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Barriers and facilitators to buprenorphine use for opioid agonist treatment: protocol for a scoping review

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ABSTRACT

Introduction In the context of the opioid crisis in North America, the benefits of evidence-based opioid agonist treatments such as buprenorphine/naloxone have not been optimised due to low uptake. Numerous factors contribute to the underuse of buprenorphine, and theory-informed approaches to identify and address implementation barriers and facilitators are needed. This scoping review aims to characterise the barriers and facilitators at the patient, healthcare professional, organisation and system level according to the Theoretical Domains Framework (TDF), and identify gaps to inform practice and policy.

Methods and analysis We will conduct a scoping review using established methods and follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews. We will identify English and French-language peer-reviewed literature by searching five electronic bibliographic databases (MEDLINE, Embase, PsychINFO, CINAHL, and SocINDEX), from inception and use Google, websites of key organisations, and two or more custom search engines to identify relevant grey literature. Eligible records will be quantitative or qualitative studies that examine barriers and facilitators to buprenorphine use at the patient, healthcare professional, organisation and system level, and involve participants with diagnosis of opioid use disorder or professionals involved in their care. Two reviewers will be involved in independently screening, reviewing and charting the data and calibration exercises will be conducted at each stage. We will conduct descriptive analysis for the charted data, and deductively code barriers and facilitators using the TDF.

Ethics and dissemination As a scoping review of the literature, this study does not require ethics approval. Our dissemination strategy will focus on developing tailored activities to meet the needs of diverse knowledge user audiences. Barriers and facilitators mapped to the TDF can be linked to evidence-based strategies for change to improve buprenorphine use and access, and enable practice to reduce opioid-related harms.

Strengths and limitations of this study

► This scoping review aims to understand multiple levels of barriers and facilitators to buprenorphine use to advance the design and implementation of buprenorphine delivery in various settings.
► Our methodology will follow the framework developed by Arksey and O'Malley and enhanced by Levac *et al* and the Joanna Briggs Institute.
► The Theoretical Domains Framework enables our analysis to comprehensively account for individual, social and environmental level influences on behaviour.
► To manage the number of included studies, we will use systematic review level evidence and exclude overlapping primary literature if there is alignment with our question and search strategy.
► Our search may be limited in capturing newer innovations in practice, such as low-threshold models or recent buprenorphine formulations (eg, depot buprenorphine).

INTRODUCTION

Fatal and non-fatal opioid poisonings continue to escalate in North America, with an estimated 47 600 opioid-related deaths in the USA in 2017[1] and more than 10 000 in Canada between January 2016 and September 2018.[2] In response, strategies aimed at preventing and reducing opioid-related deaths have been established, including access to evidence-based treatment options for opioid use disorder (OUD). In the USA, approximately 7% of individuals with OUD receive specialty care with approved medications for OUD,[3] while the extent of the gap in treatment in Canada has not been characterised. Opioid agonist treatments (OAT) such as buprenorphine/naloxone have demonstrated effectiveness in reducing opioid-related morbidity and mortality. Further, the superior safety and side effect profile of buprenorphine and equivalent efficacy compared with methadone has led it to be the preferred first-line treatment for OUD in Canada.[4] Importantly, the superior safety profile of buprenorphine reduces the treatment burden for the patient,

with more flexible dosing schedules and earlier provision of take-home prescriptions than methadone.[4] Given the evidence, and continuing opioid overdose crisis, widespread implementation and utilisation of evidence-based buprenorphine for OUD would maximise its benefit in the population. While approved for use in Canada since 2007 without any required exemptions for physicians,[5 6] implementation of buprenorphine, including availability, accessibility and uptake, has not been optimised to achieve higher rates of use among eligible people. In British Columbia and Ontario, more than twice as many patients on OAT receive methadone compared with buprenorphine,[7 8] while many more may need treatment and not be engaged using either medication.

The body of literature relevant to the underuse of buprenorphine for OUD suggests a range of barriers, related to patients, healthcare professionals, organisations and system level policies. Numerous factors such as patient preferences,[9 10] insufficient prescriber knowledge,[11–13] inadequate time or resources,[11 12 14 15] institutional support,[16] stigma,[11 12] concern of diversion,[17–19] insurance coverage,[20] geographic barriers[21] and limited numbers of prescribers[22 23] have been described as causes of limited access and use of buprenorphine. Though several barriers have been identified, there have been few studies that have explored and characterised these factors using theory. Three current systematic reviews of barriers to OAT are registered in PROSPERO,[24–26] of which one focuses on adolescents[25] and two focus on specific professional groups, including pharmacists and physicians.[24 26] Furthermore, two of the reviews focus on OAT generally, including methadone.[24 25] To our knowledge, no existing research addresses the barriers and facilitators at multiple levels, and specific to buprenorphine use. Consequently, the literature on barriers and facilitators to buprenorphine use remains narrow in scope and undertheorised. Behaviour change theories and implementation frameworks can be effective tools to identify key behavioural influences related to adoption of evidence-based practices and potential strategies to address them.[27] A theory-informed approach to understanding implementation problems related to buprenorphine use can guide analysis of factors at multiple levels. There is a high potential to expand access to OAT by addressing barriers and leveraging facilitators specific to the context of buprenorphine—it is the preferred first-line treatment due to safety reasons, and considerations may differ between treatments (eg, initiation protocols, risk of precipitated withdrawal, full-agonist or partial-agonist pharmacology), calling for specific attention to buprenorphine. This information can help to identify effective strategies that address barriers and leverage facilitators which may ultimately reduce mortality during an opioid crisis. While our research team is based in Canada, this scoping review will be of interest to international audiences as it includes international literature, and facilitators/barriers to implementation may be common across jurisdictions (eg, stigma perceived at the patient level).

This study addresses the question: What are the barriers and facilitators to buprenorphine use at the patient, healthcare professional, organisation and system level, experienced by people with a diagnosis of OUD or professionals involved in their care? The specific aims of this scoping review are to: (1) characterise the barriers and facilitators to buprenorphine use experienced by patients, healthcare professionals, organisations and healthcare systems reported in the peer-reviewed and grey literature and (2) identify gaps in the literature to inform future implementation practice. We will use the Theoretical Domains Framework (TDF)[27] as a behaviour change theory to guide our review and we will apply an integrated knowledge translation (iKT) approach,[28] engaging knowledge users including harm-reduction workers and people with lived experience of drug use (including opioid use), health system leaders and educators, primary care and addiction medicine prescribers, health service researchers, implementation science methodologists and knowledge mobilisation specialists throughout the study as members of the project team. Throughout our protocol, we use the term OAT as it is consistent with the current national clinical practice guideline for treatment of OUD.[4] This term is also used in other jurisdictions, such as Australia, while terms in other jurisdictions vary, including 'medications for opioid use disorder (MOUD)' in the USA,[29] and 'opioid maintenance treatment' in Europe, including the UK.[30 31]

METHODS AND ANALYSIS

Due to the breadth of the literature on barriers and facilitators of buprenorphine use at multiple levels, a scoping review is an appropriate approach to address the broad aims of this study.[32] Systematic review methods are typically used for understanding outcomes across multiple similar studies; a scoping review can assess the need or feasibility of a systematic review.[32 33] Our scoping review methodology will follow the framework developed by Arksey and O'Malley[32] and enhanced by Levac et al[34] and the Joanna Briggs Institute,[35] and includes five of the six outlined stages.[32] The optional sixth stage of consultations will be carried out in another phase of our research; however, we will have knowledge user involvement on the project team throughout. Our reporting will follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) extension for scoping reviews to ensure quality and transparency of the methods and results described in our review[36]; and for the protocol, see online supplementary appendix. Our study does not require ethics approval since the proposed methodology consists of a review of publicly available peer-reviewed and grey literature. We have also registered this protocol in Open Science Framework (osf.io/mwctz; 4 June, 2019). We will conduct the scoping review between June 2019 and March 2020, with preparation in May 2019 involving an initial assessment of search results and the application of selection criteria between reviewers.

Our objectives are to: (1) systematically scope the literature, (2) map barriers and facilitators at multiple levels according to the 14 theoretical domains of the TDF and (3) identify gaps in the literature. We selected the TDF to inform our analysis because it has been used extensively in implementation research to identify barriers and facilitators to change (eg, uptake of new treatments) among healthcare professionals and patients.[37] The TDF is a synthesis of 33 theories relevant to behaviour change into twelve domains, and then revised to 14 domains, that influence behaviour change: knowledge; skills; social/professional role and identity; beliefs about capabilities; optimism; beliefs about consequences; reinforcement; intentions; goals; memory, attention and decision processes; environmental context and resources; social influences; emotion; behavioural regulation.[27] The domains of the TDF comprehensively account for individual, social and environmental level influences on behaviour.

Additionally, the 14 domains of the TDF link to the core dimension of the Behaviour Change Wheel (BCW), in which capability, opportunity and motivation are conceptualised as the three interacting conditions that generate behaviour (COM-B). Linkage to the BCW can guide the selection of intervention functions, policy categories and behaviour change techniques (ie, the active component on a behaviour change intervention)[38 39] to overcome barriers and enhance facilitators.

Search strategy

First, we will search MEDLINE, Embase, PsycINFO, CINAHL and SocINDEX electronic databases for peer-reviewed literature using a comprehensive search strategy from inception to 2019. Two research librarians at Public Health Ontario (PHO) developed the search strategy in MEDLINE which was then peer-reviewed by other members of PHO Library Services (online supplementary file 1). Key search concepts included buprenorphine, OAT and barriers and facilitators. Due to its comprehensive search functions, the search strategy was first developed for MEDLINE, and will be modified for use in the other databases. We will review the first 10 search results per year between 2019 and 2009 to ensure that the search strategy is identifying relevant titles, and captures all sample articles identified prior to the search. The search strategy will include both English and French language publications, due to long-term experience with buprenorphine prescribing practices in France.[40] Due to limited resources, we are unable to manage publications in other languages, and will not use automated translation tools that could introduce error due to the technical nature of the topic.[41–43] Non-English content represented a small proportion of all results retrieved in Medline (about 5%).

Second, we will conduct a grey literature search following PHO grey literature standards where fidelity to the academic literature search is maintained within the constraints of our chosen records. The results and strategies for each source will be reported on PHO Grey

Literature reporting form. We will search Google, websites of key organisations (eg, Health Quality Ontario), and two or more custom search engines that capture national and international government and non-government organisations in the areas of health and public health, and we will review the first 100 results. If no French records were identified, we will perform a specific search in Google with a French extension and using French terms. This is to ensure we capture lessons learnt from the context in France, in which there has been long-term and widespread use of buprenorphine among healthcare professionals.[40] Prior to analysis, searches for the peer-reviewed and grey literature will be re-run to ensure that the most current available information is captured. Third, we will screen the reference lists of all included articles, search PROSPERO for relevant systematic reviews using the term 'buprenorphine' and contact registered study authors, and ask knowledge users on the project team for relevant records.[24–26]

Eligibility criteria

English and French-language peer-reviewed and grey literature records will be eligible for inclusion if they: (1) aim to examine barriers and facilitators to buprenorphine use; (2) include study participants (including all age groups) with a diagnosis of OUD, opioid dependence or currently on buprenorphine, as well as professionals involved in their care; (3) describe barriers or facilitators to buprenorphine use at the patient/caregiver, healthcare professional, organisation or system level; and (4) use qualitative (eg, interviews, focus groups, questionnaires), quantitative (eg, cohort, case–control, randomised controlled trials, questionnaires) or systematic review study designs. There will be no restrictions on the clinical care setting used in the study. Articles with no research method examining barriers and facilitators will be excluded (eg, narrative reviews, commentary articles, guideline documents without systematic methods for literature synthesis). We will also exclude studies that combine barriers and facilitators for both buprenorphine and methadone together, as we aim specifically to describe those most relevant to buprenorphine.

Study selection

Two reviewers will independently screen search results and apply the eligibility criteria to titles and abstracts. A calibration exercise will be conducted after screening the first 100 results or until sufficient agreement is achieved (80% inter-rater agreement) to ensure reliability of source selection for inclusion, to pilot test the application of the eligibility criteria and to establish a common understanding of the criteria. We will refine the eligibility criteria if there is low agreement on certain conditions or if limited records are identified for each level.

Both reviewers will independently screen titles and abstracts of eligible articles with the refined criteria, and relevant records will undergo a full-text review that follows the same process as the title and abstract

screening including calibration. Discrepancies will be addressed through consensus discussion or involvement of a third reviewer. We will screen reference lists and relevant records identified by knowledge users in a similar manner. It is likely that the broad inclusion of barriers and facilitators at multiple levels will generate extensive search results that will need to be managed to the scope of our resources and capacity for this project. For example, in preliminary communication with an author of an ongoing systematic review in PROSPERO, the research team expects to include over 100 primary studies (PROSPERO 2018 CRD42018086835; L Nixon, personal communication, 2019). To manage the number and scope of included studies, we will select and use systematic review level evidence, and exclude the primary literature included in the systematic review if there is alignment with our research question and search strategy.

Data charting process

Data will be abstracted into a Microsoft Excel spreadsheet table. The data items are outlined in table 1. To account for differences in health systems, we will extract information available on the jurisdictional context of service delivery to the extent available in the data on geographic location and study setting.

Two reviewers will independently extract data from 10 records included in the published (n=5) and grey literature search (n=5) to ensure consistency in how the relevant data is extracted and that there is common understanding of the categories and how to use the form. We will sample in sets of five until 80% inter-rater agreement is achieved across all items. Additionally, the principal investigator will review the data, and refine or add

categories as needed. Following testing, one reviewer will independently read and extract data from all included records, and a second reviewer will independently verify 20% of the records for reliability. Discrepancies in the extracted information will be resolved through discussion with the principal investigator. Data extraction will be an iterative process whereby the table will be reviewed and revised to include feedback from knowledge users as well as emerging themes from the literature that are not captured in the table. In line with the scoping review methodology and the aims of our project, we will not perform critical appraisal and risk of bias assessment of included records.[32]

Data synthesis

For our second objective, we will code the barriers and facilitators extracted from the literature to the constructs included and defined in the domains of the TDF. Two project team members will analyse and code 10% of the data table into the domains of the TDF using predetermined definitions. If insufficient detail is provided to map barriers and facilitators to the TDF domains, we will use components of the COM-B model to which the TDF are linked.[44] If the authors of an included study have categorised their findings according to the TDF or COM-B, we will use the author's categorisations, and also note the methodology used by the authors. Codes will be assigned to barriers and facilitators that do not align with the TDF or COM-B. The TDF domains and sub-domains within them, COM-B and newly generated codes will be used to develop a coding framework. To ensure validity and credibility, the broader project team will be involved in a consensus discussion on the coding framework. On

Table 1 Data items	
Data items	**Description**
Reference ID number	ID number in citation management software.
Author (s)	First author.
Year of publication	Article year.
Geographic location	In which country/city was the study conducted (including context).
Study design	The study design as defined by authors.
Study setting	Where did the study take place (including context).
Population and sample size	Number and characteristics of participants of the study.
Study aims/purpose	The aims of the study as defined by the author.
Intervention description	Characteristics of the buprenorphine intervention described by the author (may include no direct intervention in the study, eg, survey of attitudes).
Outcomes	How the authors measured outcomes and the main results.
Barriers to the intervention at different levels	Factors that may have reduced use of buprenorphine at the level of the patient, healthcare professional, organisation and healthcare system level.
Facilitators to the intervention at different levels	Factors that may have enabled use of buprenorphine at the level of the patient, healthcare professional, organisation and healthcare systems.
Theoretical basis	If applicable, theories and frameworks described in the study for the categorisation of barriers and facilitators.
Study limitations	Authors' reported gaps and limitations of the study.

reaching consensus, coding will be applied by two team members to the remaining extracted data, and an inter-rater exercise will be completed to achieve 80% agreement. We will provide a descriptive summary highlighting the most frequent themes within each level. When applicable and useful, we will also use frequency analysis to provide a numerical summary of the charted data. For example, study characteristics of the included records (eg, design, participants and settings) will largely be described using frequencies. Records drawing from the same study dataset will be treated as one unit of analysis.

For our third objective, the TDF analysis of the barriers and facilitators at different levels will facilitate the process of identifying gaps in the literature. We will examine the domains of the TDF in which there are none or few barriers and facilitators identified. The paucity of identified barriers and facilitators within these domains may represent areas which are not relevant for buprenorphine use or where a gap in the literature may exist. Non-coded domains will be discussed with the project team to prompt for examples of barriers and facilitators that were not captured in the literature. In addition, we will analyse the charted data on the study limitations, as described by authors, to characterise areas for further research. The proposed data synthesis plan and its alignment with each of the study objectives are presented in table 2.

Patient and public involvement

The research team includes people with lived experience of substance use and individuals who support people with engagement in treatment for OUD. Further, several team members work closely with people who use drugs in the context of clinical work or community-based research. These members have provided guidance on designing the scoping review, as part of a larger implementation evaluation study.

ETHICS AND DISSEMINATION

Our protocol follows a rigorous methodology, using a theory-based approach that provides for systematic understanding of the factors contributing to underuse of buprenorphine as an evidence-based treatment for OUD. Our process for analysis will generate a list of barriers and facilitators mapped to the domains of the TDF and COM-B (when applicable) that can be further linked to evidence-based strategies for change to improve use and access. Representation of people who use drugs and practice at all levels on the project team will increase the potential for our findings from the literature and mapping is valid, reliable and relevant. Although research ethics board is not required for our study, engagement with people who use drugs will also mitigate the potential for our stigmatised beliefs to be reflected in work. Further consultation and understanding of barriers and facilitators in the Canadian context using in-depth interviews and group consultations with representatives from each level will occur in the next phase of this work.

Informed by the Knowledge-to-Action framework,[45] our dissemination strategy will focus on developing tailored activities to meet the needs of diverse knowledge user audiences. First, dissemination to academic audiences will occur with the preparation of a scoping review manuscript to be submitted to an open-access journal. To supplement the manuscript, we will create summaries using multiple formats that are accessible to a broader set of knowledge users, including online visual and written summaries, webinars, interactive

Table 2 Synthesis of results

Study objective	Data items	Reporting
To identify the barriers and facilitators to buprenorphine use experienced by patients, healthcare professionals or within organisations, and healthcare systems.	Reported factors that reduced or facilitated use of buprenorphine at the level of the patient, healthcare professional, organisation and healthcare system level.	The number of articles identified that report barriers or facilitators at each level. The number of articles that report barriers or facilitators by domain of the TDF and COM-B model across the levels. Description of the types of barriers or facilitators at each level according to the domains of the TDF and COM-B model, and compare prevalent barriers and facilitators between levels. The number of articles that report barriers or facilitators that did not align with the domains of the TDF and a description of these barriers or facilitators.
To identify gaps in the literature.	Authors' reported limitations and gaps.	Description of existing gaps in the literature and areas for future research and evaluation. Description of the domains of the TDF which had none or few coded barriers or facilitators.

COM-B, capability, opportunity and motivation producing behaviour; TDF, Theoretical Domains Framework.

workshops and conference presentations. All summaries that are developed will contain the link to the open-access journal, and be posted on the PHO website and social media page that reaches approximately 27 000 followers.

This scoping review will contribute to the literature the first comprehensive understanding of the multiple levels of barriers and facilitators to buprenorphine use to advance the design and implementation of buprenorphine delivery in various settings. This work will constitute the first step in a multiphase project aimed at evaluating the implementation of buprenorphine in Canada. Our results can enable healthcare professionals, researchers, organisations and system leaders to identify population-level strategies that address barriers and enhance facilitators to improve treatment access. Doing so is critical as this evidence-based treatment is a vital component of our response to reduce opioid-related mortality during the largest drug overdose crisis in North America.

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