.97)	0
Yes	50.4 (63)	68.6 (48)					
Socially inappropriate or disruptive behaviour							
No	52.8 (66)	47.1 (33)	1	0.6	0.45	1.25 (0.70, 2.25)	0
Yes	47.2 (59)	52.9 (37)					

Table 14: (con't)

Variable	Admitted		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
	No	Yes					
	64.1% (*n*=125)	35.9% (*n*=70)					
Verbal abuse							
No	55.2 (69)	61.4 (43)	1	0.7	0.40	0.77 (0.43, 1.41)	0
Yes	44.8 (56)	38.6 (27)					
Intoxication by drug or alcohol							
No	52.8 (66)	71.4 (50)	1	6.5	0.01	0.45 (0.24, 0.84)	0
Yes	47.2 (59)	28.6 (20)					
Degree of insight into mental health problem							
No (full insight)	44.8 (56)	25.7 (18)	1	6.9	0.008	2.35 (1.23, 4.45)	0
Yes (limited to none)	55.2 (69)	74.3 (52)					
Cognitive skills for daily decision-making							
No (independent)	69.7 (85)	55.9 (38)	1	3.6	0.06	1.81 (0.98, 3.35)	5
Yes (any impairment)	30.3 (37)	44.1 (30)					

Table 15: Association of items from the Indicators of Risk of Harm section of the interRAI BMHS with persons who were escorted to hospital by police and subsequently admitted for psychiatric assessment or treatment

Variable	Admitted		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
	No	Yes					
	64.1% (*n*=125)	35.9% (*n*=70)					
Previous police contact in last 30 days							
No	70.4 (88)	65.7 (46)	1	0.5	0.50	1.24 (0.66, 2.32)	0
Yes	29.6 (37)	34.3 (24)					
Person has been known to carry or use weapons(s)							
No	81.7 (89)	82.5 (47)	1	0.02	0.90	0.95(0.41, 2.19)	29
Yes	18.3 (20)	17.5 (10)					
Violent ideation							
No	64.8 (81)	60.0 (42)	1	0.4	0.51	1.23 (0.67, 2.24)	0
Yes	35.2 (44)	40.0 (28)					
Intimidation of others or threatened violence							
No	66.4 (83)	67.1 (47)	1	0.01	0.92	0.97 (0.52, 1.80)	0
Yes	33.6 (42)	32.9 (23)					
Violence to others							
No	74.4 (93)	68.6 (48)	1	0.8	0.38	1.33 (0.70, 2.54)	0
Yes	25.6 (32)	31.4 (22)					
Self-injurious attempt – in last 7 days							
No	61.8 (76)	75.7 (53)	1	3.9	0.05	0.52 (0.27, 1.00)	2
Yes	38.2 (47)	24.3 (17)					
Considered performing a self-injurious act in last 30 days							
No	39.5 (49)	44.3 (31)	1	0.4	0.52	0.82 (0.45, 1.49)	1
Yes	60.5 (75)	55.7 (39)					
Suicide plan - last 30 days							
No	59.8 (73)	63.8 (44)	1	0.3	0.59	0.85 (0.46, 1.56)	4
Yes	40.2 (49)	36.2 (25)					

Table: 15 (con't)

Variable	Admitted		*df*	χ^2	*p* value	OR (95% CI)	Missing Data
	No	Yes					
	64.1% (*n*=125)	35.9% (*n*=70)					
Family, caregiver, friend, others concerned that person is at risk for self-injury							
No	28.5 (35)	38.6 (27)	1	2.1	0.15	0.63 (0.34, 1.18)	2
Yes	71.5 (88)	61.4 (43)					
Home environment – Squalid condition, e.g., extremely dirty, infestation by rats or bugs							
No	90.8 (109)	94.0 (63)	1	0.6	0.44	0.63 (0.19, 2.06)	8
Yes	9.2 (11)	6.0 (4)					
Refused to take some or all of prescribed medication in last 3 days							
No	69.4 (84)	63.6 (42)	1	0.7	0.42	1.30 (0.69 - 2.44)	8
Yes	30.6 (37)	36.4 (24)					

4.4 Discussion

As in the literature, persons taken to hospital by police officers in the study sample tended to be males in their late 30s. The most common reason why police officers took someone to the hospital was that they had "considered performing a self-injurious act in the past 30 days", and "family, caregiver, friend, others concerned that person is at risk for self-injury". Interestingly, having a drug or alcohol problem was not a significant reason for bringing someone to the hospital which is contrary to research findings. Also, although symptoms of psychoses were associated with being admitted, this was not a major factor accounting for why police officers brought the person to hospital.

In the literature, dangerousness and aggressiveness towards self or others is associated with being admitted, but this was not the case in the pilot study. In fact, the variables most associated with being admitted were indicators of disordered thought such as lack of insight into their mental health problems, abnormal thought process, delusions and hallucinations. Overall, although the terminology differed, the same patterns emerged in the pilot study that previous research has reported: police officers tend to focus primarily on dangerousness while clinicians are concerned with indicators of disordered thought.

An important finding from the pilot study was that 11 of the original 14 variables identified through the analysis of the RAI-MH database which formed the core items on the interRAI BMHS proved to be significantly associated with either being taken to the hospital by police officers, or being hospitalized. Sample size issues meant that some variables did not have enough cases for the analyses reported here. Further, the interRAI BMHS was able to capture, in much more detail, the characteristics of PSMD who had contact with the police. That is, using the interRAI BMHS made it possible to operationally define violence potential in more detail

breaking it down into items such as: “Family, caregiver, friend others concerned that person is at risk for self injury”, “Considered performing a self-injurious act in last 30 days”, “Socially inappropriate or disruptive behaviour”. Similarly, psychotic symptoms can be broken down into descriptors such as: “Degree of insight into mental health problems”, “Abnormal thought process”, “Delusions” and “Hallucinations”.

An important finding from the pilot study was that the reasons why police officers apprehended a person and took him/her to the hospital were not the same as the reasons why persons were admitted. There are several possible reasons to account for this gap. It could be argued that police officers do not fully understand psychosis, and other indicators of disordered thinking related to serious mental disorder. Alternatively, they may understand what it is, but they place greater emphasis on dangerousness because the MHA does. Regardless, according to their MHA apprehension authorities, they must believe that the “disorderly behaviour” is due to a mental illness. Indicators of mental disorder therefore, should be taken into account when making an apprehension and they should be documented and articulated as part of their reasonable grounds to apprehend PSMD.

Whatever the reason why police officers do not emphasize indicators of disordered thought, the interRAI BMHS provides a framework to capture and articulate such observations. Further, by integrating indicators of disordered into police training, it may appease those who believe police officers need enhanced training in mental health issues. Future research should use multivariate methods to identify the variables that are most important for predicting those persons most in need of psychiatric assessment or treatment, which is the subject of the next chapter.

5.0: MULTIVARIATE ANALYSES TO IDENTIFY PERSONS WITH SERIOUS MENTAL DISORDER IN CONTACT WITH THE POLICE

5.1 Introduction

Despite the importance of police officer and ED decision-making in regard to mental health presentations, there are no universally accepted guidelines to assist in identifying the critical variables related to a person's mental health status (Way & Banks, 2001; Ziegenbein, Anreis, Bruggen, Ohlmeier, & Kropp, 2006). The American Psychiatric Association has developed guidelines for psychiatric evaluations, but they do not identify critical factors to be included in psychiatric assessments (Way & Banks, 2001). Marson et al. (1988) reported there have been many studies attempting to identify the characteristics of PSMD who are hospitalized, but they have relied heavily on bivariate techniques to determine the significance of variables related to disposition. There are several problems related to an overreliance on bivariate techniques. For example, having to use a large number of significance tests increases the possibility of "experimentwise error" (i.e. significant results due to chance alone) (Marson et al., 1988). Variables that appear to be important in bivariate analysis may not retain their significance using multivariate analysis. Further, there is no overall measure of how well the variables as a group differentiated between dispositions. In contrast, multivariate analysis allows for the examination of the interactions between variables and the identification and prioritization of variables that together predict the outcome of interest. The purpose of this chapter is to use multivariate analysis to identify the variables on the interRAI BMHS that together best predict whether a person is apprehended and taken to hospital by police officers and, which persons are subsequently hospitalized.

5.1.1 Review of literature using multivariate analyses

Studies using multivariate research designs to examine the characteristics of PSMD taken to hospital by police, and ED decision-making, first emerged in the late 1970s. As Marson et al. (1988) noted, the focus of the majority of these studies was on using multivariate methods to differentiate police referrals from referrals from other sources, and isolating those variables most predictive of hospitalization. For example, McNiel et al. (1992) used logistic regression analysis to develop and cross-validate a model predicting hospitalization. They argued that clinical variables, such as diagnosis and severity of psychiatric impairment, were the most important predictors of admission, concluding that hospitalized persons were the most severely disturbed usually with diagnoses of schizophrenia and manic disorders.

Watson et al. (1993) examined 186 police referrals and compared them to 577 patients referred from other sources across nine emergency services in California. Using discriminant function analysis, they found that "a single set of symptoms discriminated between patients who were retained in the hospital, and those who were released, regardless of whether patients were brought in by the police or by others" (p. 1089). The indicators were perceived dangerousness, impulsivity, irritability, thought content disorder, formal thought disorder, "other" diagnosis (non-major mental disorder), and bizarre behaviour (Watson et al., 1993). Schnyder et al. (1999) used logistic regression analysis to study the demographic, contextual, and clinical characteristics of 3611 psychiatric emergency presentations to a Swiss university hospital. They were interested in investigating the relationship between these characteristics and different intervention strategies. They found that the most powerful predictors of hospitalization for patients referred by police, or other health professionals (in contrast to self-referral or referral by relatives), were a current diagnosis of psychosis, and previous hospitalizations. In a study

specifically intended to provide information to help develop clinical guidelines for psychiatric emergency services, Way and Banks (2001) used logistic regression analysis to identify clinical variables that influenced release and admission decisions at four psychiatric emergency services. After rating 465 patients on 10 clinical variables they produced a model with five variables which correctly classified 84% of the cases. In order of importance the variables included: danger to self, severity of psychosis, ability to care for self, impulse control, and severity of depression. Finally, in a recent Australian study, Maharaj et al. (2011) conducted a retrospective audit of 101 files of patients referred by police and admitted over a six month period, and compared them to 99 files referred from other sources who were also admitted. Logistic regression analysis was used to screen the relative importance of the demographic and diagnostic variables in predicting whether a person was referred by police. They found that police referrals who were admitted were more likely to be aggressive, suicidal, and have drug and alcohol problems concurrent with mental health diagnoses.

To sum, there has been limited research on the use of multivariate methods to identify the factors that predict whether a person is admitted to hospital or released. The most important of these factors include: the severity of the psychiatric disorder, schizophrenia, mania, dangerousness to self or others, irritability, impulsivity, bizarre behaviour, formal thought disorder, thought content disorder, and inability to care for self. No studies could be found that used multivariate methods to identify variables specifically associated with being taken to the hospital by police officers.

5.2 Methods

The focus of the pilot study was on identifying the characteristics of persons with mental disorders most likely to be taken to the hospital by police officers, referred to as Police Escort to Hospital (PEH), and the persons who are most likely to be admitted into hospital. Logistic regression was used because it allows for examination of the joint and independent effects of each independent variable. It is also best suited for dichotomous dependent variables and it can accommodate a large number of predictor variables. Further, unlike other similar methods such as discriminant function analysis, it is more flexible in its assumptions in that the independent variables do not have to be normally distributed or linearly related. Further, the variance within each group does not have to be equal (Tabachnick & Fidell, 1996, p. 575).

Logistic regression analysis will identify a set of explanatory variables associated with greater odds of PEH and admission. The first step in the model building stage was to examine the distribution of explanatory variables in the sample population, and their distribution for the dependent variables: Police Escort to Hospital (PEH) and Admitted (see Chapter 4). To shortlist the variables for multivariate analyses, unadjusted odds ratios were calculated in order to identify variables significantly associated with the outcomes. Odds ratios provide a way of assessing the relative chance of falling into one of two categories of the dependent variable; that is, being escorted to hospital by police or not, and being admitted or not. Logistic regression analysis was then used to build and compare models based on the statistically significant variables.

5.3 Results

Tables 16 and 17 report the unadjusted odds ratios for the clinical variables in the interRAI BMHS. An odds ratio of one indicates the outcome is equally likely in both groups. Thus, an individual was more than three times more likely to be escorted to the hospital by police officers if exhibiting socially inappropriate or disruptive behaviour (OR = 3.88, CI = 1.70 – 8.84, p = 0.001), or violence to others (OR = 3.45, CI = 1.17 – 10.14, p = 0.02); more than four times more likely if exhibiting verbal abuse (OR = 4.20, CI = 1.69 – 10.47, p = 0.002), violent ideation (OR = 4.10, CI = 1.54 – 10.93, p = 0.005), or family, caregiver, friends, or others express concern that the person is at risk for self-injury (OR = 4.39, CI = 2.12 – 9.08, <.0001); over five times more likely if presenting with a suicide plan (OR = 5.69, CI = 1.95 – 16.65,), or he or she had considered performing a self-injurious act in the past 30 days (OR = 6.72, CI = 2.83 – 15.94, p = <.0001); and, almost 10 times more likely if he or she had attempted a self-injurious act in the past 7 days (OR = 9.42, CI = 2.20 – 40.28, p = 0.003).

Persons who presented with the following indicators were significantly more likely to be admitted: abnormal thought process (OR = 2.15, CI = 1.16 – 3.97, p = 0.01), little or no insight into their mental health problems (OR = 2.35, CI = 1.23 – 4.45, p = 0.009), delusions (OR = 2.91, CI = 1.44 – 5.89, p = 0.003), and hallucinations (OR = 3.45, CI = 1.59 – 7.47, p = 0.002). There was a negative relationship between intoxication by drugs or alcohol and being admitted with a parameter estimate of -0.80 and standard error of 0.32 (OR = 0.45, CI = 2.24 – 0.84, p = 0.01), which means that the person would be much less likely to be admitted if presenting in this state.

Table 16: Unadjusted bivariate odds ratios for Police Escort to Hospital (PEH)

Variable	Parameter Estimate	Standard Error	Unadjusted OR (95% CI)	*p* value
Irritability	0.65	0.35	1.91 (0.96, 3.80)	0.06
Hallucinations	0.35	0.51	1.43 (0.52, 3.91)	0.49
Command hallucinations	0.31	0.78	1.36 (0.29, 6.26)	0.70
Delusions	- 0.09	0.42	0.92 (0.41, 2.08)	0.84
Hyper-arousal	0.47	0.41	1.61 (0.72, 3.58)	0.25
Pressured speech	0.61	0.41	1.84 (0.83, 4.10)	0.13
Abnormal thought process	0.48	0.35	1.62 (0.82, 3.20)	0.17
Socially inappropriate or disruptive behaviour	1.36	0.42	3.88 (1.70, 8.84)	0.001
Verbal abuse	1.43	0.47	4.20 (1.69, 10.47)	0.002
Intoxication by drug or alcohol	0.59	0.38	1.80 (0.85, 3.80)	0.13
Degree of insight into mental health problem	0.39	0.35	1.48 (0.75, 2.93)	0.26
Cognitive skills for daily decision-making	0.20	0.38	1.23 (0.58, 2.58)	0.59
Previous police contact in last 30 days	0.06	0.38	1.06 (0.51, 2.23)	0.87
Person has been known to carry or use weapon(s)	0.28	0.52	1.32 (0.47, 3.69)	0.59
Violent ideation	1.41	0.50	4.10 (1.54, 10.93)	0.005
Intimidation of others or threatened violence	0.54	0.41	1.72 (0.77, 3.83)	0.18
Violence to others	1.24	0.55	3.45 (1.17, 10.14)	0.02
Self-injurious attempt – in last 7 days	2.24	0.74	9.42 (2.20, 40.28)	0.003
Considered performing a self-injurious act – in last 30 days	1.90	0.44	6.72 (2.83, 15.94)	<.0001
Suicide plan – in last 30 days	1.74	0.55	5.69 (1.95, 16.65)	0.002
Family, caregiver, friend, or others express concern person at risk	1.48	0.37	4.39 (2.12, 9.08)	<.0001
Home environment – squalid conditions	1.22	1.05	3.40 (0.44, 26.52)	0.24
Refused to take some or all of prescribed medication in last 3 days	0.79	0.45	2.21 (0.92, 5.30)	0.07

Table 17: Unadjusted bivariate odds ratios for Admitted

Variable	Parameter Estimate	Standard Error	Unadjusted OR (95% CI)	*p* value
Irritability	0.31	0.32	1.36 (0.73, 2.54)	0.34
Hallucinations	1.24	0.39	3.45 (1.59, 7.47)	0.002
Command hallucinations	0.79	0.58	2.20 (0.71, 6.84)	0.17
Delusions	1.07	0.36	2.91 (1.44, 5.89)	0.003
Hyper-arousal	0.48	0.32	1.62 (0.87, 3.00)	0.13
Pressured speech	0.35	0.31	1.42 (0.77, 2.60)	0.26
Abnormal thought process	0.76	0.31	2.15 (1.16, 3.97)	0.01
Socially inappropriate or disruptive behaviour	0.23	0.30	1.25 (0.70, 2.25)	0.45
Verbal abuse	- 0.26	0.30	0.77 (0.43, 1.41)	0.40
Intoxication by drug or alcohol	- 0.80	0.32	0.45 (0.24, 0.84)	0.01
Degree of insight into mental health problem	0.85	0.33	2.35 (1.23, 4.45)	0.009
Cognitive skills for daily decision-making	0.20	0.38	1.23 (0.58, 2.58)	0.59
Previous police contact in last 30 days	0.22	0.32	1.24 (0.66, 2.32)	0.50
Person has been known to carry or use weapon(s)	- 0.05	0.43	0.95 (0.41, 2.19)	0.90
Violent ideation	0.20	0.31	1.23 (0.67, 2.24)	0.51
Intimidation of others or threatened violence	- 0.03	0.32	0.97 (0.52, 1.80)	0.92
Violence to others	0.29	0.33	1.33 (0.70, 2.54)	0.38
Self-injurious attempt – in last 7 days	- 0.66	0.33	0.52 (0.27, 1.00)	0.05
Considered performing a self-injurious act – in last 30 days	- 0.20	0.30	0.82 (0.45, 1.49)	0.52
Suicide plan – in last 30 days	- 0.17	0.31	0.85 (0.46, 1.56)	0.59
Family, caregiver, friend, or others express concern person at risk	- 0.46	0.32	0.63 (0.34, 1.18)	0.15
Home environment – squalid conditions	- 0.46	0.60	0.63 (0.19, 2.06)	0.44
Refused to take some or all of prescribed medication in last 3 days	0.26	0.32	1.30 (0.69, 2.44)	0.42

Tables 18 and 19, report the results of logistic regression performed on the clinical variables that were significantly related to PEH and Admitted, respectively. The resulting models included three variables for each dependent variable. Persons were twice as likely to be taken to hospital by police if their family, caregiver, friend, or others expressed concern that they were at risk for self-injury (OR = 2.39, 95% CI = 1.05 – 5.38, p = 0.04); over four times more likely if they had considered performing a self-injurious act in the last 30 days (OR = 4.16, 95% CI = 1.58 – 10.97, p = 0.004); and more than five times more likely if they presented with socially inappropriate or disruptive behaviour (OR = 5.00, 95% CI = 2.05 – 12.18, p = 0.0004). The c-statistic is used to predict the goodness of fit of logistic regression models. The c value of 0.83 indicates that this three variable model has excellent predictive ability.

Table 18: Results of logistic regression analysis for Police Escort to Hospital (PEH)

Variable	Parameter Estimate	Standard Error	OR (95% CI)	*p* value	*c* value
Socially inappropriate or disruptive behaviour	1.61	0.45	5.00 (2.05, 12.18)	0.0004	0.83
Considered performing a self-injurious act in last 30 days	1.43	0.49	4.16 (1.58, 10.97)	0.004	
Family, caregiver, friend, or others express concern that person is at risk for self-injury	0.86	0.42	2.39 (1.05, 5.38)	0.04	

As to the odds of being admitted, persons were over twice as likely to be admitted if presenting with little or no insight into their mental health problem (OR = 2.13, 95% CI = 1.10 - 4.15, p = 0.03), and more than three times more likely to be admitted if they had hallucinations (OR = 3.11, 95% CI = 1.39 – 6.95, p = 0.006). Again, a person would be much less likely to be admitted if intoxicated by drugs or alcohol (OR = 0.45, 95% CI = 0.23 – 0.86, p = 0.02). As to

the c statistic, given a c value of 0.70 or higher is considered good, the value of 0.69 obtained in the current analysis would suggest that the model is a slightly less powerful predictor of being admitted (Hosmer & Lemeshow, 2000).

Table 19: Results of logistic regression analysis for Admission to Hospital

Variable	Parameter Estimate	Standard Error	OR (95% CI)	*p* value	*c* value
Hallucinations	1.13	0.41	3.11 (1.39, 6.95)	0.006	0.69
Intoxication by drug or alcohol	- 0.80	0.33	0.45 (0.23, 0.86)	0.02	
Degree of insight into mental health problem	0.76	0.34	2.13 (1.10, 4.15)	0.03	

To test additional models, an algorithm with four categories of the original 14 PEH items was created: Neither Disordered Thought nor Dangerousness, Disordered Thought only, Dangerousness only, and Both Disordered Thought and Dangerousness. Table 20 reports the distribution of this algorithm and shows that about three quarters (74.5%) of the apprehensions had both attributes. Disordered Thought alone accounted for only 12.8% of the apprehensions, and Dangerousness alone accounted for only 11.1%.

Table 20: Distribution of the PEH algorithm for the sample population, n=235

PEH Algorithm	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Neither Disordered Thought nor Dangerousness	4	1.7	4	1.7
Disordered thought	30	12.8	34	14.5
Dangerousness	26	11.1	60	25.5
Both Disordered Thought and Dangerousness	175	74.5	235	100.0

There were three possible outcomes: Not Taken to Hospital, Taken to Hospital and Discharged (without being admitted), and Taken to Hospital and Admitted. As reported in Table 21, of those who fell in the category of Disordered Thought alone, 53.3% were not Taken to Hospital, and 30.0% were Taken to Hospital and Discharged. In regard to Dangerousness alone, 11.5% were Not Taken to Hospital, and almost three quarters (73.1%) were Taken to Hospital and Discharged. More than half (54.9%) of those persons who fell in the highest category (both Disordered Thought and Dangerousness), were taken to the hospital by police officers and subsequently, not admitted. However, persons in this same category were more than twice as likely to be admitted (34.9%) than persons who met the criteria for Disordered Thought alone (16.7%), or Dangerousness alone (15.4%). Further, there were very few persons (10.3%) who were not taken to the hospital when both Disordered Thought and Dangerousness was indicated.

Table 21: Distribution of the Police Escort to Hospital (PEH) algorithm by Outcome

PEH algorithm	Outcome			χ^2
	Not taken to Hospital(n=40) % (n)	Taken to Hospital & Discharged (n=125) % (n)	Taken to Hospital & Admitted (n=70) % (n)	
Neither Disordered Thought nor Dangerousness	75.0 (3)	25.0 (1)	0.0 (0)	$\chi^2 = 48.2$ $df = 6$ $p = <.0001$
Disordered thought	53.3 (16)	30.0 (9)	16.7 (5)	
Dangerousness	11.5 (3)	73.1 (19)	15.4 (4)	
Both Disordered Thought and Dangerousness	10.3 (18)	54.9 (96)	34.9 (61)	

A model using only the highest category of the PEH algorithm (Both Dangerousness and Disordered Thought) (Tables 22) was compared with all other categories of the PEH algorithm for predicting being taken to the hospital by police officers and being admitted. The category containing Disordered Thought only had c values of 0.51 and 0.55 respectively but was statistically significant for admitted only (Table 23). The category containing Dangerousness only (Table 24) had a reasonable c statistic (c = 0.70) for Taken to Hospital by Police, but a much lower c statistic (c = 0.55) for Admitted. The category containing Disordered Thought, Dangerousness as separate variables (Table 25) had a c statistic of 0.70, however Disordered Thought was not statistically significant (p = 0.55). Thus, the Dangerousness and Disordered Thought model (Table 22), which is the highest level of the PEH algorithm was statistically significant for both Taken to Hospital by Police (p = 0.004) and Admitted (p = <.0001) with a c statistic of 0.68 and 0.64, respectively. It obtained slightly lower c values for predicting Taken to Hospital by Police, and Admitted, but it was statistically significant for both. Further, it performed better for predicting actual admission to hospital compared with the models using sub- categories of the algorithm.

Table 22: Logistic regression analysis to model for being taken to the hospital by police and being admitted using the highest category of the PEH algorithm (<u>both</u> Disordered Thought and Dangerousness)

Dependent Variable	<u>Both</u> Disordered Thought and Dangerousness				
	Parameter Estimate	Standard Error	OR (95% CI)	*p* value	*c* value
Taken to Hospital by Police	1.62	0.37	5.10 (2.47, 10.34)	0.004	0.68
Admitted	1.16	0.40	3.19 (1.45, 7.00)	<.0001	0.64

Table 23: Logistic regression analysis to model for being taken to the hospital by police and being admitted using Disordered Thought only

Dependent Variable	Disordered Thought only				
	Parameter Estimate	Standard Error	OR (95% CI)	*p* value	*c* value
Taken to Hospital by Police	0.23	0.49	1.26 (0.48, 3.31)	0.64	0.51
Admitted	1.13	0.56	3.09 (1.04, 9.20)	0.04	0.55

Table 24: Logistic regression analysis to model for being taken to the hospital by police and being admitted using Dangerousness only

Dependent Variable	Dangerousness only				
	Parameter Estimate	Standard Error	OR (95% CI)	*p* value	*c* value
Taken to Hospital by Police	2.38	0.42	10.86 (4.81, 24.50)	<.0001	0.70
Admitted	1.02	0.51	2.77 (1.03, 7.49)	0.04	0.55

Table 25: Logistic regression analysis to model for being taken to the hospital by police and being admitted using Disordered Thought and Dangerousness as separate variables

Dependent Variable	Disordered Thought, Dangerousness				
	Parameter Estimate	Standard Error	OR (95% CI)	*p* value	*c* value
Taken to Hospital by Police					
Disordered Thought	0.33	0.55	1.39 (0.48, 4.05)	0.55	0.70
Dangerousness	2.39	0.42	10.96 (4.85, 24.81)	<.0001	
Admitted					
Disordered Thought	1.15	0.56	3.17 (1.06, 9.50)	0.04	0.59
Dangerousness	1.04	0.51	2.84 (1.05, 7.72)	0.04	

5.4 Discussion

The intent of this chapter was to use multivariate methods to identify the variables on the interRAI BMHS that together best predict whether a person is apprehended and taken to the hospital by police officers, and whether a person is hospitalized. In order to accomplish this aim unadjusted odds ratios were calculated for all clinical variables in the interRAI BMHS. The variables with significantly greater odds of falling in the taken to hospital by police category included: socially inappropriate or disruptive behaviour, violence to others, verbal abuse, violent ideation, family, caregiver, friends, or others express concern that the person is at risk for self-injury, suicide plan, considered performing a self-injurious act in the past 30 days, and attempted a self-injurious act in the past 7 days. Persons who exhibited abnormal thought process, little or no insight into their mental health problems, delusions, and hallucinations had significantly greater odds of being admitted. A person was significantly less likely to be admitted if intoxicated by drugs or alcohol.

Logistic regression analysis was used to identify key variables that collectively predict whether a person is taken to hospital by police officers, and whether the person is ultimately admitted into psychiatric care. A model comprising three variables significantly predicted whether a person was taken to hospital by police: socially inappropriate or disruptive behavior, considered performing a self-injurious act in the last 30 days, and family, caregiver, friend, or others express concern that the person is at risk of self injury. Three items also significantly predicted who of those taken to hospital by police were admitted: hallucinations and degree of insight into mental health problems. Persons who were intoxicated by drug or alcohol were significantly less likely to be admitted.

To test additional models, four categories of the PEH algorithm were created: Neither Disordered Thought nor Dangerousness, Disordered Thought only, Dangerousness only, and

Both Disordered Thought and Dangerousness. The distribution of this algorithm indicated that almost three quarters of the apprehensions fell into the highest category which was Both Disordered Thought and Dangerousness. Persons who fell into this category were twice as likely to be admitted, than those persons who met the criteria for Disordered Thought alone, or Dangerousness alone. There were very few persons who were not taken to the hospital when both Disordered Thought and Dangerousness was indicated suggesting that the highest level of the algorithm is a good threshold value for taking someone to the hospital. The model using only the highest category of the PEH algorithm (Both Dangerousness and Disordered Thought) was compared with all other categories of the PEH algorithm and obtained slightly lower c values for predicting Taken to Hospital by Police, and Admitted. However, it was statistically significant for both, and it performed better for predicting actual admission to hospital compared with the all other categories.

There are several implications that can be drawn from the analysis. The three variable models produced from logistic regression analysis significantly predicted who would be taken to hospital and who would be admitted. However, caution is in order. Police officers would not rely on so few variables when making a MHA apprehension for several reasons. First, they make an MHA apprehension based on reasonable and probable grounds which entails the collection of as much evidence as possible to substantiate their beliefs. Second, when making an involuntary MHA apprehension, the police are depriving someone of their civil liberties. It would never be prudent to take such action based upon a statistical tool alone. Rather, the information from the interRAI BMHS would be another piece of evidence used to determine if there are reasonable grounds to warrant an involuntary apprehension. Thus, the interRAI BMHS would *support* rather than *direct* a police officer's decision-making. Finally, the ultimate decision as to whether a

person is to be hospitalized remains with the ED clinician. The police officer's task is to provide as much evidence as possible to assist the clinician in making this important decision. For this reason the most appropriate action would be to provide the hospital with the full interRAI BMHS assessment rather than the algorithm score alone.

There are some important implications related to the PEH algorithm. It was revealed that almost 75% of persons who fell into the Dangerousness category were taken to the hospital by police officers and subsequently discharged without being admitted. An additional 12% were identified by police as being in this category, yet no action was taken. This suggests that the safety of PSMD and that of the public may be in jeopardy for persons who are not immediately deemed by police to be dangerous. Further research is necessary to determine why these individuals were not taken to the hospital by police officers, and why the persons were not admitted. It would also be useful to know if they were diverted to another mental health service agency, and how often these individuals interacted with the police and the criminal justice system. The analysis may suggest intervention programs that would better protect the PSMD and the public, and also help to ensure that these persons do not come into contact with the criminal justice system.

In regard to the disordered thought alone category of the PEH algorithm, the analysis revealed that more than 50% of the persons identified by police officers as being in this category were not taken to the hospital. Further, about 30% were taken to the hospital by police officers and subsequently released without being admitted. These people may be exhibiting early signs of mental illness and intervention programs may be in order. The signs of disordered thought also suggest that they may be vulnerable and in need of community mental health services to ensure their own protection, and to help prevent further contact with the criminal justice system. More

research is needed to determine what actions police officers take subsequent to their determination of the person`s state of disordered thought, and whether diversion to community mental health programs is used.

In conclusion, the analysis provides useful information for both police officers and clinicians regarding variables that are significantly related to serious mental disorders. As noted, there is very little research devoted to identifying the characteristics of persons that police officers take to the hospital, and more importantly research aimed at assisting police officers determine who *should* be taken to the hospital for psychiatric assessment. The data from the current study provides information that can be integrated into police training and it may also be useful to ED staff to support admission decision-making. The PEH algorithm captured almost three quarters of the sample population. It was, in fact, a good predictor of which persons were taken to the hospital by police, and a modest predictor of who will be admitted. Additional research and larger sample sizes will help to further refine the algorithm.

CHAPTER 6: ANALYSIS OF IMPACT ON POLICE RESOURCES

6.1 Introduction

In the last few years, the Ontario Association of Police Services Boards (OAPSB) has been very vocal about the escalating costs of policing as evidenced from the following press release:

> "Clearly, costs of policing are outpacing the Consumer Price Index (CPI), population growth, and even growth in the number of officers on the streets. Policing in Canada is a nearly $12 billion a year industry. In Ontario, the province and municipalities collectively spend $3.8 billion annually on policing....This cost is rising by 5-7% each and every year (approximately $190 million a year at 5%)" (Ontario Association of Police Services Boards [OAPSB], 2012).

The OAPSB argued that a factor accounting for increased costs is the expansion of the role of police to include *non-traditional* activities such as school safety, victim assistance, crime prevention education, and mental health interventions. The OAPSB called on the provincial government to "review the core responsibilities of police (with a view of eliminating use of police for non-core tasks) and examine alternative models of police service delivery..." (OAPSB, 2012).

Responding to the needs of PSMD is resource intensive for both the general hospitals and police organizations. According to Arfken et al. (2004), frequent visitors to general hospitals represent as many as one third of all visits to psychiatric emergency services. They found that frequent visitors "represent resource-poor mentally ill persons who have high levels of utilization of health care facilities besides psychiatric emergency services" (p. 295). In recent years, police leaders have pointed to the escalating costs of responding to persons with mental disorders. In a

study conducted by the Centre for Addiction and Mental Health (CAMH), in 2007 police services in Ontario reported over 40,000 contacts with persons with mental health issues, and over 16,000 MHA apprehensions (Durbin, Lin, & Rush, 2010). The Ontario government's 10-year mental health and addictions strategy reported the annual cost to the health care budget of providing mental health services in 2007-08 was $2.5 billion; interestingly, in the same year, the cost of law enforcement services related to responding to persons with mental disorder was nearly as much, estimated at 2.3 billion (Gnam, Sarnocinski-Hart, Mustard, Rush, & Lin, 2006). A constant source of aggravation to many police administrators, and a significant financial cost, is the requirement under the MHA that after transporting the PSMD to the hospital, the police officer(s) involved in the incident must remain there until the hospital accepts responsibility. This requirement has often led to police officers being delayed in the ED for excessive periods of time. As recently noted by one police leader, "Go down to the hospital any day of the week and you'll see multiple cruisers parked out there....And generally, they're not there for anything other than mental health (incidents). It chews up a large amount of our resources" (Gillespie, 2012).

In a study conducted in London, Ontario, it was reported that between 1998 and 2001, the number of hours police officers spent interacting with PSMD doubled from 5,000 to 10,000 and that such calls cost the police service $3.7 million of the $43-million London Police Department budget in 2001 (Hoch, Hartford, Heslop, & Stitt, 2009). The study also revealed that the majority of calls involved minor nuisance crimes or no crime at all. The study was replicated in 2011-2012 documenting police contact with PSMD from 2000 to 2011 (Meyer, 2013). The report examined how often police were involved, the nature of the contact, and the resource implications. The report noted that in 2012 alone, police officers made 1,500 trips to the ED at a cost of $12 million and it was estimated that the cost could reach $16 million by 2015.

According to London's Police Chief, typically two officers are assigned to a mental health call which takes an average of 7.2 combined hours (Meyer, 2013). The time police officers spend in the ED not only results in increased expenses for policing organizations, but it also means that police officers are not available to respond to other emergencies in the community (PHSJCC, 2011).

To sum, the costs of responding to the needs of PSMD continue to escalate for both the general hospitals and police organizations. Hospitals are able to capture the amount of time devoted to calls pertaining to PSMD, and there has been much research on the subject. However, the same cannot be said for police organizations. Other than the study conducted in London Ontario, there is a lack of empirical research aimed at identifying the costs of policing persons with mental disorders. Also, there is no standardized mechanism for capturing the amount of time police officers spend on calls related to mental health issues and, in particular, how much time police officers are in the ED.

6.2 Methods

To provide police organizations and hospital administrators an estimate of the amount of police resources that are expended on calls for service involving PSMD, it was decided that a portion of the interRAI BMHS be devoted to this issue. Sections A8, D3 and D4 of the interRAI BMHS found in Appendix A were intended to capture the time the call commenced, the time the police officer arrived at the ED, and the time the police officer was released from the call. The overall time was calculated by subtracting the time the call ended from the time the call commenced. The time the police officer remained in the ED was calculated by subtracting the end call time from the time the police officer arrived at the ED. Thus, it would be possible to determine the mean time police officers devoted to the entire call, but also the mean time they

were in the ED. Further, the attempt was made to identify the characteristics of those persons that were the most resource intensive for police services. That is, to determine if there was a significant difference between the mean times devoted to the call when the indicator was present, compared to when it was not present. Finally, the mean time for the highest level of the PEH algorithm was compared to the mean time of all other categories of the algorithm.

6.3 Results

By subtracting the end call time from the time the police officer commenced the call for all cases, it was possible to determine the total mean time police officers devoted to calls involving persons with mental health issues (Table 26). The result was a mean of 201.1 minutes (SD = 215.9, 95% CI = 183.3 - 234.9). The mean time police officers devoted to calls when no action was taken (i.e. not taken to hospital) was 141.3 minutes (SD = 264.0, 95% CI = 56.9 – 225.7). The mean time police officers were involved when taking a person to hospital and the person was subsequently not admitted was 197.9 minutes (SD = 188.9, 95% CI = 164.5 – 231.4). In cases where the person was admitted police officers were involved a mean time of 241.1 minutes (SD = 225.6, 95% CI = 187.3 – 294.9).

By subtracting the end call time from the time police officers arrived at the ED for all cases, it was possible to determine the mean total time police officers spent in the ED. The result was a mean of 180.1 minutes (3.0 hours) spent in the ED (SD = 208.2, 95% CI = 149.9 – 210.3). In terms of disposition, the mean time spent in the ED when the person was taken to the hospital and discharged (i.e. not admitted), was 157.6 minutes (2.6 hours) (SD = 175.6, 95% CI = 125.2 – 190.1). When the person was admitted, the mean wait time was 218.8 minutes (3.6 hours) (SD = 251.2, 95% CI = 158.4 – 279.1). As seen in Table 27, police officers spent slightly more time in overall and in the ED when the person fell in the highest category of the Police Escort to

Hospital (PEH) algorithm (both Disordered thought and Dangerous) when compared to subcategories of Disordered thought alone and Dangerous alone.

The attempt was made to determine which variables were significantly associated with the amount of time a police officer devoted to the call when taking someone to the hospital and when the person was admitted. As reported in Table 28, t-tests were used to determine if there was a statistically significant difference between the mean times the officer spent with the individual when the indicator was present as opposed to when it was not present. The results revealed that police officers spent significantly more overall time with individuals who exhibited the following characteristics: irritability, t (193) = -2.34, p = 0.02; socially inappropriate or disruptive behaviour, t (193) = -2.15, p = 0.03; verbal abuse, t (193) = -2.39, p = 0.02; intimidation of others or threatened violence, t (193) = -2.97, p = 0.003; and, violence to others, t (193) = -2.53, p = 0.01. The variables that were significantly associated with the amount of time police officers remained in the ED were, violent ideation, t (182) = -2.68, p = 0.008, intimidation of others or threatened violence, t (182) = -3.91, p = 0.0001, violence to others t (182) = -2.09, p = 0.04, and the person has been known to carry or use weapons t (182) = -0.07, p = 0.04 (see Table 29).

Table 26: Average amount of time police officers were involved with persons with mental health problems overall and by disposition

	Total Time			ED Time		
	N	Mean (SD)	95% CI	N	Mean (SD)	95% CI
All cases	235	201.1 (215.9)	183.3-234.9	185	180.1 (208.2)	149.9 – 210.3
Disposition						
Not taken to hospital	40	141.3 (264.0)	56.9 – 225.7	--	--	--
Taken to hospital and discharged	125	197.9 (188.9)	164.5 – 231.4	125	157.6 (175.6)	125.2 – 190.1
Admitted	69	241.1 (225.6)	187.3 – 294.9	40	218.8 (251.2)	158.4 – 279.1

Table 27: Total time and the time police officers remained in the hospital for subcategories of PEH algorithm

	Total Time			ED Time		
PEH algorithm	N	Mean (SD)	95% CI	N	Mean (SD)	95% CI
Disordered Thought (alone)	205	210.2 (223.0)	179.5 – 240.9	163	190.5 (218.0)	156.8 – 224.8
Dangerous (alone)	201	206.2 (203.2)	177.9 – 236.4	173	186.3 (213.3)	154.3 – 218.3
Dangerous and Disorder Thought (both)	175	214.2 (208.5)	183.1 – 245.3	152	197.3 (223.7)	161.5 – 233.2

Table 28: Results of t tests to determine if there is a significant difference between the presence and absence of the clinical variable as it relates to the total time a police officer spent on the call when taking someone to the hospital (in minutes)

Variable	N	Mean (SD)	*t*	*df*	*p* value
Irritability					
No	67	166.8 (134.6)	-2.34	193	0.02
Yes	128	237.8 (228.0)			
Hallucinations					
No	162	208.3 (194.9)	-0.78	193	0.44
Yes	33	238.5 (242.6			
Command hallucinations					
No	182	207.6 (191.5)	-1.49	193	0.14
Yes	13	294.1 (328.7)			
Delusions					
No	154	212.6 (208.7)	-0.10	193	0.92
Yes	41	216.3 (184.3)			
Hyper-arousal					
No	133	195.6 (199.8)	-1.80	193	0.07
Yes	62	251.6 (207.3)			
Pressured speech or racing thoughts					
No	127	196.4 (205.7)	-1.60	193	0.11
Yes	68	245.1 (196.4)			
Abnormal thought process					
No	84	209.3 (218.3)	-0.25	193	0.81
Yes	111	216.5 (192.2)			
Socially inappropriate or disruptive behaviour					
No	99	182.9 (198.4)	-2.15	193	0.03
Yes	96	244.9 (204.6)			
Verbal abuse					
No	112	183.8 (162.7)	-2.39	193	0.02
Yes	83	253.3 (243.3)			
Intoxication by drug or alcohol					
No	116	207.9 (160.9)	-0.46	193	0.65
Yes	79	221.5254.1)			
Degree of insight into mental health problem					
No	74	211.0 (224.0)	-0.13	193	0.90
Yes (none)	121	214.9 (190.6)			
Cognitive skills for daily decision-making					
No	123	204.6 (215.2)	-1.10	188	0.27
Yes (limited)	67	238.7 (183.8)			

Table 28 (con't)

Variable	N	Mean (SD)	*t*	*df*	*p* value
Police contact in last 30 days					
No	134	208.9 (216.6)	-0.46	193	0.65
Yes	61	223.3 (171.9)			
Person has been known to carry or use weapons(s)					
No	136	204.5 (195.5)	-0.87	164	0.39
Yes	30	240.6 (253.4)			
Violent ideation					
No	123	185.7 (188.7)	-2.54	193	0.18
Yes	72				
Intimidation of others or threatened violence					
No	130	183.4 (160.1)	-2.97	193	0.003
Yes	65	273.4 (261.2)			
Violence to others					
No	141	190.9 (191.3)	-2.53	193	0.01
Yes	54	272.1 (223.2)			
Self-injurious attempt – in last 7 days					
No	129	230.6 (212.1)	1.57	191	0.12
Yes	64	181.7 (184.3)			
Considered performing a self-injurious act in last 30 days					
No	80	229.4 (224.0)	0.93	192	0.35
Yes	114	201.6 (188.5)			
Suicide plan - in last 30 days					
No	117	219.7 (226.5)	0.52	189	0.60
Yes	74	203.8 (166.7)			
Family, caregiver, friend, or others express concern that person is at risk for self-					
No	62	204.1 (212.9)	-0.49	191	0.62
Yes	131	219.6 (200.1)			
Home environment – Squalid condition, e.g., extremely dirty, infestation by rats or					
No	172	209.5 (195.8)	-0.86	185	0.39
Yes	15	257.1 (306.3)			
Refused to take some or all of prescribed medication in last 3 days					
No	126	205.6 (200.8)	-0.87	185	0.38
Yes (none)	61	233.7 (218.5)			

Table 29: Results of t tests to determine if there is a significant difference in between the presence and absence of the clinical variable as it relates to the time a police officer spent in the emergency department (in minutes)

Variable	N	Mean (SD)	*t*	*df*	*p* value
Irritability					
No	60	147.9 (170.8)	-1.48	182	0.14
Yes	124	196.3 (223.6)			
Hallucinations					
No	152	176.7 (204.9)	-0.54	182	0.59
Yes	32	198.7 (228.3)			
Command hallucinations					
No	172	175.7 (198.3)	-1.19	182	0.59
Yes	12	250.0 (327.6)			
Delusions					
No	144	184.4 (219.30	0.48	182	0.63
Yes	40	166.5 (166.7)			
Hyper-arousal					
No	125	169.1 (214.2)	-1.08	182	0.28
Yes	59	204.7 (196.1)			
Pressured speech or racing thoughts					
No	119	166.1 (219.8)	-1.28	182	0.20
Yes	65	207.0 (185.3)			
Abnormal thought process					
No	77	184.2 (238.3)	0.20	182	0.84
Yes	107	177.9 (185.6)			
Socially inappropriate or disruptive behaviour					
No	92	158.2 (220.0)	-1.46	182	0.15
Yes	92	202.9 (195.3)			
Verbal abuse					
No	104	156.3 (181.6)	-1.81	182	0.07
Yes	80	212.1 (236.8)			
Intoxication by drug or alcohol					
No	111	176.0 (180.1)	-0.36	182	0.72
Yes	73	183.2 (205.1)			
Degree of insight into mental health problem					
No	70	176.3 (215.8)	-0.22	182	0.83
Yes (none)	114	183.2 (205.1)			
Cognitive skills for daily decision-making					
No	117	173.0 (228.8)	-0.86	178	0.39
Yes (limited)	63	201.2 (170.9)			

Table 29: (con't)

Variable	N	Mean (SD)	*t*	*df*	*p value*
Police contact in last 30 days					
No	128	179.8 (231.2)	-0.07	182	0.94
Yes	56	182.2 (146.5)			
Person has been known to carry or use weapons(s)					
No	126	160.0 (181.0)	- 2.09	153	0.04
Yes	29	251.0 (313.8)			
Violent ideation					
No	114	148.8 (183.0)	-2.68	182	0.008
Yes	70	232.3 (237.2)			
Intimidation of others or threatened violence					
No	122	139.2 (140.8)	-3.91	182	0.0001
Yes	62	261.9 (284.9)			
Violence to others					
No	130	160.0 (200.7)	-2.09	182	0.04
Yes	54	230.1 (220.8)			
Self-injurious attempt – in last 7 days					
No	121	188.5 (204.0)	0.63	180	0.53
Yes	61	167.7 (221.3)			
Considered performing a self-injurious act in last 30 days					
No	74	198.5 (223.5)	0.01	178	0.99
Yes	109	167.7 (199.0)			
Suicide plan - in last 30 days					
No	109	180.7 (218.4)	0.01	178	0.99
Yes	71	180.3 (199.4)			
Family, caregiver, friend, or others express concern that person is at risk for self-					
No	57	167.5 (202.8)	-0.58	181	0.56
Yes	126	186.8 (212.6)			
Home environment – Squalid condition, e.g., extremely dirty, infestation by rats or bugs					
No	164	175.0 (203.4)	- 0.95	175	0.34
Yes	13	233.2 (306.2)			
Refused to take some or all of prescribed medication in last 3 days					
No	119	178.6 (220.5)	-0.15	175	0.88
Yes (none)	58	183.9 (195.8)			

6.4 Discussion

The costs of responding to the needs of PSMD continue to escalate for police organizations. Though general hospitals can capture the amount of time devoted to calls pertaining to PSMD, there is no standardized mechanism for capturing the amount of time police officers spend on such calls for service. The analysis from the current study revealed that on average police officers devoted 315.9 minutes (3.6 hours) to calls related to mental health issues, and an average of 197.9 minutes (3.3 hours) taking a person to the hospital who is subsequently not admitted. Further, police officers spent an average of 180.1 minutes (3.0 hours) in the ED. The analysis also revealed that the individuals that police officers spent significantly more time with exhibit the following characteristics: irritability, socially inappropriate or disruptive behaviour, verbal abuse, intimidation of others or threatened violence, and violence to others. The variables that were significantly associated with the amount of time police officers remained in the ED were: violent ideation, intimidation of others or threatened violence, violence to others, and the person has been known to carry or use weapons. The results of this analysis are not surprising. Police are needed most when there is danger to self, or to the public, and the analysis confirms that police officers are, in fact, being used for this purpose. However, the amount of time police officers devote to taking persons to the hospital who are not admitted, may suggest gaps in services. More research is needed to examine why these individuals were not admitted and how many of them are repeat visitations by the same persons.

Another important finding was that when time is calculated by subcategories of the Police Escort to Hospital (PEH) algorithm, police officers spend an average of over three hours with individuals who exhibited indicators of disordered thought alone. Some police administrators have argued that in the face of expanding budgets, police presence is not

warranted unless there is a substantial risk of harm to self or others. Additional research is needed to determine why police officers are spending this amount of time on persons who are not violent, if alternative community mental health services are available, and if police officers are aware of them.

The use of the interRAI BMHS made it possible to capture the amount of time police officers devoted to calls for service involving persons with mental health issues. Capturing the amount of time police officers devote PSMD is important for several reasons. The information will be useful to police administrators to account for, and justify increases in police budgets. If it can be ascertained that police officers spend the majority of their time on individuals who are nonviolent, it may suggest that less costly mental health services may be in order. Police officers are required to remain in the ED until the hospital accepts responsibility. It has been argued that this is a costly and inefficient use of valuable police resources and jeopardizes the safety of other patients in the ED, and members of the public when police officers are unable to attend other calls for service in the community. Calculating actual costs of police presence may lead to a re-evaluation of current ED protocols. It may lead to a review of the physical structure of EDs to determine the feasibility of changes to permit the accommodation violent patients with mental health problems. Also, it might be possible to replace police officers with trained hospital security staff at a considerably lower cost. The same holds true for other activities currently performed by police officers, such as transporting PSMD from one jurisdiction to another, and from hospitals to court houses. The results of the current study support the government`s current efforts, that in light of fiscal constraints and the ever expanding role performed by police officers, there is a need to re-examine the core functions of policing particularly as they relate to responding to persons with mental disorders.

CHAPTER 7: DISCUSSION

Since the process of de-institutionalizing psychiatric patients commenced in Ontario, policy-makers have been searching for ways to respond to the needs of people with serious mental disorder (PSMD). Despite increases in funding and new programs and services, PSMD and their families continue to have difficulty accessing mental health services. There are a number of factors that help explain this current dilemma, including inadequate community mental programs and services, the right to refuse treatment, constraints on involuntary hospitalization, lack of appropriate secure facilities other than jails, privacy legislation that restricts the sharing of information, general hospitals that are ill equipped to deal with violent patients, a triage process that is primarily geared toward treating physical ailments, inconsistent funding, and insufficient training for both hospital staff and police officers. Advocates argue that these factors have presented as obstacles to effectively responding to the needs of PSMD and have indirectly led to higher rates of homelessness among PSMD, substance abuse, victimization, alienation, stigmatization, and increased contact with the criminal justice system, sometimes with tragic results.

The current model underlying the mental health system is based on the concept of integration of systems and services. Accordingly, service providers from the different ministries and agencies work collaboratively to respond to the needs of PSMD (Wolff, 2002a). However, it is argued that the current model is flawed in that the systems are not providing a coordinated response to the needs of PSMD. One of the best examples of this lack of coordination can be found in the emergency department (ED) of a general hospital. The ED is a key juncture where three major systems - criminal justice, health care and mental health - intersect. As the frontline of the criminal justice system, police officers have the authority to make an involuntarily

apprehension when there are reasonable grounds to believe a person has a mental disorder. The officer is required to take the person to an ED and remain there until the hospital accepts responsibility for the patient (MHA, 1990). The problems experienced in transferring PSMD from the criminal justice system to the health system exemplify the lack of coordination between the systems. Some of these problems have included excessive ED wait times for police officers and PSMD, an adversarial relationship between police officers and ED staff, repeat presentations at the ED by police officers and PSMD, inappropriate early discharges, which have led to repeat confrontations with police officers sometimes with tragic consequences. Consequently, persons with chronic mental health problems, together with police officers, are often caught up in the "revolving door syndrome" (Provincial Human Services and Justice Coordinating Committee [PHSJCC], 2011). In short, the lack of synchronization between the systems has meant that PSMD are unable to access mental health services in a timely and efficient manner.

It is argued that a major factor underlying the lack of coordination evident in the ED is the inability to effectively communicate *across* systems because each system has its own definition and language to describe serious mental disorder. The rationale underlying the current study was that if agreement can be reached on the indicators of serious mental disorder, it will help synchronize the systems. The means used to achieve mutual agreement on the indicators is a new brief mental health screening form, the interRAI Brief Mental Health Screener (BMHS) that police officers would complete when apprehending persons who have a mental disorder. The new form is based on hospital data. It is an evidence informed tool to help identify PSMD and because it uses health language to describe indicators of serious mental disorder, the language on the form will therefore act to bridge the two systems.

A major purpose of the current study was to develop and pilot test the interRAI BMHS and to determine if the items on the form predict which persons have the highest probability of being taken to the hospital by police officers, and which persons have the highest probability of being admitted. The study provided the opportunity to compare police officer ratings and clinician's assessments. A substantial difference between the ratings may provide support for the argument that the systems are not as synchronized. A final purpose of the study was to analyze the impact that interacting with PSMD has on police resources.

The interRAI BMHS is primarily based on data obtained from the Resident Assessment Instrument for Mental Health (RAI-MH) database which is used for every person in the province hospitalized for psychiatric care. The RAI-MH is a comprehensive assessment instrument with over 300 items relating to sociodemographic, health, service utilization, and functional characteristics (Hirdes et al., 2000/2001; Hirdes et al., 2002). In the development of the interRAI BMHS, a sample of 41,019 cases (completed RAI-MH forms) was used to identify 14 clinical variables related to danger to self, danger to others and inability to care for self. These variables became the *core* items on the interRAI BMHS. Nine additional clinical variables and 10 administrative variables were recommended for inclusion by an advisory committee.

The results of the analyses reported here were broadly consistent with previous research. Police officers are primarily concerned with dangerousness and public safety issues while clinicians tend to focus on indicators of disordered thought. An important finding from bivariate analyses was that 11 of the original 14 core items on the interRAI BMHS proved to be significantly associated with either being taken to the hospital by police officers, or being hospitalized. Sample size issues meant that some variables did not have sufficient cases for the accurate analyses. Further, the interRAI BMHS was able to capture the characteristics of people

who had contact with the police for mental health issues, and those who were admitted, but in more detail. That is, using the interRAI BMHS made it possible to operationally define violence potential in more detail breaking it down into items such as: “Family, caregiver, friend others concerned that person is at risk for self injury”, “Considered performing a self-injurious act in last 30 days”, “Socially inappropriate or disruptive behaviour”. Similarly, indicators of disordered thought can be broken down into descriptors such as: “Degree of insight into mental health problems”, “Abnormal thought process”, “Delusions” and “Hallucinations”.

Another important finding was that the reasons why police officers apprehend a person and take him or her to the hospital were not the same as the reasons why that person was subsequently admitted. There are several possible reasons to account for this gap. It could be argued that police officers do not fully understand psychosis and other indicators of disordered thinking. This would provide evidence for those who argue that police officers need more training to better recognize indicators of serious mental disorder. It is, however, probably more likely that police officers do, in fact, recognize indicators of serious mental disorder, but they place greater emphasis on dangerousness because the MHA does. It would appear that ED physicians do not place as much emphasis on dangerousness. However, it should be noted that the majority of individuals taken to hospital by police officers exhibited some form of dangerousness either to themselves or others and those who were admitted were a subset of these individuals. This suggests gaining access to mental health care resources through police contact typically involves a two step process. The first step is meeting the criteria for being apprehended by police officers and the second step is meeting the criteria for being admitted into the hospital. Regardless of the possible reasons, there is evidence of a lack of consensus between the systems

on the indicators of serious mental disorder. The use of the interRAI BMHS should ultimately work toward closing the gap.

Multivariate methods were used to identify the variables on the interRAI BMHS that together best predict whether a person is apprehended and taken to the hospital by police officers, and whether a person is subsequently hospitalized. Unadjusted odds ratios were calculated for all clinical variables. Logistic regression analysis was used to analyze the joint effects of the variables with statistically significant odds ratios. The goal was to identify the key variables that together account for why persons are apprehended by police officers and taken to the hospital, and the variables that account for why persons are admitted into psychiatric care. A model comprising three variables significantly predicted whether a person was taken to hospital by police: socially inappropriate or disruptive behavior, considered performing a self-injurious act in the last 30 days, and family, caregiver, friend, or others express concern that the person is at risk of self injury. Three items also significantly predicted who of those taken to hospital by police were admitted: hallucinations and degree of insight into mental health problems. The third variable was intoxication by drug or alcohol. Persons were significantly less likely to be admitted if presenting in this state. This finding is supported in the literature. Unless there is severe risk to life, clinicians tend to defer examinations and treatment until the patient is in a sober state (McNiel et al., 1992).

Additional predictive models were developed and tested by developing algorithms based on the original 14 variables obtained from the analysis of the RAI-MH database. Referred to as the Police Escort to Hospital algorithm (PEH algorithm), the four levels included: Neither Disordered Thought nor Dangerousness, Disordered Thought only, Dangerousness only, and the highest category, Both Disordered Thought and Dangerousness. The analysis revealed that three

quarters of police apprehensions made in the pilot study fell into the highest category indicating need for police escort. These persons were twice more likely to be admitted than persons who met the criteria for Disordered Thought alone, or Dangerousness alone. The fact that very few persons were not taken to the hospital that fell in the Police Escort category suggests that it is a good threshold for taking someone to the hospital. When the Police Escort scale was compared with all other subscales of the PEH algorithm, it obtained slightly lower c values for predicting Taken to Hospital by Police, and Admitted. However, it was statistically significant for both, and it performed better for predicting actual admission to hospital compared with the models using subscales.

Logistic regression analysis resulted in very economical models comprising only three variables that significantly predicted who would be taken to hospital by police officers, and who would be admitted. There are, however, several reasons why it would be inappropriate for police officers to rely on so few variables when deciding whether to take someone to hospital. First, the sample size was relatively small and with more cases, additional variables may prove to be significant. Second, when a police officer involuntarily apprehends a person under the MHA, the officer is, in effect, depriving the person of their civil liberties. Given the implications of such an action, *all* relevant information must be considered when making the decision to apprehend. Further, the MHA requires that police officers have reasonable and probable grounds to believe that a person has a mental disorder. The courts have ruled that this requires that an officer determine if "the totality of available evidence supports an objective belief" that a person has a mental disorder (*R. v. Hall*, 2004). Thus, the evidence obtained from the screener should be viewed as another piece of information that the police officer considers when building a case for reasonable and probable grounds to believe a person has a serious mental disorder. The final

reason for not relying solely on so few items is that psychiatric emergency services would benefit from more rather than less information. The decision to admit someone into psychiatric care is the responsibility of hospital staff. According to the MHA, in order to apprehend someone a police officer must believe that the "disorderly behaviour" is due to a mental disorder. All indicators of mental disorder could potentially be important to hospital staff to assist in admission decision-making. Thus, the model with the most promise and that is most appropriate for use by police officers is the PEH algorithm with the upper threshold triggering police escort.

There were several limitations to the pilot study. First and foremost, the sample size was relatively small. With a larger sample size, additional variables might prove to be statistically significant, and conversely, some of the variables currently in the model may not continue to be statistically significant. Second, the sample population was biased toward white, predominantly English-speaking population with almost no representation from First Nations peoples. This does not reflect the demographic reality in the province, particularly in larger urban centres. Third, there was no attempt to cross-validate the findings which would assist in assessing its generalizability. Fourth, there was no attempt at measuring inter-rater reliability due to limited project resources. Finally, the dependent variables were limited to police escort to hospital and admission, which does not reflect the current broad range of dispositions available to both police officers and clinicians. Future research should focus on measuring inter-rater reliability and methods of cross-validation should be integrated into the research design. For example, a split half procedure could be used where the sample is randomly divided into two groups: an exploratory group and a group that would be used for cross validation purposes.

There are some important policy implications resulting from the study. It was revealed in the case of those individuals who fell into the Dangerousness only category, almost three

quarters of the group were taken to the hospital by police officers and subsequently discharged. Further, there was an additional twelve percent in which no action was taken. It could be that these persons had criminal charges pending and were taken to jail upon discharge. Yet, this would only account for a small percentage of the cases. Regardless, it suggests that the safety of PSMD and that of the public may be in jeopardy. Further research is necessary to determine why these individuals were not taken to the hospital by police officers, and why the persons were not admitted. It would also be useful to know if they were diverted to another mental health service agency and how often these individuals interacted with the police and the criminal justice system. The analysis may suggest intervention programs that would better protect the PSMD and the public, and also help to ensure that these persons do not come into contact with the criminal justice system.

In regard to the disordered thought alone subscale of the PEH algorithm, the analysis revealed that more than half of the persons identified by police officers as being in this category were not taken to the hospital. An additional thirty percent were taken to the hospital by police officers and subsequently released without being admitted. These people may be exhibiting early signs of mental illness and intervention programs may be in order. The signs of disordered thought also suggest that they may be vulnerable and in need of community mental health services to ensure their own protection, and to help prevent further contact with the criminal justice system. More research is needed to determine what actions police officers take subsequent to their determination of the person`s state of disordered thought, and whether these persons were diverted to community mental health services and if there is a gap in service delivery.

The pilot study provides useful information for both police officers and clinicians regarding variables that are significantly related to serious mental disorders. As noted, there is very little research devoted to identifying the characteristics of persons that police officers take to the hospital. More importantly, there is almost no research on identifying the characteristics of persons who police officers *should* take to the hospital for psychiatric assessment. The MHA is vague referring to acting in a "disorderly" manner and danger to self or others. The data from the current study provides information that can be used as a guide to support both police officer and ED decision-making. It can also be integrated into police training which would respond to those who believe police officers need enhanced training in mental health issues.

In regard to the time devoted to calls for service involving persons with mental disorder, the analysis revealed that police officers spent an average of about three and a half hours overall, and about the same in the ED. The interRAI BMHS was not able to capture all of the activities that police officers are engaged in when responding to PSMD. For example, the form did not capture times when police officers were engaged in transportation only, and when they were relieved at the hospital by an officer on a subsequent shift. Thus, the time estimates are conservative. Of particular note is that police officers spend almost three and a half hours on persons who exhibit indicators of disordered thought alone. That is, there is no danger to self or others. Future research should focus on identifying the specific activities that officers are engaged in to determine if police presence is warranted.

The upper level of the PEH algorithm captured almost three quarters of the sample population. It was, in fact, a good predictor of which persons were taken to the hospital by police, and a modest predictor of who will be admitted. What is encouraging is that the observations made by police officers and captured on the interRAI BMHS predict the actions

subsequently taken by ED clinicians. Further research and larger sample sizes will help to further refine the algorithm. There are other possible applications outside of those already mentioned. For example, it might be a useful tool in mental health courts and detention centres and prisons to identify persons in need of psychiatric assessment and it might be useful for screening persons applying for firearms permits.

In conclusion, the results of the pilot study confirm that the police officers who participated in the study took people to the hospital who did, in fact, meet the criteria specified in s.17 of the MHA of Ontario. Moreover, given that a greater proportion of individuals were apprehended and taken to hospital than were admitted, suggests that police officers err on the side of public safety. The interRAI BMHS was able to quickly and easily capture the characteristics of the persons taken to hospital including those who were admitted, in much more detail than has been reported elsewhere. Items on the interRAI BMHS represent key indicators of serious mental disorder. As such, training police officers to use the interRAI BMHS in and of itself, would constitute enhanced training. More importantly, the interRAI BMHS is based on an analysis of the RAI-MH. It is therefore evidence-informed, and because it uses the language of the health system it should assist in synchronizing the criminal justice and mental health system to better serve this vulnerable population. There are other benefits associated with the interRAI BMHS. The RAI-MH is linked to interRAI instruments in other sectors such as long-term care and home care thereby supporting an integrated health information system. Other instruments have been created based on the RAI-MH, including the interRAI ESP for acute mental health emergency screening, and the interRAI Community Mental Health (CMH) designed for community care settings. The interRAI BMHS is therefore compatible with these instruments and would therefore help to promote a seamless system of care. A feature of the interRAI

instruments not found in other mental health assessment instrument is the use of algorithms that "trigger" care planning and interventions referred to as Mental Health Clinical Assessment Protocols (CAPS) (formerly, Mental Health Assessment Protocols (MHAPs)) (Martin et al., 2009; Mathias, Hirdes, & Pittman, 2010). With the future refinement of the interRAI BMHS the concept underlying the CAPS might be adapted for use by police officers for training purposes in that they would describe evidence-informed best practice response guidelines.

Future efforts should be directed toward ensuring that ED personnel are made aware of the benefits of the interRAI BMHS. Most ED mental health staff should have some knowledge of the RAI-MH and if it was made known that brief screener for police officers was based on their own data and instrument, it may promote acceptance of the new brief screener for police officers. The continued use of the interRAI BMHS will permit future research to be targeted toward identifying the characteristics of persons who are repeatedly taken to hospital by police officers and who are *not* admitted. The repeated contact between these persons and police agencies is a major factor contributing to strained police budgets. It also places them at risk of harm because police officers are often unaware, due to privacy legislation, that mental disorder is a precipitating factor underlying their emotional crisis. More importantly, such an analysis may identify gaps in services for this unique patient population.

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APPENDICES

Appendix A: InterRAI Brief Mental Health Screener (interRAI BMHS)

Please contact the author for information on how to obtain a copy of the interRAI Brief Mental Health Screener (interRAI BMHS).

Appendix B: Resident Assessment Instrument – Mental Health (RAI-MH)

Please visit interRAI Mental Health (MH) Assessment Form, 9.1 for information on how to obtain a copy of the interRAI MH form and http://catalog.interrai.org/MH-mental-health-form for information on how to obtain accompanying manuals and other supporting materials.

Appendix C: Expert Panel

Ron Hoffman, PhD (Candidate) has been an instructor at the Ontario Police College since 1991 where he is Subject Coordinator for Mental Health Issues. Ron is a part time PhD candidate in the Health Studies and Gerontology program at Waterloo University under the supervision of Dr. John Hirdes.

John P. Hirdes, PhD is a Professor, Department of Health Studies and Gerontology, University of Waterloo; Scientific Director, Homewood Research Institute and is the senior Canadian Fellow and a Board Member of interRAI, an international consortium of researchers from 29 countries.

Gregory P. Brown, PhD is Associate Professor, Criminal Justice & Sociology and Director of the Institute for Applied Research (IASR) at Nipissing University in North Bay, Ontario. Dr. Brown is also Chair of the Ontario Ministry of Community Safety and Correctional Services Research Committee and an Adjunct Professor of Health Studies and Gerontology at the University of Waterloo.

Howard E. Barbaree, PhD is the Clinical Director of the Law and Mental Health Program at the Centre for Addiction and Mental Health (CAMH). He is a Professor with the Department of Psychiatry at the University of Toronto and an Adjunct Professor of Health Studies and Gerontology at the University of Waterloo.

Nancy Curtin -Telegdi, MA is the Educator & Field Coordinator for the interRAI research team, *ideas for health*, University of Waterloo with expertise in the development and delivery of the educational materials that support interRAI research projects. She has 15 years of frontline psychiatric nursing experience with one year of it as the Unit Manager of a forensic treatment unit and has been associated with interRAI research almost since its inception at the University of Waterloo.

Appendix D: interRAI BMHS Advisory Committee

Ron Hoffman	Ontario Police College 10716 Hacienda Road Aylmer, ON N5H 2T2
Dr. John Hirdes	Dept. of Health Studies and Gerontology University of Waterloo 200 University Ave, West, Waterloo, ON N2L 3G1
Dr. Greg Brown	Dept. of Criminal Justice and Sociology Nipissing University 100 College Drive, Box 5002, North Bay ON P1B 8L7
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Nancy Curtin-Telegdi	ideas for Health University of Waterloo Department of Health Studies & Gerontology 200 University Avenue West Waterloo, Ontario
Dr. Chris Perlman	Associate Director Homewood Research Institute Guelph, Ontario
Molly Acton Rinaldo	Planning Officer Research Unit Operational Policy & Strategic Planning Bureau Ontario Provincial Police
Inspector Scott Smith, OPP	Detachment Commander, Wellington County, Ontario Provincial Police

P.C. Karen Lyons	Mental Health Coordinator, OPP Wellington County Detachmen
Diane Wilkinson	Vice President Clinical Services/Chief Nursing Executive Groves Memorial Community Hospital/ North Wellington Health Care
Tanya Murtagh	Professional Practice Manager Wellington Health Care Alliance Groves Memorial, Louise Marshall & Palmerston District Hospitals
Inspector Maurice Obergan	Guelph Police Service Corporate Services 15 Wyndham St. South Guelph, Ontario
Michelle Bott	Director, Emergency Room Services Guelph General Hospital Guelph, Ontario
Erin Graham	Emergency Mental Health Unit Guelph General Hospital Guelph, Ontario
Dr. Brian Furlong	Community Division Director Homewood Health Centre 150 Delhi Street Guelph, Ontario
Eileen McIntosh	Manager Emergency Mental Health Unit Guelph General Hospital, Guelph, Ontario
Gloria Kovach	Program Co-ordinator Emergency Mental Health Unit (EMHU) Homewood Health Centre 150 Delhi St. Guelph, Ontario

Appendix E: Demographic profile of Wellington County, City of Guelph and Province of Ontario

	Wellington County	City of Guelph	Ontario
Population	208,360	121,688	12,851,821
Median Age Males Females	39.5 38.6 40.4	37.7 36.6 38.7	40.4 39.4 41.3
Gender Males Females	 102,125 (49.0%) 106,235 (51.0%)	 59,000 (48.5%) 62,690 (51.5%)	 6,263,140 (48.7%) 6,588,685 (51.3%)
Married or common-law Single	104,005 (49.9%) 66,375 (31.9%)	42,250 (34.7%) 57,890 (47.6%)	6,158,605 (47.9%) 4,512,440 (35.1%)
Number of families in private households	59,135 (34.7%)	33,865 (27.8%)	3,612,200 (28.1%)
Married with children at home	24,680 (14.5%)	13,930 (11.4%)	1,522,150 (11.8%)
Mother tongue – English	170,470 (81.8%)	95,845 (78.8%)	8,677,040 (67.5%)
Language spoken most often in home – English	186,405 (89.5%)	105,850 (87.0%)	10,044,810 (78.2%)
Average number of children at home	1.1	1.1	1.1
Average number of persons per family	3.0	2.9	3.0

Above table based data obtained from: Statistics Canada. (2012). Wellington and Guelph, Census Profile 201; Statistics Canada. (2012) Wellington County, Census Profile 2011.

Appendix E: (Continued)

	Wellington County	**City of Guelph**	**Ontario**
Median household income	North $55,000 Central $75,000 South $85,000 *(based on 2005 census data, Reichert, 2011)*	$64,319 *(based on 2006 census data, City of Guelph 2011)*	$60,455 *(based on 2005 census data, (Reichert, 2011)*
Education* < high school high school college university * *City of Guelph, (2011)*	 27.5% 28% 18.0% 13.2%	 28% 28% 17% 24%	 22.2% 26.8% 18.4% 20.5%
Number of police officers *Statistics Canada, Police Resources, 2010, (2011)*	115 Compared to average of 131.2 for population 50,000 to 90,000 *Statistics Canada, Police Resources, 2010, (2011)*	157 Compared to average of 157 for population 100,000 or greater *Statistics Canada, Police Resources, 2010, (2011)*	26,387 Statistics Canada, Police Officers by Province and Territories, 2011.
Number of family doctors per 100,000 population* **Ontario Hospital Association, (2007)*	85.4 (92.2 if Toronto removed)		95.8
Number of psychiatrists per 100,000 population **Ontario Hospital Association, (2007)*	8.9 (10.4 if Toronto removed)		17.3

Appendix F: Crime Severity Index values for 239 police services policing communities over 10,000 population, 2011

Service	Population	Overall Crime Severity Index		Violent Crime Severity Index		Non-violent Crime Severity Index	
		value	rank	value	rank	value	rank
Canada	**34,482,779**	**77.6**	**...**	**85.3**	**...**	**74.7**	**...**
Ontario*		**61.1**	**13**	**73.4**	**9**	**56.4**	**13**
Guelph	126,106	47.0	197	48.2	160	46.5	204
Wellington County	93,470	28.5	234	19.1	233	32.2	232

*Statistics Canada. (2011). Crime Severity Index; *Statistics Canada. (2011). Crime Severity Index by Province and Territory*

Appendix G: Tracking Sheet

Patient Name	**D.O.B.** *Year/Month*	**Sex** *M/F*	**Unique Study ID #** (from bottom	**Location, Date & Time Arrival at ED**	**Disposition & Date**				
					ADMIT to GGH /GMCH	**ADMIT to HHC /EMHU**	**DISCHARGE to another MH Facility**	**DISCHARGE Home**	**OTHER (please specify)**

Legend: MH (Mental Health); HHC (Homewood Health Centre); EMHU (Emergency Mental Health Unit); GGH (Guelph General Hospital); GMCH (Groves Memorial Community Hospital); PDH (Palmerston & District Hospital); LMH (Louise Marshall Hospital

Appendix H:
Table H 1 Association of Demographic and Contextual variables with Police Service

Variable		OPP	Guelph PS	*df*	χ^2	*p* value	Missing Data
		53.2% (*n*=125)	46.8% (*n*=110)				
Age categories (years)	0-17	8.0 (10)	9.1 (10)	4	8.5	0.08	0
	18-24	12.8 (16)	21.8 (24)				
	25-44	36.8 (46)	39.1 (43)				
	45-64	32.0 (40)	27.3 (30)				
	65 +	10.4 (13)	2.7 (3)				
Sex	Male	60.8 (76)	52.7 (58)	1	1.6	0.21	0
	Female	39.2 (49)	47.3 (52)				
Homeless	No	96.0 (120)	95.4 (103)	1	0.06	0.81	2
	Yes	4.0 (5)	4.6 (5)				
Existing order*	No	89.9 (98)	93.2 (96)	1	0.7	0.39	23
	Yes	10.1 (11)	6.8 (7)				
Shift	12-8 am	13.6 (17)	15.4 (17)	2	1.7	0.43	0
	8-4 pm	40.8 (51)	47.3 (52)				
	4-12 am	45.6 (57)	37.3 (41)				

Appendix H1: (con't)

Variable		OPP	Guelph PS	*df*	χ^2	*p* value	Missing
		53.2% (*n*=125)	46.8% (*n*=110)				Data
Day of week	Sat	17.6 (22)	10.0 (11)	6	5.4	0.50	0
	Sun	15.2 (19)	10.0 (11)				
	Mon	16.0 (20)	19.1 (21)				
	Tues	12.0 (15)	13.6 (15)				
	Wed	12.0 (15)	11.8 (13)				
	Thurs	12.8 (16)	16.4 (18)				
	Fri	14.4 (18)	19.1 (21)				
Diversion							
	No	65.3 (79)	80.0 (84)	1	6.1	0.01	9
	Yes	34.7 (42)	20.0 (21)				
Mental Health Act apprehension							
	No	42.4 (53)	20.0 (22)	1	13.5	0.0002	0
	Yes	57.6 (72)	80.0 (88)				
Criminal charges pending							
	No	97.5 (119)	96.3 (103)	1	0.3	0.57	6
	Yes	2.5 (3)	3.7 (4)				

*The person was apprehended by police under authority of an existing order for psychiatric examination (e.g. an order for psychiatric examination issued by a Justice of the Peace (Form 2), or an order for examination issued by a physician in regard to a Community Treatment Order (Form 47).

Appendix H2: Association of variables from the Disordered Thought section of the interRAI BMHS with Police Service

Variable	OPP	Guelph PS	*df*	χ^2	*p* value	Missing Data
	53.2% (*n*=125)	46.8% (*n*=110)				
Irritability						
No	36.0 (45)	38.2 (42)	1	0.1	0.73	0
Yes	64.0 (80)	61.8 (68)				
Hallucinations						
No	83.2 (104)	84.5 (93)	1	0.08	0.78	0
Yes	16.8 (21)	15.5 (17)				
Command hallucinations						
No	92.0 (115)	95.5 (105)	1	1.2	0.28	0
Yes	8.0 (10)	4.5 (5)				
Delusions						
No	78.4 (98)	79.1 (87)	1	0.02	0.90	0
Yes	21.6 (27)	20.9 (23)				
Hyper-arousal						
No	69.6 (87)	70.0 (77)	1	0.004	0.95	0
Yes	30.4 (38)	30.0 (33)				
Pressured speech or racing thoughts						
No	66.4 (83)	68.2 (75)	1	0.08	0.77	0
Yes	33.6 (42)	31.8 (35)				
Abnormal thought process						
No	46.4 (58)	43.6 (48)	1	0.2	0.67	0
Yes	53.6 (67)	56.4 (62)				
Socially inappropriate or disruptive behaviour						
No	54.4 (68)	57.3 (63)	1	0.2	0.66	0
Yes	45.6 (57)	42.7 (47)				

Appendix H2: (con't)

Variable	OPP	Guelph PS	*df*	χ^2	*p* value	Missing Data
	53.2% (*n*=125)	46.8% (*n*=110)				
Verbal abuse						
No	64.0 (80)	60.0 (66)	1	0.4	0.53	0
Yes	36.0 (45)	40.0 (44)				
Intoxication by drug or alcohol						
No	61.6 (77)	61.8 (68)	1	0.001	0.97	0
Yes	38.4 (48)	38.2 (42)				
Degree of insight into mental health problem						
No (full insight)	42.4 (53)	36.4 (40)	1	0.9	0.35	0
Yes (limited to none)	57.6 (72)	63.6 (70)				
Cognitive skills for daily decision-making						
No (independent)	70.3 (85)	60.2 (65)	1	2.6	0.11	6
Yes (any	29.7 (36)	39.8 (43)				

Appendix H3: Association of variables from the Risk of Harm section of the interRAI BMHS with Police Service

Variable	OPP	Guelph PS	*df*	χ^2	*p* value	Missing Data
	53.2% (*n*=125)	46.8% (*n*=110)				
Previous police contact in last 30						
No	74.4 (93)	62.7 (69)	1	3.7	0.05	0
Yes	25.6 (32)	37.3 (41)				
Person has been known to carry or use weapons(s)						
No	79.3 (88)	86.7 (78)	1	1.9	0.17	34
Yes	20.7 (23)	13.3 (12)				
Violent ideation						
No	65.6 (82)	69.1 (76)	1	0.3	0.57	0
Yes	34.4 (43)	30.9 (34)				
Intimidation of others or threatened violence						
No	68.0 (85)	69.1 (76)	1	0.03	0.86	0
Yes	32.0 (40)	30.9 (34)				
Violence to others						
No	78.4 (98)	71.8 (79)	1	1.4	0.24	0
Yes	21.6 (27)	28.2 (31)				
Self-injurious attempt – in last 7 days						
No	74.4 (93)	68.5 (74)	1	1.0	0.32	2
Yes	25.6 (32)	31.5 (34)				
Considered performing a self-injurious act in last 30 days						
No	50.4 (63)	45.9 (50)	1	0.5	0.49	1
Yes	49.6 (62)	54.1 (59)				
Suicide plan - last 30 days						
No	71.8 (89)	59.8 (64)	1	3.7	0.06	4
Yes	28.2 (35)	40.2 (43)				

Appendix H3: (con't)

Indicators Risk of Harm	OPP	Guelph PS	*df*	χ^2	*p* value	Missing Data
	53.2% (*n*=125)	46.8% (*n*=110)				
Family, caregiver, friend, others concerned that person is at risk for self-injury						
No	39.5 (49)	36.7 (40)	1	0.2	0.66	2
Yes	60.5 (75)	63.3 (69)				
Home environment – Squalid condition, e.g., extremely dirty, infestation by rats or bugs						
No	92.6 (112)	93.4 (99)	1	0.06	0.81	8
Yes	7.4 (9)	6.6 (7)				
Refused to take some or all of prescribed medication in last 3 days						
No	77.0 (94)	61.5 (64)	1	6.4	0.01	9
Yes	23.0 (28)	38.5 (40)				

Appendix I

Appendix I1: Association of Demographic and Contextual variables with Sex

Variable		Males	Females	*df*	χ^2	*p* value	Missing Data
		57.0% (*n*=134)	43.0% (*n*=101)				
Police service	OPP	56.7 (76)	48.5 (49)	1	1.6	0.21	0
	Guelph PS	43.3 (58)	51.5 (52)				
Age categories (years)	0-17	8.2 (11)	8.9 (9)	4	4.8	0.31	0
	18-24	17.9 (24)	15.8 (16)				
	25-44	42.6 (57)	31.7 (32)				
	45-64	24.6 (33)	36.6 (37)				
	65 +	6.7 (9)	7.0 (7)				
Homeless	No	95.5 (126)	96.0 (97)	1	0.05	0.83	2
	Yes	4.5 (6)	4.0 (4)				
Existing order*	No	94.1 (111)	88.3 (83)	1	2.2	0.13	23
	Yes	5.9 (7)	11.7 (11)				
Day of week	Sat	11.9 (16)	16.8 (17)	6	6.4	0.38	0
	Sun	11.9 (16)	13.9 (14)				
	Mon	19.4 (26)	14.8 (15)				
	Tues	10.5 (14)	15.8 (16)				
	Wed	10.5 (14)	13.9 (14)				
	Thurs	15.7 (21)	12.9 (13)				
	Fri	20.1 (27)	11.9 (12)				

Appendix I1: (con't)

Variable		Males	Females	*df*	χ^2	*p* value	Missing Data
		57.0% (*n*=134)	43.0% (*n*=101)				
Shift	12-8 am	16.4 (22)	11.9 (12)	2	3.3	0.19	0
	8-4 pm	38.8 (52)	50.5 (51)				
	4-12 am	44.8 (60)	37.6 (38)				
Diversion							
	No	74.2 (95)	69.4 (68)	1	0.6	0.42	9
	Yes	25.8 (33)	30.6 (30)				
Mental Health Act apprehension							
	No	32.1 (43)	31.7 (32)	1	0.004	0.95	0
	Yes	67.9 (91)	68.3 (69)				
Criminal charges pending							
	No	96.9 (125)	97.0 (97)	1	0.002	0.97	6
	Yes	3.1 (4)	3.0 (3)				

*The person was apprehended by police under authority of an existing order for psychiatric examination (e.g. an order for psychiatric examination issued by a Justice of the Peace (Form 2), or an order for examination issued by a physician in regard to a Community Treatment Order (Form 47).

Appendix I2: Association of variables from the Indicators of Disordered Thought section of the interRAI BMHS with Sex

Variable	Males	Females	*df*	χ^2	*p* value	Missing Data
	57.0% (*n*=134)	43.0% (*n*=101)				
Irritability						
No	36.6 (49)	37.6 (38)	1	0.03	0.87	0
Yes	63.4 (85)	62.4 (63)				
Hallucinations						
No	83.6 (112)	84.2 (85)	1	0.01	0.91	0
Yes	16.4 (22)	15.8 (16)				
Command hallucinations						
No	92.5 (124)	95.1 (96)	1	0.6	0.44	0
Yes	7.5 (10)	4.9 (5)				
Delusions						
No	81.3 (109)	75.2 (76)	1	1.3	0.26	0
Yes	18.7 (25)	24.8 (25)				
Hyper-arousal						
No	68.7 (92)	71.3 (72)	1	0.2	0.66	0
Yes	31.3 (42)	28.7 (29)				
Pressured speech or racing thoughts						
No	65.7 (88)	69.3 (70)	1	0.4	0.56	0
Yes	34.3 (46)	30.7 (31)				
Abnormal thought process						
No	44.8 (60)	45.5 (46)	1	0.01	0.91	0
Yes	55.2 (74)	54.5 (55)				
Socially inappropriate or disruptive behaviour						
No	54.5 (73)	57.4 (58)	1	0.2	0.65	0
Yes	45.5 (61)	42.6 (43)				

Appendix I2: (con't)

Variable	Males	Females	*df*	χ^2	*p* value	Missing Data
	57.0% (*n*=134)	43.0% (*n*=101)				
Verbal abuse						
No	59.7 (80)	65.4 (66)	1	0.8	0.38	0
Yes	40.3 (54)	34.6 (35)				
Intoxication by drug or alcohol						
No	55.2 (74)	70.3 (71)	1	5.5	0.02	0
Yes	44.8 (60)	29.7 (30)				
Degree of insight into mental health problem						
No (full insight)	40.3 (54)	38.6 (39)	1	0.07	0.79	0
Yes (limited to none)	59.7 (80)	61.4 (62)				
Cognitive skills for daily decision-making						
No (independent)	67.4 (89)	62.9 (61)	1	0.5	0.48	6
Yes (any impairment)	32.6 (43)	37.1 (36)				

Table I3: Association of variables from the Indicators of Risk of Harm section of the interRAI BMHS with Sex

Variable	Males	Females	*df*	χ^2	*p* value	Missing Data
	57.0% (*n*=134)	43.0% (*n*=101)				
Previous police contact in last 30 days						
No	70.9 (95)	66.3 (67)	1	0.6	0.45	0
Yes	29.1 (39)	33.7 (34)				
Person has been known to carry or use weapons(s)						
No	81.7 (94)	83.7 (72)	1	0.1	0.71	34
Yes	18.3 (21)	16.3 (14)				
Violent ideation						
No	60.4 (81)	76.2 (77)	1	6.5	0.01	0
Yes	39.6 (53)	23.8 (24)				
Intimidation of others or threatened violence						
No	64.9 (87)	73.3 (74)	1	1.9	0.17	0
Yes	35.1 (47)	26.7 (27)				
Violence to others						
No	71.6 (96)	80.2 (81)	1	2.3	0.13	0
Yes	28.4 (38)	19.8 (20)				
Self-injurious attempt – in last 7 days						
No	73.7 (98)	69.0 (69)	1	0.6	0.43	2
Yes	26.3 (35)	31.0 (31)				
Considered performing a self-injurious act in last 30 days						
No	50.0 (67)	46.0 (46)	1	0.4	0.54	1
Yes	50.0 (67)	54.0 (54)				
Suicide plan - last 30 days						
No	66.7 (88)	65.7 (65)	1	0.03	0.87	4
Yes	33.3 (44)	34.3 (34)				

Table I3: (con't)

Variable	Males	Females	*df*	χ^2	*p* value	Missing Data
	57% (*n*=134)	43% (*n*=101)				
Family, caregiver, friend, others concerned that person is at risk for self-injury						
No	35.1 (47)	42.4 (42)	1	1.3	0.25	2
Yes	64.9 (87)	57.6 (57)				
Home environment – Squalid condition, e.g., extremely dirty, infestation by rats or bugs						
No	90.8 (119)	95.8 (92)	1	2.1	0.15	8
Yes	9.2 (12)	4.2 (4)				
Refused to take some or all of prescribed medication in last 3 days						
No	71.5 (93)	67.7 (65)	1	0.4	0.53	9
Yes	28.5 (37)	32.3 (31)				