What you need to know

- Psychiatric Intensive Care Units (PICUs) can vary by bed numbers, staffing levels, admission criteria, environment, treatments provided, supervision and training of staff.

- The placement of intensive care in the overarching philosophy of acute care provision also varies by each PICU.

- Standards exist in the United Kingdom and Australasia for different PICU elements, including unit design, staffing, administration and interventions, but were not identified for other jurisdictions.

- PICUs are often filled beyond capacity due to insufficient availability of community-based support resources for PICU patients.

- There are no international standards for number of PICU beds per capita, but researchers across several countries note the number of acute care psychiatric beds per 100,000 people being inadequate.
# Table of contents

What's the problem? 3

What did we do? 3

What did we find? 3

A. Definition and description of PICUs 3

B. Patient characteristics 4

Demographics 4

Reasons for admission 4

Duration of stay 5

C. Patient experiences of PICU care 5

Presence of high quality relationships 5

Avoidance of negative experiences of coercive measures 6

Authentic experiences of patient-centred care 6

D. Care pathway 6

Transfer of patients to the PICU 6

Discharge from the PICU 6

E. PICU setting/environment characteristics 7

Physical environment/unit design 7

Optimal unit size/bed allocations 8

Cost 9

F. Workforce characteristics 9

Staffing of PICUs 9

Staff to patient ratio 9

Time spent with patients 9

G. Safety and security mechanisms 10

What are the limitations of this review? 10

What are the conclusions? 11

Acknowledgements 11

Appendices 12

Appendix 1: Search strategy flow chart 12

Appendix 2: Analysis of/comparison of acute mental health beds across other countries 13

References 14
What’s the problem?
In Ontario, intensive or high-intensity inpatient psychiatric care varies significantly across jurisdictions. For this reason, the Mental Health and Addictions Local Health Integration Network (LHIN) Leads sought answers to the following four questions:

1. How are high intensity psychiatric beds (or psychiatric intensive care units) defined, and what do they look like within Canada and beyond (e.g., in the United Kingdom, United States, Australia and Ireland)?

2. What are best practices for admission, reassessment, staffing, and step-down, transfer or discharge?

3. What innovative strategies have been developed to improve utilization of PICU beds?

4. What are international standards for PICU beds per capita?

What did we do?
In October 2020, two Knowledge Brokers from Evidence Exchange Network (EENet) conducted a literature review of academic and grey literature on high intensity psychiatric beds or psychiatric intensive care units.

The initial search of the Medline, PsycINFO and CINAHL databases by a CAMH librarian resulted in a total of 1,023 records. Articles published prior to 2014 were not analyzed or included, reducing the number of records to 288. After removing duplicates, the abstracts of the remaining 257 records were independently reviewed by both Knowledge Brokers based on pre-determined inclusion and exclusion criteria. Articles that were not accessible online were further excluded, whereas meta-analyses, systematic reviews, and randomized controlled trials were prioritized. Discrepancies were resolved through discussion.

The Knowledge Brokers identified 20 peer-reviewed articles that qualified for a full-text review by virtue of including the following terms: psychiatric intensive care units, psychiatric beds, inpatient/in-patient psychiatric care, mental health active intensive care units, and mental health intensive care unit. A grey literature search using Google yielded an additional fifteen records. The Knowledge Brokers independently reviewed all fifteen and identified eight that qualified for a full-text review. The knowledge brokers also contacted organizational partners in the Canadian mental health and addictions sector to ask if they had any additional reports or resources on the research topic, yet this yielded no additional results. See Appendix 1 for the search strategy flow chart.

In addition to excluding sources that did not provide full-text online, studies and reports that had the following focus were excluded:

- non-psychiatric/mental health care (e.g., physical health care or general/medical hospital units)
- community/outpatient care
- children and adolescents (16 years and younger)
- pharmacotherapy/drug efficacy (e.g., specific medications used in PICUs)
- specific interventions (e.g., mindfulness, smoking cessation programs)
- treatment for specific diagnostic criteria (e.g., eating disorders, first episode psychosis).

The Knowledge Brokers ultimately identified 20 studies and reports for inclusion. Of these, seven were from the grey literature after resolving discrepancies through discussion. An additional three sources were identified from the reference list of included sources. Reviewers extracted relevant information and synthesized it to address the research questions.

What did we find?
A review of the literature identified 19 studies and reports that included the following terms: psychiatric intensive care units, psychiatric beds, inpatient/in-patient psychiatric care, mental health active intensive care units, and mental health intensive care unit. The findings are summarized to answer the four questions proposed by the Mental Health and Addictions Local Health Integration Network (LHIN) Leads.

A. Definition and description of PICUs
Descriptions of Psychiatric Intensive Care Units (PICUs) first began to appear in research literature in the 1970s in the UK and the USA and in the 1980s in Australia and Canada (Bowers et al., 2008).

Descriptions of PICUs in Canada and the US are more varied than those in the UK and Australia, and fewer studies have been done in Canada and the US. PICUs in the UK and Australia are described as: small wards, with higher levels of nursing and other
staff, built on an open-plan design to ease observation, and often (but not always) locked, and sometimes (but not always) with facilities for seclusion. (Bowers et al., 2008; Bowers et al., 2017)

Generally speaking, PICUs are for individuals in an acute phase of a serious mental disorder, with diminished capacity for self-control, and increased risk of aggression, self-harm, or suicide, thereby requiring greater security or observation than can be provided in a more general ward (Wildgoose, 2013; Bowers et al., 2017; Mental Welfare Commission for Scotland, 2015; NAPICU, 2017). PICUs are typically intended for brief stays to get patients over an acute disturbance before returning to a general ward (Wildgoose, 2013). In many locations, PICUs are distinctly for forensic patients or for individuals who have been compulsorily detained for treatment (Wildgoose, 2013; Bowers et al., 2008).

PICUs can vary by bed numbers, staffing levels, admission criteria, environment, treatments provided, supervision and training of staff, and the placement of intensive care in the overarching philosophy of acute care provision (Wildgoose, 2013). Some literature defines psychiatric intensive care as representing a fixed location, such as a specific ward in a hospital or specialized organization (Bowers et al., 2017). However, others consider psychiatric intensive care able to be delivered in any treatment environment, rather than being restricted to a secure inpatient area (State of Victoria, 2019). Other literature considers intensive care to be a sub-category of acute care rather than a separate one. For example, Scotland counts their PICUs among their acute care beds (Mental Health Commission, 2020). National minimum standards for PICUs exist in the United Kingdom and Australasia, but were not identified in other English-speaking jurisdictions.

B. Patient characteristics

Demographics
A systematic review by Bowers et al. (2008) found that patients in PICUs were more likely to meet the following demographic criteria: Male, young adult, single, unemployed, and coming from a Black Caribbean or African background. Most patients were also found to be suffering from schizophrenia (50%) or mania (20%) and to have been legally detained, with a forensic history, usually for violent offences. A study by Cullen et al. (2018) found patients were twice as likely to be transferred to a PICU if they had bipolar disorder than those with schizophrenia.

According to Archer et al. (2016), women admitted to secure inpatient psychiatric units are more likely than men to:

- have previous psychiatric admissions
- be admitted from other hospital units
- have diagnoses of major depressive disorder and personality disorders, especially borderline personality disorder
- present with other conditions like eating or anxiety disorders
- have a history of self-harm and physical or sexual abuse
- be in a relationship
- stay in PICUs longer.

Women in PICUs are less likely than men to have previous criminal convictions, to be admitted from prison, and to be diagnosed with schizophrenia or comorbid substance misuse (Archer at el., 2016). For these reasons, among others, women may have different assessment and treatment needs, and may require different philosophies of care than men (Archer et al., 2016).

Reasons for admission
The reasons reported in the literature for patient admission to a PICU include the following (Bowers et al., 2017; Cullen et al., 2018; Bowers et al., 2008):

- aggression management (30–50% of patients)
- risk of running away (in non-forensic settings)
- generally disruptive behaviour
- acutely psychotic behaviour
- self-harm
- suicide risk.

Other, less frequent, criteria for admission included (Bowers et al., 2008):

- need for a safe and secure environment to assess an unpredictable patient
- need to manage poor food or fluid intake of a catatonic and/or profoundly depressed patient
- need for privacy and dignity not available on an open ward.
Despite having broad admission criteria, the use of the criteria in different settings is less clear (Bowers et al., 2008). Lopez and Sethi (2017) note that there is no single formula or measure that determines if a patient should be admitted to or transferred out of a PICU and that both admission and transfer of patients is based on many more factors than just patient characteristics or mental states. Admission and transfer can depend on PICU capacity, thresholds set by care teams, location-specific philosophies of risk taking, and how the PICU fits into—or interacts with—the broader system of care (Lopez and Sethi, 2017). For instance, reasons for admission will differ in locations where designated forensic units exist (Bowers et al., 2008).

Clinical standards for PICUs from the UK (QNPICU, 2020) include essential, expected, and desirable processes for staff to follow upon patient admission, but do not include specific criteria for determining whether a patient should be admitted.

**Duration of stay**

According to the minimum standards established by the UK’s National Association of Psychiatric Intensive Care and Low Secure Unit (NAPICU), the maximum length of stay for patients in a PICU should not exceed eight weeks (Learmonth et al., 2017). However, a study of women in a South London PICU (Learmonth et al., 2017) found that length of stay was anywhere from one to four weeks. In addition, three out of 49 patients stayed longer than the recommended eight weeks. In Scotland, a study found that patients, especially females, were staying in PICUs for 90 to 200 days (Mental Welfare Commission for Scotland, 2015). Contrary to these findings, a review by Bowers et al. (2008) found that duration of stay in a PICU was a week or less for most patients, with a small group of patients staying longer, most likely due to a history of criminal offences. Although figures vary, approximately one third or more of PICU patients are likely to be readmissions (Bowers et al., 2008). According to the research, length of stay is dependent on reason for admission (Bowers et al., 2017; Cullen et al., 2018).

**C. Patient experiences of PICU care**

A number of articles focus on patients’ experiences of care in PICUs, the variables that affect their experiences, and their recommendations for improvement of PICU care (Archer et al., 2016; Hughes & Davies, 2018; Mental Welfare Commission for Scotland, 2015; Staniszewska et al., 2019; Wildgoose, 2013).

One systematic review of 72 studies from 16 countries identified four dimensions that influence patient experiences of inpatient mental health care (Staniszewska et al., 2019):

- presence of high quality relationships
- avoidance of negative experiences of coercive measures (e.g., restraint, seclusion, and sedation)
- presence of a healthy, safe, enabling physical and social environment
- authentic experiences of patient-centred care.

**Presence of high quality relationships**

Patients indicated the importance of staff being respectful, trustworthy, empathetic, helpful, and good communicators. They also reported on the importance of opportunities for maintaining relationships with other patients and relatives. Barriers to positive relationships with staff included (Staniszewska et al., 2019):

- differences in or disrespect for client’s gender, culture or ethnicity, language, and religion
- technical language used by staff that patients could not understand or relate to
- abuse or coercion by staff
- absence of regular ward staff or ward rounds
- extended waits to speak to staff
- poor staff attitudes
- inconsistent staff behaviour.

Related to the issues of relationships within PICUs, Archer et al. (2016), the Mental Welfare Commission for Scotland (2015), and Staniszewska et al. (2019) all note the discomfort of many women being in mixed-gender inpatient wards and preference for women-only units. Other distinct treatment preferences of women in inpatient settings include:

- acknowledgement of progress
- clear rules, routine and structure
- dual emphasis on physical and mental needs
- a treatment approach that is individualized, empowering, future-oriented, hopeful and gender-informed (e.g., incorporating attachment theory and focusing on family/relational issues).

An evaluation of care by Hughes and Davies (2018)
also found that patients felt frustrated by intrusive interactions with staff or by the inconsistency and lack of clarity around when their needs would be met. Other studies have reported concerns or complaints about inadequate patient contact with staff (Wildgoose, 2013).

Related to this, the dissertation by Wildgoose (2013) which identified the distress associated with being cared for in a PICU, defined the following recommendations for practice:

- As part of assessment and care planning, staff should consider the emotional distress associated with being admitted to a PICU and the individual support each patient requires.
- Staff should consider the impact of each admission on both the individual patient and the ward community, acknowledging the role of staff, relatives, and other patients in each patient’s experience.
- Peer support workers should be considered part of the PICU continuum of care.

Avoidance of negative experiences of coercive measures

Patients want, and don’t always receive, clear communication about the reasons for use of coercive measures including restraint, seclusion, and sedation. For instance, in a study by the Mental Welfare Commission for Scotland (2015), PICU patients felt a lack of support and discussion around use of physical restraint. For this reason, Wildgoose (2013) recommends that all patients in a unit be provided with de-briefing following any patient requiring restraint, seclusion, or sedation.

Authentic experiences of patient-centred care

Patients felt that the involvement of themselves and their caregivers in decision-making about their treatment was a significant determinant of their satisfaction with care. Also important were respect of their gender, ethnicity, and religion, as well as the reception of sufficient information from staff about their diagnoses, treatment, choices and rights (Staniszewska et al., 2019).

Insufficient information, lack of involvement in own care, and inattention to gender and ethnicity were also concerns reported in the 2004 Behind Closed Doors report from the UK (Wildgoose, 2013).

In the QNPICU, 2020 standards, under the sixth category, patient experience, patients should feel like they are “listened to and understood by staff members” (p. 13) and made to “feel safe on the ward” (p.13). Communication between staff, patients, families and carers was also a key factor in this category. However, patients reported in several studies that there was a lack of communication, support and discussion with staff members on the reasons for the use of different measures in the PICUs.

D. Care pathway

Transfer of patients to the PICU

According to Bowers et al. (2018), the process in transferring patients to the PICU is dependent on the location of the PICUs. The transfer process is different if the PICU is located within or outside of the hospital. Irrespective of location, the first step in the transfer process is an initial referral and assessment of the patient by PICU staff (Bowers et al., 2017). Then, if the PICU is within the hospital, the patient is physically transferred to the PICU by a “rapid response team” (Bowers et al., 2017). If the PICU is located in another hospital or organization, a team of hospital staff will escort the patient to the PICU in a mini-bus or van (Bowers et al., 2017).

The time taken for a patient to be transferred to the PICU can range from anywhere from hours to several days and is dependent on where the PICU is located (Bowers et al., 2017; Cullen et al., 2018). However, according to the study conducted by Cullen et al. (2018), time since admission to the hospital is a risk factor for PICU transfer. Patients showing high levels of aggressive behavior during hospital admission were more likely to be transferred to the PICU early on (Cullen et al., 2018).

Discharge from the PICU

In one study by Learmonth et al. (2017), that looked at care pathway outcomes in women found 86% were discharged to the general acute treatment settings, 6% to home treatment teams, 4% to forensic services, 2% to a mother and baby unit, and 2% to a private acute bed. However, at six weeks post-discharge, the authors found more than half the patients were back in the community, while 4% had returned to the PICU and 36% were in acute treatment settings (Learmonth et al., 2017).

In the QNPICU, 2020 standards, the fourth core category is referral, discharge, and transfer. Only one study outlined what the process might look like for patients being transferred to the PICUs. Another study looked at where patients are sent after discharge from
E. PICU setting/environment characteristics

Physical environment/unit design
Some authors have argued that the physical environment in which inpatient care is provided is as important as the quality of care (Staniszewska et al., 2019). According to the evidence based best practices outlined in the design guidance and recommendation report by the UK’s National Association of Psychiatric Intensive Care and Low Secure Unit (NAPICU), the design of a PICU should reflect the diversity of patients and patient experience, and patients should be allowed to personalize their own private spaces (NAPICU, 2017).

In Australia, the clinical practice standards from Victoria’s Mental Health Intensive Care Framework (2019) require that the design of a PICU healthcare setting comply with the national building standards and Australasian health facility guidelines. These require, for example, that PICUs contain single bedrooms with ensuite bathrooms; safe, accessible and observable areas; and patient access to natural light and outdoor space.

Patient safety is a major concern, especially in PICUs where there is a mixed environment with both male and female patients. According to the Australasian Health Infrastructure Alliance (2016), the design of a unit needs to balance the safety and security of patients with the provision of a therapeutic space that is “pleasant, spacious, light filled, comfortable, non-threatening and domestic in style” (p. 7). In Scotland, in order to ensure the safety of female patients, bedrooms are allocated to female patients closer to staff where they were better able to see and observe female patients (Mental Welfare Commission for Scotland, 2015).

The 2020 QNPICU standards for environment and facilities from the UK, as well as the 2017 NAPICU’s design guidance and recommendation report for administrators of PICU, are similar to the physical environment requirements set by the Australasian Health Infrastructure Alliance (2016). The Australasian Health Infrastructure Alliance (2016), highlights the following as important features for PICU settings:

- a safe and secure environment
- an ability to separate patients by gender or other criteria

- universal access and facilities for the people with disabilities
- privacy and safety, including sexual safety
- cultural needs of consumers
- comfort and visual satisfaction (domestic style furnishings, decor, artworks)
- quiet spaces and active indoor and outdoor spaces for therapy and relaxation
- maximized natural light, with pleasing views where possible
- avoidance of isolated spaces for both patient and staff safety (e.g., no unsupervised blind areas)
- wide corridors and recreation areas large enough to avoid crowding and reduce the chance of aggressive behaviour
- fixtures and fittings that minimize the opportunity for self-harm or injury to others
- sound management, particularly of bedrooms
- safe and supervised access for visiting family members or carers
- sufficient flexibility to adapt over time in response to changes in practice, treatment and the consumer demographic
- compliance with fire safety, building regulations and standards.

Similarly, research by Staniszewska et al. (2019) found that patients with experience of PICU admission reported the following as being important elements of the PICU environment:

- freedom to walk around hospital grounds and to make small decisions, such as making snacks or hot drinks
- access to places of worship
- private bedrooms
- proximity to windows
- appropriate use of colour
- spaces where staff and patients mix together
- presence of supportive and trustworthy staff
• proximity of ward to family.

Common problems with inpatient care environments, according to patients, include (Staniszewska et al., 2019):

• noise from doorbells, alarms, and phones
• poor positioning of nursing stations so that physical divisions exist between patients and staff
• lack of private spaces for visiting relatives or doing physical activity
• insufficient activities, leading to patient boredom.

The 2004 Behind Closed Doors report on the current state and future vision of acute mental health care in the UK summarized patient needs related to the care environments as being related to safety, privacy, dignity and comfort (Wildgoose, 2013). In her dissertation, Wildgoose (2013) recommends that PICU environments be designed to help orient patients to time, place and person, as many PICU patients reported feeling isolated, feeling cut off from community, and losing track of time.

Optimal unit size/bed allocations

The limited number of PICU beds has become a concern within Canada and across other countries. PICUs generally tend to have small number of beds, ranging from 10 to 16 (Bowers et al., 2008). According to the literature review by Bowers et al. (2008), two surveys, one conducted in London and one in Scotland, provide mean bed numbers of 11 and 16.8, while the other studies across 15 UK PICUs provide a mean bed number of 13. This study found that there is no norm of number of beds to the general population served. At the time of writing, only seven studies across six countries demonstrated population in thousands per PICU bed (Bowers et al., 2008):

• Sweden: 13
• Slovenia: 16 and 7.5
• US (South Bronx): 32
• UK: 10–48, mean of 25
• Australia: 170
• Scotland: mean of 11.

The optimal unit size for a PICU, according to the Australasian Health Infrastructure Alliance (2016) is eight to 12 beds (i.e., single occupancy rooms), depending on the service area. This document proposes having groups of two to six bedrooms that allow patients to be separated or segregated based on acuity, gender, diagnosis, risk-taking behaviours, time out or seclusion, as needed. Similarly, in Scotland, there are between three and 12 beds in each PICU (Mental Welfare Commission for Scotland, 2015). Other studies reviewed highlighted number of beds available in PICUs across the United Kingdom. Haw and Kotterbova (2016) reported on twelve PICU beds for male patients in a charitable hospital in the United Kingdom and Hughes and Davies (2018) reported eight beds in a medium secure forensic unit in South Wales.

Insufficient numbers of beds for the population in need has been reported in several studies. For instance, Bowers et al. (2017) found that not enough beds were available in the UK for multiple reasons:

• They were only being allocated to patients from the prison system.
• There were jurisdictions with only one PICU.
• There were hospitals without PICUs.

A study by Learmonth et al. (2017) found there was a particular shortage of PICU beds for women in need because there were fewer women’s wards than men’s wards and because women tended to have longer stays in PICUs.

The shortage of beds is not only reported among PICUs but also across broader acute mental health care inpatient settings. Similar trends were found across a number of countries in a report from Ireland on the availability of acute care beds (Mental Health Commission, 2020). In the 2018 findings from Ireland, 12.3% of acute beds were being occupied by patients for six months or longer, with no appropriate alternative services. Nearly a quarter of all 28 units had an occupancy rate of over 100% and only 1/3 operated at the suggested level of less than 85% occupancy. Alternative care services are needed to address the issue around shortage of beds. Importantly, the “overall bed numbers do not always provide a complete account of acute mental health bed provision in a country and can often obscure important disparities such as regional variations in provision and the availability of specialist care across a continuum of care resources” (Mental Health Commission, 2020, p. 13). The Ireland report also analyzed and compared acute care units to other countries such as Northern Ireland, Wales, England, Scotland, Australia and Italy. Overall, the authors found significant regional variations in provision, high levels of bed occupancy, and a
decrease in availability of beds. The closures of acute care beds in certain areas also has led to patients having to be transferred to facilities far from their home communities. See Appendix 2 for the analysis/comparison of acute mental health beds across other countries.

Cost
There is limited information on the cost and the cost-effectiveness of PICUs. One study from Canada completed in 1988 gives a cost per patient per day of $365 compared with $235 for an acute unit, which may be interpreted as PICU care costing approximately 55% more than acute care (Bowers et al., 2008). One study from the UK in 1996 gives a cost per patient per year of £103,501 based mainly on staffing costs (Hyde & Harrower-Wilson, 1996, quoted in City University, 2006).

F. Workforce characteristics

Staffing of PICUs
Identifying the right kinds of staff and having a sufficient number of staff members available to meet the needs of the patients is crucial in the PICU setting. The clinical practice standards from the Victoria, Australia, Mental Health Intensive Care Framework (2019) note the following workforce considerations:

- constant and vigilant presence of suitably skilled and experienced personnel who have engaged in scenario-based training and regular review of trauma-informed practice and who have completed training in aggression management

- staffing levels consistent with a framework of recovery-oriented, trauma-informed and gender-sensitive practice

- a minimum standard of orientation and competency across all disciplines supporting the hospital environment, which may include security and domestic personnel.

The 2020 QNPICU standards from the UK highlights staff training requirements related to risk assessment, risk management, and positive risk taking, as well as medication delivery, recognizing and identifying effects of illicit drugs, and associated interventions.

There are limited reports of the full staffing complement of PICUs (Bowers et al., 2008). However, several studies identify the following types of staff working in PICUs:

- occupational therapists or psychologists (Bowers et al., 2008)
- a multidisciplinary team of psychiatrists; registrars; nurses; psychologists; allied health staff (occupational therapists, art therapists); administrative staff; housekeeping, maintenance and catering staff; security and other emergency response personnel; and consumer advocates (Australasian Health Infrastructure Alliance, 2016; QNPICU, 2020)
- visiting service staff, such as legal officers, advocates, official visitors, dieticians, pharmacists, representatives from other agencies, community health staff, and students (Australasian Health Infrastructure Alliance, 2016)
- nurses, student nurses, ward managers (Hughes and Davies, 2018)
- PICU consultants, a host ward responsible medical officer and/or a forensic consultant (Mental Welfare Commission for Scotland, 2015).
- nurses, health care assistants, part-time ward clerk and clinical information assistant (Haw & Kotterbova, 2016).

Staff to patient ratio
Staff to patient ratios vary only slightly by location and time of day. In the literature review by Bower et al. (2008) the ratio for nurse to patient in the daytime ranged between 1:1 and 1:3. Similar ratios were found in the Mental Welfare Commission of Scotland (2015) study where nurse to patient ratios varied from 1:1 to 1:2.

In a study conducted by Hughes and Davies (2018), there were twelve male staff and two female staff in a PICU with nine beds. Out of the 14 staff members, six were qualified nurses, including the ward manager and eight were unqualified including one student nurse.

Haw and Kotterbova (2016) looked at the number of patients to staff during the day and night and found that if there were nine or more patients in the PICU, there were three nurses and four health care assistants employed during the day compared to two nurses and three health care assistants at night. However, if there were fewer than nine patients in the PICU, there would be one less nurse during the day.

Time spent with patients
The time nurses spend with patients is key to building
a therapeutic relationship that fosters mutual trust and respect, but in some cases, time may be limited due to other responsibilities. In 2016, Haw and Kotterbova conducted an observational study that looked at how nurses used their time in the PICU in the UK. They found that 30% of their time was spent on direct patient contact, 29.7% was spent in meetings about patients, and 22.7% was spent on paperwork, administrative duties and non-patient related telephone calls.

Despite the 2014 National Minimum Standards requiring that patients be provided with a 1:1 session with a nurse every day, this was not being met regardless of the amount of time nurses spent on the unit. Even less time was spent with patients’ relatives, friends or carers, in-person or on the telephone, even though the involving and supporting carers is also recommended in the National Minimal Standards.

No information has been reported on who makes decisions to initiate or terminate PICU care, or specifically how those decisions are made (Bowers et al., 2008).

G. Safety and security mechanisms
As PICUs are intended for patients who are at risk of harm to themselves or others, safety and security is a major concern in PICU settings.

The following are measures used more frequently within the PICU environment than in general acute wards for safety and security purposes (Bowers et al., 2008; Bowers et al., 2017; Pettit et al., 2017):

- medication (forced or rapid tranquillization or pro re nata (PRN; i.e., as required)
- seclusion
- special observation
- mechanical restraint.

The policies on seclusion and restraint may differ from jurisdiction to jurisdiction, but usually seclusion is only implemented in a PICU after other de-escalation strategies have failed (Australasian Health Infrastructure Alliance, 2016).

In settings where there are no PICUs, transferring to designated seclusion room is often used as an alternative. For instance, in the observational study conducted by Pettit et al. (2017) in Bowers et al. (2017) seclusion was used more often when there was no easy access to a PICU. While most seclusion rooms in hospitals are located within PICUs, they are sometimes located in acute wards (Pettit et al., 2017, in Bowers et al., 2017). Seclusion rooms typically have very specific design requirements (Australasian Health Infrastructure Alliance, 2016) and require supervision by a hospital staff member (Pettit et al., 2017, in Bowers et al., 2017). In addition to seclusion rooms, de-escalation techniques and “within-eyesight” observation are other measures that have been used for managing disturbed behaviour when there are no PICUs on site (Pettit et al., 2017, in Bowers et al., 2017). However, PICUs were identified as better alternatives than using seclusion rooms (Pettit et al., 2017 in Bowers et al., 2017).

One study from 1989 explored the consequences of opening a PICU on the remainder of a psychiatric unit and found that seclusion hours were reduced by 92%, with a reduction of 83% in numbers of patients secluded. Observation hours were also reduced, as were staff and patients accidents and injuries (Musisi et al., 1989, as quoted in City University, 2006).

According to Bowers et al. (2008), one of the reasons PICUs are considered effective is that they keep patients and staff safer than possible on generic acute wards, although sufficient evidence to demonstrate this has yet to be established.

What are the limitations of this review?
Due to time and resource limitations, we only reviewed articles published after 2014. Therefore, some relevant information may be missing. The literature search did not identify any studies focused on the implementation, evaluation, or impact of the PICU standards from the United Kingdom. Two studies (Haw and Kotterbova, 2016; Mental Welfare Commission for Scotland, 2015) compared the UK’s National Minimum Standards to how care was being implemented in PICUs in England and Scotland. Another study by Van Melle et al. (2019) illustrated a tool to evaluate the implementation of the High and Intensive Care (HIC) model across the Netherlands to improve the quality of inpatient mental health care. No other sources compared or evaluated standards in practice.

The review process did not include contacting individual psychiatric hospitals for information about their respective PICUs and their standards and protocols, which may have provided useful information.

In addition, this review only included sources that contained the following key phrases: psychiatric intensive care unit, psychiatric beds, inpatient/in-
Patient psychiatric care, psychiatric intensive care, intensive psychiatric care, intensive psychiatric treatment, intensive mental health care, intensive mental health treatment, mental health intensive care unit, and mental health active intensive care units. Therefore, additional terms used to refer to locations providing psychiatric intensive care might not have been captured in the search results.

Finally, there is vastly more information available on PICUs in the United Kingdom than there is on PICUs in other countries, including Canada, the United States, and Australia.

**What are the conclusions?**

Because intensive or high-intensity inpatient psychiatric care varies significantly across Ontario, it was important to explore international definitions, standards, guidelines, and best practices that could help inform the current state of care. The results of this literature review revealed few official standards and significant variation across most themes explored.

Overall, there were limited studies describing PICUs outside of the UK and Australia. How admission and discharge or transfer criteria is defined and used can be dependent on a number of factors beyond patient characteristics or mental states. PICU location (e.g., within or outside of a psychiatric hospital), PICU size and capacity, thresholds set by care teams, and location-specific philosophies of risk taking all play a role, as does the way each PICU fits into, or interacts with, the its location’s broader system of care. The number of beds in PICUs was typically between three and 16 beds but was found to be over 100 in some settings, though there was no set standard identified for number of beds per size of population served. Several studies from across Europe reported an inadequate number of all types of inpatient psychiatric beds for the population in need. The staff assigned to PICUs are from a range of different professions. However, the staff to patient ratio was consistently found to be between 1:1 and 1:3. When looking at the cost and cost-effectiveness of PICUs, the only information found was from studies done before the mid 1990s.

Government-produced standards for PICUs were identified from the United Kingdom and Australasia that address unit design, staffing, administration and interventions, but no such standards were identified in other English-speaking jurisdictions. There is limited information on the extent to which psychiatric facilities are adhering to these standards.

In all locations, designated PICUs require high staffing levels and can be costly, especially when filled beyond capacity, or when patients stay for longer periods of time than recommended, due to a lack of other options for receiving appropriate levels of care in the community or in more general care wards. Alternative measures to transferring patients to a PICU are available for ensuring the safety and security of patients who are typically thought to require PICU care. These include seclusion, de-escalation techniques, time-out, and “within-eyesight” observation, all of which are less costly. However, based on this review, PICUs are often a better and safer option for both patients and staff.

Overall, PICUs vary by bed numbers, staffing levels, admission criteria, environment and unit design, treatments provided, supervision and training of staff. They also differ based on where intensive care is placed in the overarching philosophy of acute care provision. More needs to be done to understand decision-making in PICU environments about care eligibility and how PICUs can be designed to meet the individual needs of patients. In addition, future research should explore how well individual psychiatric hospitals and organizations are currently implementing policies, standards and guidelines for PICU care in the jurisdictions where these exist. Future research should also more closely explore what PICU care looks like in practice across Ontario, in comparison to other countries and Canadian provinces.

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Appendices

Appendix 1: Search strategy flow chart

Records identified through database searching (n=1023) (records between 2015-2020 and prior to 2014)

Additional records identified through other sources (grey literature) (n=15)

Records after duplicates removed (n=973)

Records to be screened (n=272)
(257 records from 2015-2020 and 15 from the grey literature)

Records excluded, with reasons (n= 244)
(237 records from database search and 7 from grey literature)

Full-text articles assessed for eligibility (n=28)
(20 records from database search and 8 from grey literature)

Full-text articles excluded, with reasons (n=6)
(11 records from database search and 1 from grey literature)

Studies included in the literature review (n=20)
(10 records from database search 7 from grey literature 3 from other studies)
Appendix 2: Analysis of/comparison of acute mental health beds across other countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Acute mental health beds per 100,000 population</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td></td>
<td>12.3% of acute beds were occupied by people resident for 6 months or longer, pointing to a lack of appropriate alternative services (e.g., crisis houses, high support hostels and rehabilitation units).</td>
</tr>
<tr>
<td>United Kingdom (Northern Ireland)</td>
<td>27.3 in 2017/18; a decline of 20% from 2014, with approximately 9.7 beds dedicated to older-age adults.</td>
<td>Only 1/3 of acute units operated at the suggested level of less than 85% occupancy, with 1/4 of all 28 units having an occupancy rate of over 100%.</td>
</tr>
<tr>
<td>United Kingdom (Wales)</td>
<td>47.4 with an average occupancy level of 92.7%.</td>
<td>“Significant regional variations in provision, along with continuously high levels of bed occupancy 93.3% with delayed discharges as a result of a lack of available or appropriate facilities being cited as a contributing factor.” (p.10)</td>
</tr>
<tr>
<td>United Kingdom (England)</td>
<td>33.1, including 6 older-age adult beds, across England in 2018.</td>
<td></td>
</tr>
<tr>
<td>United Kingdom (Scotland)</td>
<td>75.1 including 2.7 psychiatric intensive care beds, 5.7 specialist rehabilitations, 15 older-age adult and dementia, 0.4 beds for eating disorders</td>
<td>“Long-standing trend of decreasing availability of acute mental health beds across Wales”.</td>
</tr>
<tr>
<td>Australia</td>
<td>29.2</td>
<td>91% of acute mental health units are operating above the recommended bed occupancy level of 85%.</td>
</tr>
<tr>
<td>Italy</td>
<td>7.9 per in 2017 (not including beds in private hospitals and residential rehabilitation centres which provide acute psychiatric treatment or general medical beds often used for adolescents and older-age adults presenting in psychiatric crisis)</td>
<td>No differences identified in availability of community mental health services that could explain Italy’s ability to operate with so few beds compared to other English speaking countries.</td>
</tr>
</tbody>
</table>

References


Evidence Exchange Network (EENet) helps create and share evidence to build a better mental health and addictions system in Ontario. We connect mental health and addictions system stakeholders with each other and with relevant, actionable evidence to inform decision-making. Part of the Provincial System Support Program (PSSP) at the Centre for Addiction and Mental Health (CAMH), the network includes researchers, clinicians, service providers, system planners, policymakers, persons with lived experience, and families. Visit www.eenet.ca to learn more.


