Protocol

Developing a Stakeholder-Informed Quality Use of Medicines Analytics Dashboard for Acute Mental Health Care: Protocol for a Cross-Country Study

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Abstract

Background: Digital transformation of health systems is occurring and accelerating globally across both high-income and low- and middle-income countries, creating new opportunities for data-driven care improvement. Mental health conditions affect approximately 20% of the population in both Indonesia and Australia. Ensuring medicines are used safely and effectively, known as the quality use of medicines (QUM), is critical in mental health care, where treatment frequently involves long-term and potentially complex medication regimens.

Objective: This study aims to use electronic medical records (EMRs) in Indonesia and Australia to improve medicine use in acute mental health care and inform policy and practice, enabling shared learning across different health system contexts.

Methods: This study is being conducted in parallel across both countries from 2024 to 2026, comprising four phases: (1) identification, (2) reconciliation, (3) translation, and (4) validation. A co-design approach is being applied throughout, involving people with lived experience of mental illness, clinicians, policymakers, and health informaticians through focus groups and stakeholder consultations.

Results: This project was funded by the Australian Government Department of Foreign Affairs and Trade through the Australia-Indonesia Knowledge Partnership Platform (KONEKSI) in June 2024, with project activities commencing in August 2024. To date, 2 clinician focus group meetings and consumer focus groups involving stakeholders across Australia and Indonesia have been completed. A scoping review examining QUM in acute mental health settings has also been completed. Findings from these activities have informed data mapping and the identification of preliminary dashboard indicators. Analysis of stakeholder consultation data has been completed, with dissemination activities currently underway. The project is currently progressing to dashboard development and refinement, with ongoing stakeholder engagement and knowledge translation activities planned to support future implementation and evaluation.

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Conclusions: This study will contribute to public health by improving the safety, effectiveness, and equity of mental health care through enhanced medicines management. By developing stakeholder-informed, EMR-based, data-driven quality indicators and analytics tools, this study will support continuous quality improvement and generate transferable insights to inform policy and practice across diverse health systems.

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KEYWORDS

quality use of medicines; mental health; digital health; electronic health records; co-design; clinical dashboard; quality indicators, health care

Introduction

Background

Indonesia and Australia are neighboring countries with significant cultural and geographic differences. These differences shape their respective approaches to managing global and local health challenges. Improving mental health care is a shared priority [1-3]. Mental health conditions affect approximately 20% of the population in both Indonesia and Australia [1,4]. One key challenge area within mental health care is the safe and effective use of medicines in hospital settings [5,6]. People with mental health conditions that require hospitalization are typically complex to manage and engage with [7], often requiring a multifaceted approach to support recovery.

The Australian Commission on Safety and Quality in Health Care (ACSQHC) has implemented quality indicators specific to acute mental health care (hospital) to support the safe and effective use of mental health medicines and reduce errors in hospitals [8].

To the best of our knowledge, no comparable indicators are currently in use in Indonesia. Additionally, the Australian quality indicators were last updated in 2014 and may not reflect current clinical practices. Both countries are shifting from paper-based records [9,10] to electronic medical record (EMR) systems. In Australia, most hospitals now use EMRs [11,12]. In Indonesia, the Ministry of Health required all health care facilities to implement EMR no later than December 31, 2023 [13].

To support the quality use of medicines (QUM) in acute mental health care and leverage EMR data, this study will develop an analytics dashboard incorporating quality indicators reflective of optimal mental health care. These indicators will be identified through a scoping review and prioritized by people with lived experience, health professionals, and policymakers. The dashboard will support quality improvement in mental health care in both Indonesia and Australia. The foundation of this project is a collaborative partnership and shared interest in digital transformation in health between Indonesia and Australia, driven by a mutual commitment to improving health outcomes [14].

Although digital health solutions such as EMR-based analytics dashboards offer new opportunities for improving care [14], addressing broader system and social factors remains essential [15]. Given the ongoing stigma surrounding mental illness, including in Indonesia [16], enhancing social inclusion [17] and engagement in mental health care is essential to ensure optimal health outcomes. Accordingly, the co-design and development of the QUM analytics dashboard will incorporate Gender Equality, Disability, and Social Inclusion (GEDSI)–informed perspectives, including measures of access, engagement, and inclusiveness in mental health care.

Health care dashboard development requires consideration not only of data and visualization, but also of stakeholder needs, usability, workflow, and the context in which the dashboard will be used. Recent evidence emphasizes user-centered and iterative approaches, the selection of meaningful and actionable measures, and early consideration of adoption and implementation requirements [18].

This protocol outlines the research methods used to develop country-specific prototype medicines analytics dashboards for acute mental health settings in Indonesia and Australia, informed by existing evidence and the perspectives of people with lived experience and clinicians in each country, while enabling shared learning across the 2 health system contexts.

Aims and Objectives

The primary aim is to co-design priority QUM indicators and translate them into evidence- and stakeholder-informed analytics dashboard prototypes for Indonesia and Australia. The secondary aim is to identify barriers and enablers to the development, future implementation, and use of the dashboard within Indonesia and Australia, and to generate transferable insights to support scale-up across diverse health system settings.

Specifically, we will conduct a scoping review to identify validated quality indicator measures used to assess the quality of medicine use in acute mental health hospital settings; prioritize and adapt evidence-based indicators for acute mental health care through structured stakeholder engagement with health professionals, consumers, and policymakers; develop country-specific prototype medicines analytics dashboard for Indonesia and Australia to monitor and report indicators for acute mental health care, and assess their face validity, content, and usability; and identify and report the barriers and enablers to the development, use, and future implementation of the dashboard within both countries.

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Methods

Overview

This study uses a pragmatic stakeholder-informed co-design approach to develop a prototype QUM analytics dashboard for acute mental health care. Co-design approaches in health and public health research can involve a range of methods, stakeholder groups, and levels of participation, depending on the purpose, setting, and stage of the study [19,20]. In this study, co-design is operationalized through the integration of evidence synthesis and iterative stakeholder consultation. The approach combines a scoping review [21] of existing QUM indicators with consumer focus groups and clinician or stakeholder consultations in Australia and Indonesia. These activities are designed to identify, prioritize, and refine QUM domains and indicators for inclusion in the prototype dashboard, and to ensure that the dashboard reflects consumer priorities, clinical relevance, local health system context, and data feasibility.

Consumer and clinician or stakeholder consultations are conducted separately to support open discussion, reduce potential power imbalances, and ensure that people with lived experience can provide feedback in a safe and supportive setting. Findings from these consultations inform successive stages of indicator identification, prioritization, dashboard design, and prototype refinement.

The research is being conducted over 2 years (July 2024 to September 2026) in Indonesia and Australia. It is a collaborative partnership involving Adelaide University, The University of Queensland, the Australian e-Health Research Centre at the Commonwealth Scientific and Industrial Research Organisation (CSIRO), and Universitas Surabaya, with participating hospital sites, including Princess Alexandra Hospital (Australia) and Rumah Sakit Jiwa Dr Radjiman Wediodiningrat Malang (Indonesia).

The study comprises 4 phases (Figure 1). First, we undertook the identification phase to identify relevant mental health–related QUM indicators, through a scoping review, focus group discussions with people with lived experience of mental illness, and clinician focus group consultations involving health care professionals and policymakers. Together, these activities informed the development of an initial list of indicator areas. The focus group discussions and consultations were conducted face-to-face.

Second, we concluded the reconciliation phase to collate and compare identified indicator areas. We synthesized findings from the scoping review and stakeholder consultations with existing QUM indicators to produce a preliminary set of evidence- and stakeholder-informed priority indicators.

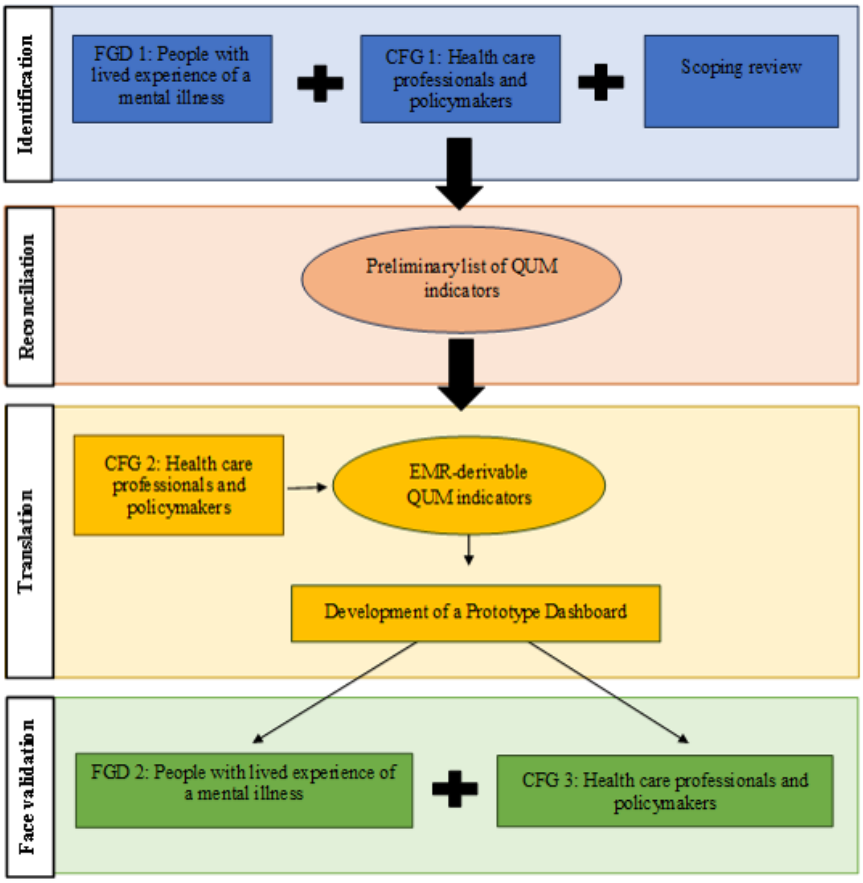
Third, we conducted the translation phase to translate the preliminary indicator set into measures suitable for EMR-based monitoring. Consultations were undertaken with clinicians to prioritize indicators using predefined Quality Improvement Project (QIP) criteria from the UK Prescribing Observatory for Mental Health (POMH-UK) [22]. The criteria are clinical relevance, impact, decision-making utility, consumer priority, practice variation, potential to influence practice, and measurability using existing data. Prioritized indicators were then operationalized by defining their measurement specifications and required data elements to inform development of the prototype QUM analytics dashboard. The prototypes will use synthetic data to demonstrate indicator functionality and visualization rather than undertaking site-specific EMR data mapping.

Finally, we conducted the validation (face, content, and usability) phase to assess the face validity, content relevance, and usability of the prototype dashboard through focus group discussions with people with lived experience of mental illness and clinical focus group consultations with health care professionals and policymakers. Feedback was used to refine the dashboard and ensure its relevance and usability across settings.

Findings generated across all phases will be used to identify barriers and enablers to the development, use, and future implementation of the dashboard within both countries. These insights will be synthesized to enable cross-country comparison and shared learning, recognizing differences in EMR maturity and mental health service contexts between Indonesia and Australia.

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Figure 1. Framework for developing an evidence-based, stakeholder-informed quality use of medicines (QUM) analytics dashboard for acute mental health care. CFG: clinician focus group; EMR: electronic medical record; FGD: focus group discussion.



Phase 1: Identification

Scoping Review

The research question guiding the scoping review is, "What quality indicators have been used to evaluate QUM in acute mental health care?" The scoping review was conducted to identify and collate relevant quality indicators from the literature to inform the development of the prototype medicines analytics dashboard. The search strategy was developed in collaboration with Adelaide University's academic librarians. Searches included a combination of the following themes: acute mental health care, QUM, and validated quality indicators (for the search strategy, refer to Multimedia Appendix 1).

The following databases were searched: MEDLINE (Ovid), APA PsycInfo (Ovid), Emcare (Ovid), Embase (Ovid), and Scopus (Elsevier Science Publishers). Gray literature searches were conducted using the Google search engine (Alphabet Inc) and targeted searches of key mental health organization websites (eg, professional bodies, government agencies, and quality improvement programs) identified a priori. These searches used predefined search terms aligned with the scoping review objectives. This approach enabled the identification of relevant quality indicators, guidelines, and reports not indexed in academic databases, ensuring a comprehensive and practice-relevant evidence base. A review protocol was developed and registered with PROSPERO (CRD42024583426). QUM indicators are diverse and derived from a range of sources, including clinical guidelines, quality improvement programs, and academic literature, rather than being restricted to specific study designs. A scoping approach is therefore appropriate to capture this heterogeneity, clarify key concepts, and identify a broad set of indicators to inform subsequent stakeholder prioritization and dashboard development [21]. Once the search was conducted and relevant studies were identified, Covidence (Veritas Health Innovation) was used to support the analysis of the studies.

Consultation With People With Lived Experience of Mental Illness (Focus Group Discussion 1)

Consultation with people with lived experience of mental illness was conducted through focus group discussions to gather participants' input on the 2014 Australian national quality indicators for acute mental health care and to identify additional areas or issues perceived as important for monitoring (for the interview guide, refer to Multimedia Appendix 2). This consultation was facilitated in Australia by an experienced health consumer advocate, and in Indonesia by a trained member of the research team with expertise in conducting focus groups (hereinafter referred to as facilitators). This approach reflects local context and the availability of experienced facilitators in each setting. To ensure consistency across countries, facilitators followed a standardized discussion guide and received a briefing prior to data collection.

Purposive sampling was used to recruit participants for the focus groups. Recruitment of participants was done through email and through the facilitators' existing consumer networks. A

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participant information sheet, consent form, and focus group discussion questions were made available to potential participants. Participation was voluntary and withdrawal at any time was permitted. Each focus group, 1 in each country, aimed to include 10 participants and run for up to 3 hours. All participants were offered a sitting fee of AUD $50 per hour (AUD $1=US $0.70, as of October 7, 2026) as compensation for their time.

Participants were required to be aged ≥18 years, have a self-reported diagnosis of a mental illness or be a carer with lived experience, have a history of past hospital admission for a mental illness (with no time restriction), and be able to provide informed consent.

Consultation With Clinician Focus Group—Meeting 1

Consultation with health professionals was conducted through a clinician focus group, chaired by a pharmacist with expertise and experience in mental health and QUM. The clinician focus group aimed to include at least 10 participants, with sessions running for up to 3 hours. Participants were recruited by the research team through purposive sampling via targeted email invitations to psychiatrists and pharmacists with experience in acute mental health care. This reflects the study's emphasis on QUM in mental health. Broader stakeholder perspectives will be captured through separate stakeholder engagement activities involving allied health professionals, policymakers, and health informatics experts. To ensure consistency across countries, clinician focus group sessions followed a standardized discussion guide, with chairs briefed prior to each session. Participant information sheets, consent forms, and focus group discussion questions were made available to potential participants (Multimedia Appendix 3). Participation was voluntary and withdrawal at any time was permitted. Remuneration was not offered, as all participants were employees of the public health system.

Phase 2: Reconciliation

This phase included the following processes:

- The mental health–related QUM indicators from the scoping review and existing acute mental health quality indicator sets (ACSQHC 2014 [8]) were extracted and organized into thematic categories.
- Findings from the focus group discussion and clinician focus group were used to identify key QUM priorities and indicator areas.
- Indicators and priority areas identified from the existing indicator sets (ACSQHC 2014 [8]), scoping review, focus group discussions, and clinician focus group were collated and consolidated to produce a preliminary set of relevant mental health–related QUM indicators.

Indicators were organized into broad domains to support synthesis and dashboard development, informed by stakeholder input, including perspectives from people with lived experience and clinicians (including pharmacists and psychiatrists). Preliminary domains included governance and oversight, clinician-based priorities, and patient experience and were refined as the study progressed. A summary table of all identified quality indicators was produced (Table 1).

Table 1. Example of consolidated mapping of mental health–related quality use of medicines indicators identified through the scoping review and stakeholder consultations.

Domain	Indicator	Subtopic	Clinician focus group 1 agreement	Focus group discussion 1 agreement	Scoping review agreement
Governance and oversight	Medication safety	Medicine information	Yes	Yes	Yes

Phase 3: Translation

The second clinical focus group consultation involved the same chairs and participants as the first meeting. The aim of the second clinician focus group was to prioritize QUM indicators identified in the reconciliation phase for inclusion in the prototype dashboard. Prioritization was guided by criteria adapted from the POMH-UK QIP criteria [22], including clinical relevance, impact, decision-making utility, consumer priority, practice variation, potential to influence practice, and measurability using existing data (refer to Multimedia Appendix 3 for the interview guide).

The prioritized list of indicators will be assessed for compatibility with available data sources and potential for derivation from EMR. Although EMR-derivable indicators will be prioritized, the prototype dashboard will also include indicators that are not currently derivable, to inform future data development and system enhancement.

For each prioritized indicator, a structured specification was developed, including a clear definition, inclusion and exclusion criteria, numerator and denominator (where applicable), data elements required, and the anticipated feasibility of derivation from EMR data. These specifications will guide the translation of indicators into measurable metrics and inform the development of the prototype dashboards. An example of an indicator specification is provided in Textbox 1. The prototype dashboards will use synthetic (mock) data to demonstrate the operationalized indicators and their visual presentation Multimedia Appendix 4. Required data elements and potential EMR data sources will be identified at a conceptual level; detailed mapping to site-specific EMR variables, metadata, and data dictionaries will form part of future technical implementation. Prototype development will also consider established dashboard design principles, including the intended users and purpose of the dashboard, relevance and clarity of the information presented, usability, and fit with clinical workflows [20].

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Textbox 1. Example of quality use of medicines indicator specification for an electronic medical record (EMR)–based dashboard.

The following example provides an example of how a quality use of medicines indicator was operationalized for inclusion in the prototype EMR-based dashboard:

- Indicator name: percentage of patients prescribed lithium who receive appropriate monitoring during their inpatient episode
- Purpose: to assess adherence to recommended monitoring for lithium to support safe and effective use
- Inclusion or exclusion criteria: adult inpatients prescribed lithium with appropriate monitoring conducted during admission, including relevant laboratory tests (eg, serum lithium concentration, renal function, and thyroid function) consistent with guideline recommendations
- Numerator: number of patients prescribed lithium with evidence of appropriate monitoring during admission
- Denominator: number of patients prescribed lithium during admission
- Data elements: medication orders (lithium), laboratory results (serum lithium levels, renal function, and thyroid function), and admission or discharge dates
- Data source: EMR (medication and pathology modules)
- Availability: yes

Phase 4: Validation (Interpretability, Content, and Usability)

To assess the interpretability, content relevance, and usability of the prototype dashboard, further stakeholder consultations will be conducted through focus group discussions with people with lived experience of mental illness and clinician focus group consultations with health care professionals. Where feasible, consultations will involve participants from earlier phases and will follow a consistent approach across countries to support continuity and comparability.

Participants will be presented with the prototype dashboard and asked to provide feedback on its interpretability, including the appropriateness and completeness of indicator content (content validity), and the usability and practicality of the dashboard for supporting decision-making in clinical settings (usability) [23].

The focus group discussions and clinician focus group will explore the feasibility of incorporating the indicator results into practice. This will include any perceived barriers and enablers to implementation. Additional input will be sought through stakeholder engagement with allied health professionals, policymakers, and health informatics experts to capture broader system and technical perspectives.

Barriers and Enablers to Dashboard Development and Use

Data generated will be used to identify perceived barriers and enablers to the development, use, and implementation of the QUM analytics dashboard. These may include factors related to data availability and quality, clinical workflow integration, usability, and system-level considerations.

Insights from both Indonesian and Australian settings will be synthesized to enable shared learning, recognizing differences in EMR maturity, health system structure, and mental health service delivery. Consideration will be given to data access, governance, and research ethics requirements across settings, which may influence feasibility and scalability. These findings will be used to create a road map and recommendations for future scale-up, adaptation, and further research across diverse health system contexts.

Data Collection

This project proposes 4 phases to guide the development of the prototype. The data collected in each phase, and the way each phase informs the next, are outlined in Table 2.

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Table 2. Research phases, data collected, and study status.

Research activities	Data collected	Project status	Participants
Phase 1: identification			
Consumer focus group discussion	• Participant gender and age group • Audio recordings of the discussion for data analysis • Summarized QUM[a] indicators from consumers' perspective	Completed (May 2025 to July 2025); analysis completed	• 15 people (Australia) • 14 people (Indonesia)
Clinician focus group consultation	• Participants gender, age group, and occupation • Audio recording of the discussion for data analysis and categorization of indicators • Summarized QUM indicators from health professionals' perspective	Completed (September 2025 to November 2025); analysis completed	• 15 clinicians (9 prescribers and 6 pharmacists; Australia) • 17 clinicians (11 prescribers and 6 pharmacists; Indonesia)
Scoping review	• Scoping literature review of publicly available information on validated mental health QUM indicators • No language limits • Review of related Indonesian websites as part of the gray literature search	Scoping review completed; manuscript preparation in progress	—[b]
Phase 2: reconciliation (collating QUM indicators from identification phase)	• All findings from identification phase (deidentified only) will be collated to develop a list of evidence-based and stakeholder-focused QUM indicators.	Completed (March 2026)	—
Phase 3: translation			
Clinician focus group consultation	• Participants gender, age group, and occupation, with the aim of including the same participants as in the identification phase • Audio recordings of the discussions on the potential EMR[c] derivability of the indicators for documentation purposes and to assist with the finalization of outputs • Output: list of EMR-derivable mental health QUM indicators	Completed (March 2026 to July 2026); analysis completed	• 12 clinicians (6 prescribers and 6 pharmacists; Australia) • 14 clinicians (11 prescribers and 3 pharmacists; Indonesia)
Prototype dashboard development	• Australia: list of EMR-derivable QUM indicators provided to the project software engineer to develop a prototype dashboard • Indonesia: list of EMR-derivable QUM indicators provided to the project software engineer to develop a prototype dashboard	Completed (July 2026 to September 2026)	—
Phase 4: validation			
Consumer focus group discussion	• Participant gender and age group, with the aim of including the same participants as in the identification phase • Audio recordings of the discussions on the appropriateness and acceptability of the prototype for documentation purposes and to assist with the finalization of outputs • Output: appropriateness and acceptability of the prototype from consumers' perspectives	Completed (July 2026 to September 2026); analysis ongoing	• 6 people (Australia) • 10 people (Indonesia)

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Research activities	Data collected	Project status	Participants
Clinician focus group consultation	• Participant gender, age group, and occupation, with the aim of including the same participants as in the identification phase • Audio recordings of the discussions on the appropriateness and acceptability of the prototype for documentation purposes and to assist with the finalization of outputs • Output: appropriateness and acceptability of the prototype from health professionals' perspectives	Completed (July 2026 to September 2026); analysis ongoing	• 12 clinicians (7 prescribers and 5 pharmacists; Australia) • 12 clinicians (9 prescribers and 3 pharmacists; Indonesia)

[a]QUM: quality use of medicine.

[b]Data not available.

[c]EMR: electronic medical record.

Data Analysis

Consumer focus groups and clinician consultations were audio-recorded with participants' consent. Given the consultative and co-design purpose of these sessions, the analysis focuses on summarizing stakeholder input to inform the development and refinement of the prototype dashboard, rather than conducting an in-depth qualitative analysis or seeking to achieve thematic saturation [24].

Recordings and notes were reviewed to identify key points, recurring issues, areas of agreement or difference, and suggestions relevant to QUM domains, indicator development, dashboard design, and implementation considerations. Findings were collated descriptively and organized into broad topic areas to support comparison across stakeholder groups and country contexts.

The summarized findings were used together with evidence from the scoping review to inform indicator reconciliation, prioritization, and dashboard development.

Consultations

Consumer focus groups and clinician or stakeholder consultations were undertaken to support the adapted stakeholder-informed co-design approach used in this study. Participant numbers varied across consultations depending on recruitment feasibility, participant availability, and the purpose of each session. The number of participants in each consultation is reported in Table 2. Rather than seeking to generate theory or achieve thematic saturation [24], the consultations were designed to identify, prioritize, and refine QUM domains and indicators for prototype dashboard development.

Consultation findings were summarized descriptively by identifying key issues, recurring points, areas of agreement or difference, and suggestions relevant to indicator development, dashboard design, and implementation considerations. These findings were used together with evidence from the scoping review to inform indicator reconciliation, prioritization, and dashboard development.

Ethical Considerations

Ethics approval has been granted by the University of South Australia (now Adelaide University) Human Research Ethics Committee (#206599) and the *Badan Riset dan Inovasi Nasional* (BRIN)–the National Research and Innovation Agency of Indonesia (#14092024000001). The project was also deemed exempt from ethics review by the Metro South Health Human Research Ethics Committee, Queensland (EX/2025/QMS/118297).

Participation in all focus groups and clinician consultations was voluntary. All participants received a participant information sheet outlining the study objectives, procedures, potential risks and benefits, confidentiality arrangements, and withdrawal procedures prior to enrollment. Written informed consent was obtained from all participants before participation. Additional consent was obtained for audio recording of focus groups and clinician consultations, which were recorded solely to support accurate documentation and qualitative analysis.

To protect participant privacy, only limited demographic information, including age group, gender, and occupation (for clinician participants), was collected. Transcripts were deidentified prior to analysis, and findings are reported in aggregate form to prevent identification of individual participants. Participants were informed that complete confidentiality cannot be guaranteed within focus group settings; however, all research outputs are reported in a manner that preserves participant anonymity.

Participants were informed that they could withdraw from the study at any time without consequence to their health care, employment, or professional relationships. Data collected up to the time of withdrawal may be retained and included in analyses, as specified in the participant consent materials.

Research data were stored in accordance with institutional and national requirements [25]. Electronic data, including audio recordings and transcripts, were stored on secure password-protected university servers protected by institutional firewalls. Hard-copy materials, including signed consent forms, were stored in locked filing cabinets within secure university facilities. Access to identifiable research data was restricted to authorized members of the research team. Data will be retained for 5 years following completion of the study and then securely destroyed.

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Participants received reimbursement for their time and participation. In Australia, consumer participants received AUD $50 per hour (AUD $1=US $0.70, as of October 7, 2026). In Indonesia, consumer participants received AUD $50 (AUD $1=US $0.70, as of October 7, 2026) per workshop to cover transport and refreshments. These payments were intended as compensation for participants' time and expenses rather than as an incentive to participate.

Study findings will be disseminated through peer-reviewed publications, conference presentations, reports to project partners and funders, and stakeholder engagement activities in both Australia and Indonesia.

Results

The project was funded by the Australian Government Department of Foreign Affairs and Trade through the Australia-Indonesia Knowledge Partnership Platform (KONEKSI) in June 2024, with project activities commencing in August 2024.

To date, several key study activities were completed in both Australia and Indonesia, including consumer focus groups with people with lived experience of mental health conditions and clinician or stakeholder consultations with health professionals. These activities informed the identification of stakeholder priorities, implementation considerations, and potential indicators for inclusion in the prototype dashboard.

The scoping review examining evidence relating to the QUM in acute mental health settings was completed. Findings from the review, together with findings from stakeholder consultation activities, informed data mapping processes and the development of a preliminary set of dashboard indicators.

As of September 2026, all planned study phases had been completed, including dashboard development and validation. Data collection and analysis had concluded across the consultation and indicator development phases, and manuscripts reporting the study findings are currently in preparation. Ongoing stakeholder engagement and knowledge translation activities will continue to support future implementation and evaluation of the dashboard.

Discussion

Anticipated Findings

This study was conducted concurrently in Australia and Indonesia, resulting in the development of 2 dashboard prototypes: one tailored to the Australian health care context and one designed for the Indonesian health care context. Implementing the study in parallel across both nations promoted collaboration, ensuring that contextual differences in health systems, governance structures, digital maturity, and workforce capacity were appropriately addressed. At the same time, this approach fostered shared learning and mutual capacity building, strengthening cross-country partnerships.

Beyond the development of dashboard prototypes, a key outcome of this research was the creation of a road map that draws on shared experiences, implementation processes, and contextual adaptations from both settings. The road map outlines practical considerations for governance, stakeholder engagement, data standardization, technological integration, and sustainability. This provides valuable insights into the feasibility, scalability, and strategic importance of developing analytics dashboards that support health care quality improvement during ongoing digital transformation efforts. Contemporary dashboard research similarly highlights the importance of user-centered design, meaningful and actionable measures, usability, workflow integration, and early consideration of implementation and sustainability [18,26].

The research was closely aligned with the broader digital transformation agendas in Australia [27] and Indonesia [28]. By integrating dashboards within EMRs, the project aimed to enable real-time visualization of quality indicators, thereby enhancing transparency, accountability, and data-driven decision-making. Dashboard design and content were tailored to the needs of different users, recognizing that clinicians, managers, and policymakers may require different information and levels of detail [18,29]. These dashboards are intended to support clinicians, managers, and policymakers in monitoring quality of care, identifying performance gaps, and implementing timely interventions where required. Ultimately, the study aims to demonstrate how embedded analytics can strengthen health system performance and support continuous quality improvement across diverse health care contexts.

The project's outputs include identification of QUM priorities for people with lived experience of mental illness; development of evidence- and stakeholder-informed acute mental health care QUM indicators, incorporating lived-experience perspectives; development of 2 prototype dashboards tailored to the specific needs and contexts of each country; and identification of barriers and facilitators to dashboard development and potential implementation, offering insights to support the sustainable and equitable adoption of digital health technologies.

Strengths and Limitations

A key strength of this study is the collaborative, shared-learning partnership between Indonesia and Australia, together with the development of an evidence-based, lived-experience stakeholder-driven analytics dashboard that draws on EMRs to assess the quality of acute mental health care and medication use. A limitation is that participants, including consumers, were recruited from selected sites in Indonesia and Australia, which may affect the generalizability of the findings [30]. However, these sites were chosen to represent differences in the health care system contexts between Indonesia and Australia, which may offer valuable insights transferable to similar settings.

Conclusions

In conclusion, this protocol outlines the methodology for developing an evidence- and stakeholder-informed QUM analytics dashboard prototype, incorporating lived-experience perspectives and informed by existing quality indicators. The study also identified key barriers and enablers to dashboard development, use, and future implementation within clinical settings.

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Conducted simultaneously across 2 culturally and health system–distinct contexts, Indonesia and Australia, this research adopted a parallel and collaborative approach to ensure contextual relevance while enabling shared learning. By bringing together clinicians and digital health experts from both countries, the project strengthened cross-country collaboration and built capacity in digital quality improvement.

Ultimately, this study generated practical insights into the feasibility, potential implementation, and scalability of using EMR-based QUM analytics to support quality improvement in acute mental health care.

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Authors' Contributions

Conceptualization: JH, IW
Methodology: TNTB, JH, SK, MB, IW
Writing—original draft: TNTB
Writing—review and editing: TNTB, JH, ES, RRDS, SK, MB, NW, AAPS, AA, NP, ER, IW

Conflicts of Interest

None declared.

Multimedia Appendix 1

MEDLINE scoping review search strategy.
[DOCX File , 25 KB-Multimedia Appendix 1]

Multimedia Appendix 2

Consumer interview guide.
[DOCX File , 26 KB-Multimedia Appendix 2]

Multimedia Appendix 3

Clinician interview guides.
[DOCX File , 28 KB-Multimedia Appendix 3]

Multimedia Appendix 4

The prototype dashboards will use synthetic (mock) data to demonstrate the operationalized indicators and their visual presentation.
[PNG File , 181 KB-Multimedia Appendix 4]

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Abbreviations

ACSQHC: Australian Commission on Safety and Quality in Health Care
BRIN: Badan Riset dan Inovasi Nasional
CSIRO: Commonwealth Scientific and Industrial Research Organisation
EMR: electronic medical record
GEDSI: Gender Equality, Disability, and Social Inclusion
KONEKSI: Australia-Indonesia Knowledge Partnership Platform
POMH-UK: UK Prescribing Observatory for Mental Health
QIP: Quality Improvement Project
QUM: quality use of medicines

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