TITLE PAGE

Title: Clinical characteristics and outcomes of patient presentations to the emergency department via police: A scoping review

Running title: Patient presentations to ED via police

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Title: Clinical characteristics and outcomes of patient presentations to the emergency department via police: A scoping review

ABSTRACT

People brought in by police (BIBP) to the emergency department (ED) are a potentially vulnerable group. This narrative scoping review aimed to identify, evaluate and summarise current literature regarding the frequency of presentation, demographic and clinical profile of patients (including reason for presentation), care delivery, and outcomes for people BIBP to the ED, and identify current gaps in knowledge. The review involved searching EMBASE, CINAHL, and PUBMED using a combination of terms: emergency/emergency department coupled with police custody/watch house or police presentation, for papers published in English language from January 2006 to November 2017. A total of 20 studies met the inclusion criteria. These included 17 observational (non-Randomised Controlled Trials) quantitative studies and 3 descriptive case reports. The proportion of presentations to ED that were BIBP varied depending on the study design and sampling frame. People BIBP often presented with aggressive behaviour, mental health problems, and/or substance use problems, and/or aggressive behaviour and injury caused by self or others. Of studies focused specifically on patients arriving to the ED in mental health crisis (i.e., suicidal ideation or self-harm), approximately 20-30% 18-27% were BIBP. ED presentations BIBP were mostly male and typically younger than people arriving by other means. The nature of care provided in the ED and outcomes of the acute episode of care were typically not well-described. Limited research regarding people BIBP to the ED limits the ability to comprehensively
understand their demographic and clinical profile and outcomes of emergency care. Further research is required to inform if and where in the patient’s journey further improvements may be targeted.

**Key words:** emergency department, police, scoping review
Introduction

Within Australia, the number of patient presentations made to emergency departments (EDs) via police or correctional services increased from 45,452 in 2008-09\textsuperscript{1} to 48,307 in 2014-15\textsuperscript{2}, despite remaining a relatively consistent proportion (0.79\%\textsuperscript{1} and 0.75\%\textsuperscript{2}) of all ED presentations. Although this increase (of 6.3\%) is below the rate of increase of the Australian population as a whole (8.7\% for the same timeframe\textsuperscript{3,4}), people arriving to the ED via police are a vulnerable group of healthcare users who often have healthcare needs reflective of their reason(s) for police contact including substance use and other mental health problems.

The health profile of people in police or correctional custody reflects a high rate of mental illness and substance use disorders\textsuperscript{5-7}, and it is unclear if this profile is similar for those brought in by police (BIBP) to the ED. In many western jurisdictions the police are becoming the default lead agency in addressing acute social and/or mental health crises, many of which are unlikely to result in criminal prosecution. Reflecting papers included in this review, presentation to ED with police can occur when police suspect someone is in need of mental health assessment and treatment and is at risk of harm to themselves or others or when someone encountered (e.g. family violence victim) or in custody is injured or unwell and requires medical treatment. Police also often transport someone to hospital when the presence of substance intoxication or medical factors such as delirium or disorientation impacts the ability to determine whether acute mental illness is present. is often different to that of their community peers, with high rates of communicable and non-communicable disease, mental health disorders and harmful substance use.\textsuperscript{2,4} Other chronic and under-treated physical health conditions such as heart disease and diabetes are also common in this
Furthermore, while there is a body of research describing people brought in by police (BIBP) to EDs, this group is typically subsumed within other ED user groups such as mental health consumers or those with drug and alcohol-related presentations.

Currently, little is known about the characteristics of people BIBP to the ED, restricting development of evidence-informed approaches to quality service delivery. In order to optimise service delivery and inform future research directions for people BIBP, this narrative scoping review aimed to provide a comprehensive understanding of the current literature related to the prevalence, demographic and clinical profile (including reason for presentation), care delivery and outcomes for this group.

Methods

This narrative scoping review used an integrative multistage approach. Data synthesis was based on an existing framework which informed the mapping of evidence patterns to understand the scope of available evidence.

The review largely followed the Johanna Briggs Institute scoping review process in which data synthesis was based on an existing framework.

Search strategy

Our search strategy process followed PRISMA guidelines (see Figure 1). We searched EMBASE, CINAHL and PUBMED for relevant literature. Title/abstract search terms included: ED/EDs, emergency department/s, emergency room/s, accident and emergency,
ER/s OR A&E; AND police, custody, watch house, correctional services OR police presentation. Activation of ‘smart text’ and automatic word variation options (unlimited truncation operators such as emergene*) during searches ensured that word combination options including US and UK spelling variations and plural terms were detected. Reference chaining was undertaken to supplement the title search strategy in an effort to optimise the number of relevant records.\textsuperscript{14,16}

Inclusion criteria applied to the initial literature library were: full-text, peer-reviewed original research articles (inclusive of experimental and non-experimental studies, quantitative and qualitative studies, and systematic reviews) published in English between 1 January 2006 and 3 November 2017 that used two or more of the terms listed above in combination. This time frame was selected based on major changes to mental health acts and mental healthcare (including drugs to control psychosis) in the last decade. Our review included studies that were not exclusively focussed on people BIBP, provided it was possible to extract data that pertained to people BIBP. Exclusion criteria were: editorials, conference abstracts, anonymous articles, articles where authorship was unclear, and publications that focused solely on updated datasets. Studies focussed solely on transfer from prison (i.e. escorted by correctional health staff) were also excluded. Two researchers (VA, AJ) screened titles and abstracts for inclusion based on criteria. A third researcher (JP-B) moderated where agreement was not initially achieved. Full-text articles of studies that appeared to meet inclusion criteria were screened by three researchers (VA, AJ, JP-B). Disagreements on full-text inclusion arising during screening were moderated by two other researchers (JC, MW).\textsuperscript{15}
Data extracted from included studies included: study authors, year of publication, country of study, research design, sample, methods of data collection, and main results pertaining to this review (incidence of presentation, demographic profile, reason for presentation, patient and service characteristics, ED care delivery and outcomes pertaining to people BIBP to the ED) (see Table 1 and Supplementary Table 1). Initial extraction was performed by a research assistant (VA) in collaboration with an author (AJ) and checked by a second author (JP-B). The level of evidence for each included study was independently assessed by two authors (AJ, JP-B) using the National Health and Medical Research Council (NHMRC) Level of Evidence Hierarchy body of evidence matrix. This matrix allocates scores for levels of quantitative evidence on the basis of study design. Assessment differences were resolved by consensus with additional reviewers (JC, MW).

Results
A total of 1,946 titles and abstracts were screened for inclusion; 20 studies met the inclusion criteria (see Figure 1, Table 1 and Supplementary Table 1). Methodologies of included studies were 17 observational (non-RCT) quantitative studies and 3 descriptive case reports. Most of these studies were undertaken in high income countries; ten reports were from Australia, four from the USA, two from Canada, and one each from UK, Portugal, France, and Hong Kong. The studies varied in evidence level from III-3 to IV on the NHMRC level of evidence continuum. Two studies were based on the same dataset but focused on different aspects of the dataset and so are both included in this review.
Prevalence of ED presentations BIBP

The proportion of people BIBP to ED varied widely depending on the nature and focus of the study. In the two studies that considered those BIBP as part of a complete ED cohort, the proportion was low (~0.8%\textsuperscript{17,18} - 1.3%\textsuperscript{11,12}). When specified subgroup populations within the ED were considered, frequent presenters (i.e. >8 presentations/year) were BIBP at three times the rate (1.7%) of infrequent presenters (<5 presentations/year).\textsuperscript{18,19} Almost half of the included studies (n=8) reported on people with mental illness. Within these studies, approximately 18-86% were BIBP.\textsuperscript{8,17,19,23, 9, 18, 20-24} However, the prevalence range of people BIBP with mental illness, when studies that explicitly examined patients transported under legal orders are excluded, was much lower, between 18-27%.\textsuperscript{9,18, 20-22} Other studies explored issues such as people BIBP from alcohol and other drugs and intimate partner violence, and excessive use of force in custody. In these narrowed samples, the prevalence rates of people BIBP varied (e.g. amphetamine use: 16-24%, other toxicology: 13%, family violence victims: 7%), and are higher than the general ED police presentation rate (0.8-1.3%).\textsuperscript{10,12,18,26}

The demographic profile, clinical profile (reasons for presentation, urgency of condition, day and time of presentation to ED), and ED care delivery (i.e. procedure/treatment) of people BIBP varied depending on the study focus. The majority of
people BIBP were male, with a median age in the early 30s. Where socio-demographic profile was considered, people BIBP had disproportionate representation of people who identified as an ethnic minority, typically described as ‘first people’ or ‘black’ people. Studies also reported a higher proportion of people who were unemployed and lived in unstable housing when compared with those in other patient populations.

Regarding the clinical profile of people BIBP, the two most common presenting problems noted in included studies (most of which had narrowed samples) included were: 1) violent or aggressive behaviour and 2) mental health problems. Presentation to the ED with both at the same time was not uncommon was reported in several studies. Substance use (alcohol and/or other drug) was also a common reason for presentation, associated co-reported in some cases with both aggression and/or mental health crisis. People BIBP with violent or aggressive behaviour were more likely than other patients to have a history of previous police contact, violent ideation and violence towards others. Patients BIBP who were experiencing a mental health problem were often experiencing a situational crisis (e.g. homelessness or family crisis), with some presenting with suicidal ideation, self-harm, psychosis, or acute depression and anxiety. Other clinical profiles reported included physical trauma from intimate partner violence, or from injuries that occurred in custody. Australasian studies reported on the triage category (i.e. urgency of presentation based on a 1-5 scale where 1 is most urgent and should be seen
immediately, and 5 is less urgent but should be seen within 2 hours). People BIBP were typically allocated a triage category of ‘3’ reflecting the need for assessment and treatment within 30 minutes of arrival. Of the studies that reported time of arrival to the ED, most presentations BIBP occurred outside business hours, the definition of which was not specified or varied from 1700-0830, 1700-0800 and or weekend presentations.

Care delivery for people BIBP to the ED

Emergency care delivered for people BIBP was rarely reported, but where cited, fell into three broad categories: health assessment; investigations; and treatment. Health assessment included initial triage, baseline observations, and medical clearance prior to further specialist assessment (such as mental health assessment). Investigations included: pathology; toxicology; and x-ray; whilst treatment included plaster; sutures; wound dressings, and medication (including chemical restraint) although these varied based on the reason for presentation and were often alluded to rather than specifically reported. The use of physical restraint (for patients who were aggressive and posed a risk to others) was also reported in some studies that included patients BIBP.

Outcomes of people BIBP to the ED

Outcomes for people BIBP were infrequently reported and often subsumed within other population groups (such as mental health presentations). When outcomes were examined they...
included: ED length of stay (LOS); admission requirement; and post ED referral to specialist, community and outpatient services. Studies focussed on mental health-related presentations and people BIBP reported that people BIBP tended to have longer hospital LOS compared to those presenting by other means. ED LOS for those BIBP was reportedly longer or no different to other ED presenters. Hospital admission rate for those BIBP also varied – lower in some studies but higher in others. Commonly reported referral services for people BIBP included specialist mental health, social work, and alcohol and other drugs services. Actual attendance at these referral appointments and/or outcomes of those appointments was not reported, possibly confounded by patient return to police custody or complications associated with custodial residence, although this cannot be generalised to the whole group. Other outcomes post-discharge were rarely noted.

Thus study recommendations relevant to those BIBP, often included the need for greater engagement between services (such as police and health) during and/or subsequent to health care episodes. Such needs were particularly evident in studies of patients BIBP to ED with a mental health problem or in crisis.

Discussion

The prevalence of ED presentations BIBP overall was small. In a number of sub-populations such as mental health, substance affected, family violence victims, prevalence rates were higher. ED presentations BIBP were mostly male and typically younger than people arriving by other means. Mental health, substance intoxication or medical factors were common reasons for transport by police to ED. Care delivery generally consisted of health assessment,
investigations, and treatment. With regards to outcomes, people BIBP have longer ED LOS than people arriving by other means; admission rates varied based on the sample and referral services reflected reason for presentation. These findings should be taken with caution given the paucity of some data and limitations such as study design and narrow focus. This summary of findings in relation to the posed aims does however provide some context for examining the consistency of these findings and their practice implications.

Our findings have identified the proportion of people BIBP to the ED is infrequently reported and the profile of people BIBP tends to reflect a group who present with aggressive behaviour, mental health problems and/or substance use problems. The nature of care provided in the ED and outcomes of the acute episode of care were rarely reported. While we have highlighted some key study results and common foci of these studies, most research we examined had a narrow scope of focus, with few studies providing holistic examination across the presentation, care and outcome spectrum, either cross-sectionally or longitudinally.

Meaningful data around frequency of presentations for people BIBP was limited and prevalence was difficult to ascertain because for some studies the sampling frame was people transported by police, for some it was specific diagnostic groupings of patients and for others it was all ED presentations. While the rate of presentations BIBP to ED is generally low (under 2%), for mental health presentations it is reported at 18-86%; lower (18-27%) when studies of patients transported under involuntary orders are excluded. This large range possibly reflects: i) different sampling approaches used in different studies; ii) the mental health definition used (mental health problem / mental health illness) or iii) the high proportion of this population with mental health problems and limited access to or utilisation
of community mental health services, and/or ii) varied inter-agency local arrangements in responding to people in crisis. It is also likely that the frequency is highly contextual and influenced by community and police culture, legislative and reporting requirements and health system design considerations. Given that mode of arrival by police is often a characteristic of frequent presenters (defined as those presenting ≥8 times/year), and that the costs associated with frequent presentations are high, there appears to be scope for improvement in the medium to long term management of this vulnerable group. Collaborative care and continuity of care for this group is limited between first responders, hospital-based primary care and social support agencies, possibly increasing the likelihood of negative outcomes.

We identified literature spanning countries that included Australia, the UK, USA, Canada, Europe, and Hong Kong, highlighting the perceived importance of this population internationally. No studies were identified arising from low- and middle-income countries in South America, Africa or Asia, possibly reflecting our search strategy which only included studies published in English. The apparent dearth of evidence from such countries, which account for over two-thirds of the world’s incarcerated population, highlights the need for further research to understand whether reported findings are relevant in other regions (including those that are resource-poor). Study recommendations relevant to those BIBP, often included the need for greater engagement between services (such as police and health) during and/or subsequent to health care episodes. Such needs were particularly evident in studies of patients BIBP to ED with a mental health problem or in crisis. Further research is also required to understand if and how changes in police and social and
community healthcare standards have impacted on the incidence of people BIBP to the ED, the nature of care delivery, and outcomes for this vulnerable group.

Our paper focused on people BIBP to ED, a cohort where mental health problems, violent/aggressive behaviour and substance use is often reported. Critically, many aspects of clinical response may be required for patients BIBP, which includes assessment and management of substance misuse, injury, mental health problems and psychosocial stressors in addition to behaviour management. Difficulties for police in managing people with mental health and substance use problems in the community have led some police jurisdictions to adopt a co-response (police and mental health) strategy.\textsuperscript{44-47} Whilst such programs have strong linkages with community services and reduce pressure on the justice system, there is limited evidence on other impacts.\textsuperscript{45,46} A recent mixed-methods study undertaken in Canada evaluated a police-mental health co-response team.\textsuperscript{44,45} The co-response team had low rates of injury and arrest and when compared to a police only team response, had higher overall rates of voluntary escorts to hospital and lower rates of involuntary escorts. Police in co-response teams also spent less time on hospital handovers. Interviews with 15 service users indicated an appreciation of specialised mental health response, use of de-escalation skills, compassion, empowerment and non-criminalizing approach.\textsuperscript{44,45} A similar model, termed Police Ambulance Crisis Emergency Response (PACER), exists in Australia.\textsuperscript{47} With this model, the provision of mental health evaluations ‘in the field’ by mental health personnel and police meant that some consumers could be diverted away from the ED. Similar models warrant rigorous evaluation in other jurisdictions. Although the majority of people BIBP to the ED will not be placed in long-term police custody, there is a need for research targeting
the subset of those who are under current custodial orders and/or progress to incarceration. The WHO\textsuperscript{42,48,49} has argued for the importance of understanding prisoners' health needs to inform delivery of evidence-based health services for this vulnerable population. Similarly, our review highlights that substance misuse and mental illness are key areas for care planning for people who arrive to the ED by police.

Supporting guidelines, clinical frameworks, policy and legislative requirements cited in the reviewed studies did not always appear to meet the needs of police and/or consumers\textsuperscript{49,50} or assist in the provision of quality care in the ED.\textsuperscript{30–39,24,40} Legislatively required documentation associated with presentations to ED that were BIBP\textsuperscript{50,51} was rarely mentioned or reported in studies. Actual or potential medico-legal consequences/outcomes were sometimes, but not always referred to in the reviewed studies even though medico-legal considerations were important factors that guided processes such as detention and restraint applied by police and clinical staff. While a minority of studies cited injury that apparently allegedly occurred during police pursuit, arrest or whilst in police/correctional officer custody,\textsuperscript{27,31,29,32} the mechanism of injury was mostly not explicitly reported. Although these studies highlighted the need for effective reporting processes, there was limited discussion of the outcomes from the injury.\textsuperscript{27,31,36,29,32,37} This lack of reporting, guidelines and frameworks restricts the ability to empirically evaluate the impact of these processes and related outcomes.

The relative dearth of studies exploring the specific needs of patients arriving to the ED by police limits the capacity to recommend evidence-based interventions to improve their management and care in the ED and beyond. In studies where the patient profile and the
nature of presentations were considered, presentation for mental illness, complicated by intoxication with alcohol or other drugs, was typical. Further research, including longitudinal studies, using multi-sectoral data linkage to articulate care trajectories and identify when and where to intervene to improve outcomes and reduce harm for this vulnerable group of people is warranted. Additionally, increased effort to improve consistency in data collection and reporting by clinicians and health (including ED) services and researchers, is recommended. The impact of this patient group on clinical staff and other patients also warrants further research. Despite the minimal evidence available, there was strong consensus in the literature that further improvement in healthcare delivery for people BIBP to the ED is required. Although people BIBP were more likely to be referred to a mental health service, and other community services or resources, there was a noted lack of literature examining the uptake and outcomes of these referrals. This presents a critical opportunity for further research, especially in the context of national mental health and suicide prevention priority areas that include: coordinated treatment and support for people with severe and complex mental illness; improving physical health and reducing early mortality; and enabling effective system performance and system improvement strategies. By virtue of their presentation, people presenting to the ED by police are a vulnerable population who require co-ordinated multi-agency, multi-sectoral responses. These responses would include, but are not limited to, emergency care, primary care, justice stakeholders, mental health services, and alcohol and other drug services, to ensure continuity of care between services and over time.

Based on this review, key areas for future research include: i) using multi-sectoral data linkage to articulate care trajectories and identify when and where to intervene to
improve outcomes and reduce harm for people BIBP (e.g., frequent attenders or people recently released from prison who may benefit from specific care plans, examining the uptake and outcomes of referrals); ii) providing a consensus on structure, process and outcome indicators for people BIBP to the ED that include post discharge services; iii) describing the impact of people BIBP to ED on clinical staff and other patients; iv) trialling evidenced-based models of care that aim to provide the most appropriate care in the most appropriate place for people in police custody or in a situational crisis in the community; v) evaluating the impacts on the ED of broader changes in police and social and community healthcare standards, practices or policies; and vi) describing if and how ED care delivery may need to vary based on geographical location (remote, regional, metropolitan areas) or low- and middle-income countries.

Limitations
The limitations of this review reflect the paucity of literature about people BIBP to ED. Many of the included studies were limited by sample size, which impacted on their utility to inform clinical practice. Furthermore, with limited information was presented regarding patients BIBP, including their prevalence within the entire ED population. Methodological limitations in the available data preclude robust ascertainment of the actual prevalence such as violent and aggressive behaviour as a cause for police escort to the ED. This restricted for each of the samples presented, there are associated restrictions on Limited information also restricted our ability to discuss important aspects of services provision for this group including: i) safety aspects around people BIBP in the ED (i.e. security of person in custody and safety of others
in the ED), ii) proportion of those BIBP with intellectual disability; iii) acute health and legal implications of those BIBP following suspected body packing; and iv) involuntary detention orders (e.g. for treatment of severe alcohol and other drug dependence) and other similar statutes in other jurisdictions. That impact on the numbers and management of people BIBP. This study was also limited to literature published in English, potentially limiting ascertainment of studies in low-to-middle-income countries and non-English speaking high-income countries. The review was also limited to peer-reviewed publications from the last decade and did not explore grey literature such as governmental reports.

**Conclusion**

Most people BIBP to the ED were young males. Reasons for presentation included pertained to violent/aggressive behaviour and mental health problems, injury, and violent/aggressive behaviour and these were often underpinned by substance misuse. The specific care delivery provided in the ED was inconsistently reported, and outcomes for this patient group are not well described. A lack of continuity of care from hospitals into the community services or correctional facilities was often noted although few studies examined this empirically. Further research is required to improve our understanding of trajectories for this patient group beyond the ED, and the inter-agency nature of care delivery that they require.

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References


Records identified in searches yr 2000-2017 CINAHL=598 PubMed=1349 Embase=312 (n=2259)

Records identified from reference chaining (n=29)

Records after removal of duplicates and studies published prior to 2006 (342) yr 2000-2017 (n=1946)

Title and abstract of records screened for relevance (n=1946)

Records excluded (n=1877)

Full text articles assessed for eligibility:
Provided information to develop a comprehensive understanding of the demographic and clinical profile, care delivery and outcomes for patients BIBP (n=69)

Full text articles excluded as study did not address ED, focused on staff perceptions only, patients were not brought in to ED by Police (n=49)

Studies included in the review (n=20)

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<th>Design</th>
<th>Number BIBP</th>
<th>Demographics of those BIBP</th>
<th>Reason(s) for ED presentation</th>
<th>Clinical characteristics reported for those BIBP</th>
<th>ED characteristics reported for those BIBP</th>
<th>ED care delivery described for those BIBP</th>
<th>Outcomes reported for those BIBP</th>
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<td>Al-Khafaji et al., 2014</td>
<td>Observational study</td>
<td>164 people BIBP</td>
<td>58% Male, 35yrs</td>
<td>Mental health problem</td>
<td>Yes</td>
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<td>Yes</td>
<td>Admitted/discharged ED LOS</td>
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<td>Observational study</td>
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<td>Toxicology problem</td>
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<td>Case report</td>
<td>1 person BIBP</td>
<td>Male, 53yo</td>
<td>Drug related</td>
<td>Yes</td>
<td>NS</td>
<td>Yes</td>
<td>Admitted Procedure</td>
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<td>Downey et al., 2010</td>
<td>Observational study</td>
<td>82 BIBP</td>
<td>61% Male, 27% aged 40-49yrs</td>
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<td>Lee et al., 2008 8 9</td>
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<td>66%Male, mean age: 33yrs</td>
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<td>Mental health problem</td>
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<td>Mental health problem</td>
<td>Yes</td>
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<td>ED LOS  Hospital LOS  Admitted/ discharged  Follow up by community mental health</td>
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<td>Llewelin et al., 2011 30 24</td>
<td>Observational</td>
<td>205 people BIBP</td>
<td>47%Male, mean age: 35yrs</td>
<td>Yes</td>
<td>Mental health problem</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Markham &amp; Graudins 2011 44 19</td>
<td>Case-control</td>
<td>447 people BIBP</td>
<td>NS</td>
<td>NS</td>
<td>Frequent ED presenters</td>
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<td>McLay et al.,</td>
<td>Observational</td>
<td>18 people NS</td>
<td>Alcohol related</td>
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<td>NS</td>
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<td>Year</td>
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<td>BIBP Type</td>
<td>Presentation Type</td>
<td>Mental Health Problem</td>
<td>Length of Stay</td>
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<td>2017</td>
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<td>Approxd: 21,097 people</td>
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<td>Mental health problem</td>
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<td>Meehan &amp; Stedman 2012</td>
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<tr>
<td>2011</td>
<td>Case report</td>
<td>1 person</td>
<td>Female, 37yo</td>
<td>Intimate partner violence</td>
<td>Yes</td>
<td>NS</td>
<td>Yes</td>
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<td>Puentes et al., 2011</td>
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<td>Intellectual disability</td>
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<td>Male, 24yo</td>
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<td>Stevenson et al., 2014</td>
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<td>43 people</td>
<td>95%Male, 30yrs</td>
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NS: not specified; LOS: length of stay; ED: emergency department; yo: years old; yrs: years; BIBP: brought in by police
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Author/s:
Crilly, J; Johnston, A.N.B; Wallis, M; Polong-Brown, J; Heffernan, E; Fitzgerald, G; Young, J.T; Kinner, S

Title:
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Date:
2019-08-01

Citation:

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