STUDY PROTOCOL

Quality care metrics (QC-M) in nursing and midwifery care processes: a rapid realist review (RRR) protocol [version 1; peer review: 1 approved, 1 approved with reservations]

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Abstract

Background: In 2018, the Office of the Nursing and Midwifery Services Director (ONMSD) completed phase one of work which culminated in the development and launch of seven research reports with defined suites of quality care process metrics (QC-Ms) and respective indicators for the practice areas – acute care, midwifery, children’s, public health nursing, older persons, mental health and intellectual disability nursing in Ireland. This paper presents a rapid realist review protocol that will systematically review the literature that examines QC-M in practice; what worked, or did not work for whom, in what contexts, to what extent, how and why?

Methods: The review will explore if there are benefits of using the QC-Ms and what are the contexts in which these mechanisms are triggered. The essence of this rapid realist review is to ascertain how a change in context generates a particular mechanism that produces specific outcomes. A number of steps will occur including locating existing theories on implementation of quality care metrics, searching the evidence, selecting relevant documents, data extraction, validation of findings, synthesising and refining programme theory. This strategy may help to describe potential consequences resulting from changes in context and their interactions with mechanisms. Initial theories will be refined throughout the process by the local reference
panel, comprised of eight key intervention stakeholders, knowledge users such as healthcare professionals and an expert panel. Ethical approval is not required for this rapid realist review.

**Conclusion:** It is anticipated that the final programme theory will help to explain how QC-Ms work in practice; for whom, why and in what circumstances. Findings of this review could help to give insights into realism as a framework and how nursing and midwifery QC-Ms have been implemented previously.

**Keywords**
rapid realist review, quality care metrics, care processes, quality indicators

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**Author roles:** O’Connor L: Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Resources, Software, Supervision, Writing – Original Draft Preparation, Writing – Review & Editing; Coffey A: Conceptualization, Funding Acquisition, Methodology, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; Lambert V: Conceptualization, Funding Acquisition, Methodology, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; Casey M: Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; McNamara M: Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; Teeling SP: Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; O’Doherty J: Methodology, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; Barnard M: Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; Corcoran Y: Writing – Original Draft Preparation, Writing – Review & Editing; Doody O: Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; Frawley T: Writing – Original Draft Preparation, Writing – Review & Editing; O’Brien D: Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; Redmond C: Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; Smith R: Writing – Original Draft Preparation, Writing – Review & Editing; Somanadhan S: Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; Noonan M: Writing – Original Draft Preparation, Writing – Review & Editing; Bradshaw C: Writing – Original Draft Preparation, Writing – Review & Editing; Tuohy D: Writing – Original Draft Preparation, Writing – Review & Editing; Gallen A: Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing

**Competing interests:** No competing interests were disclosed.

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Introduction

The delivery of care to any patient/resident/woman/child and family should be of high quality, consistent, safe and patient-centred. Nurses and midwives are at the centre of care delivery, delivering high quality and safe care to patients and their families. The World Health Organisation’s (WHO) global strategic directions (2016–2020) provides a framework for the WHO and key stakeholders to create, implement and evaluate nursing and midwifery accomplishments to ensure acceptable, good quality, and safe nursing and midwifery interventions. High quality care delivery is important both in Ireland and internationally and quality measures such as metrics play a part in helping to standardise care and ensure consistency in quality. In many organisations, there is a wealth of data but often, there is no way to “collect, analyse and interpret data that will track the quality of care delivery”.

In 2011, Nursing and Midwifery Planning & Development Units (NMPDU) quality care-metrics (QC-Ms) were developed and implemented in over 100 practice areas across the Republic of Ireland. These QC-Ms were endorsed by the Office of the Nursing & Midwifery Services Director (ONMSD) Health Service Executive. QC-Ms are “a measure of the nursing and midwifery clinical care processes, in healthcare settings in Ireland, aligned to evidenced-based standards and agreed through consensus”. It is important to measure the degree to which nurses and midwives adhere to fundamental care processes to access and assure the quality of care delivered to patients and clients. In June 2018, ONMSD completed phase one of work, which included a systematic review and a modified four-round Delphi study. Phase one identified important aspects of nursing and midwifery interventions/care processes that should be measured (Nursing & Midwifery-Sensitive Process Metrics).

Implementing changes in practice are complex and some changes are more likely to be implemented than others. QC-Ms phase one culminated in the development and launch of seven research reports with defined suites of process metrics and respective indicators for the following clinical practice areas – acute care, midwifery, children’s, public health nursing, older persons, mental health and intellectual disability nursing. A total of 91 metrics were launched (acute care – 11 metrics; midwifery – 18 metrics; children’s – eight metrics; older person’s care – 19 metrics; public health nursing – 14 metrics; mental health nursing – 9 metrics; and intellectual disability nursing – 12 metrics). A national procedural guideline document for each suite of QC-M’s was also developed to guide implementation, measurement and support fidelity of interpretation. The implementation of the QC-Ms project into an individual service is structured within a framework consisting of four stages: “initiation, planning, implementation and mainstreaming”. These stages are further subdivided into 15 individual steps; from step one where an invitation is sent to each service to step 15 where the QC-Ms have been implemented within their service and the project is monitored, reviewed and evaluated.

The rapidist methodology aims to highlight the impact interactions have among contexts and what impact mechanisms have on intervention outcomes. The basic question of a rapidist review is ‘what is it about this intervention that works in this context and why?’ An RRR works on understanding what are the contexts (C), mechanisms (M), and outcomes (O) that enable or constrain the implementation of an intervention. This RRR, as part of a larger evaluation, namely phase two, will look at how in relation to the intervention of quality care metrics in practice, using rapidist methodology to focus on how interventions work across contexts; what worked, what did not work, for whom, why and in what circumstances.

Why a rapidist review?

Realist review seeks to develop a common understanding of underlying factors and causative mechanisms and, according to Pawson et al. (2005), seeks to understand the components of the social world and stratifications of social reality. In realist inquiry there is a focus not only on ‘what works’ but on ‘what works for whom, why it works, and in what circumstances’. Realist review often involves analysis of existing data. Pawson and Tilly address the question ‘what works, for whom, in what circumstances, and how?’ within a range of interventions. The assumption is that programmes are ‘theories incarnate’, which means when a programme is designed, it is underpinned by one or more theories about what ‘might cause change’. According to Pawson et al. (2005) the iterative, flexible nature of realist reviews do not align well with protocol-driven, standardised processes common to established systematic review methods. The steps undertaken in this study will be informed by an RRR methodology, will be iterative in nature and will be revisited iteratively throughout the RRR process.

RRR methodology was developed as a tool for applying a realist approach to a knowledge synthesis process, thereby producing a product that is useful to policy makers in responding to time-sensitive and/or emerging issues where there is limited time and resources. When undertaking an RRR, theories within the programme are explicit about how, and for whom, to what extent, and in what contexts a programme might ‘work’. Data collected should include: “programme impacts and the processes of programme implementation, the specific aspects of programme context that might impact on programme outcomes, and how these contexts shape the specific mechanisms that might be creating change.” By testing context-mechanisms-outcomes (CMO) configurations, this will enable us to understand how, why, for whom, and in what contexts the intervention, i.e., QC-M’s are more or less likely to work and how it produces its desired and undesired outcomes.

Research question

What factors enable the successful implementation of a suite of quality care process nursing/midwifery metrics across all areas in nursing and midwifery practice?

Methods

Protocol

This study aims to conduct an RRR that involves a synthesis of the international literature (published and grey) that generates programme theories to determine a better understanding of
enablers and constraining influences related to the implementation of nursing/midwifery quality care process metrics. This study will aim to unpack the mechanism of how complex interventions (QC-Ms) work (or why they fail) in particular contexts and settings.

**Procedures**

Formal ethical approval is not required for this RRR. This RRR will be undertaken over a three-month period commencing middle of November 2020. RRR will be informed and reported according to RAMESES (Realist And Meta-narrative Evidence Syntheses: Evolving Standards) standards. The review design is based on Weetman et al. (2017) study design using eight steps. The design is summarised in Figure 1. A PRISMA-P checklist has been completed and is available as an additional file (see *Extended data*).

**Step 1: Locating existing theories**

Locating existing theories on what factors enable the successful implementation of a suite of QC-Ms across nursing and midwifery practice is pertinent to step 1. We will conduct a preliminary background search in PubMed and EMBASE searching article titles, abstracts, keywords, and subject headings to guide the development of the second search strategy. Creating a good and clear search is vital to ensure the best possible and most relevant return of articles. We will use Boolean operators: AND, OR, NOT, to help define our search. Documents sourced within the scoping search will be reviewed and interrogated for theories related to what aids in the successful implementation of interventions such as QC-Ms. The initial programme theory will be developed throughout the review process, but it will serve as a starting point for the RRR. From the findings of this scoping search and content expertise of the research team, an initial programme theory will be defined and refined throughout the RRR process. Once the initial programme theory has been developed, the searching phase will commence.

**Step 2: Searching**

We will search electronic databases including Excerpta Medica Database (EMBASE), PubMed Central, The Cumulative Index to Nursing and Allied Health Literature Complete (CINAHL Complete), APA PsycINFO, Applied Social Sciences Index and Abstracts (ASSIA) and Cochrane Database of Systematic Reviews (CDSR) (see *Extended data*) and grey literature will also be selected to include only publications within

![Review design](image)
the last ten years (see Extended data\textsuperscript{15}). A PICO framework will be used to structure the key words used in the search strategy\textsuperscript{16}. ‘P’ in the PICO framework refers to the population, namely nurses and midwives. ‘I’ refers to an intervention, and this was the QC-Ms. ‘C’ can also refer to study characteristics, i.e., study design. ‘O’ refers to outcome and relates to the research question: What factors enable the successful implementation of a suite of quality care process nursing/midwifery metrics across all areas in nursing and midwifery practice (Table 1)?

Step 3: Document selection
The search strategy will be developed and agreed by the research team. Following this, the eligibility criteria will be developed. Table 2 provides an overview of the eligibility criteria for this RRR. Independent reviewers will use the online software ‘Covidence’ to import the search results and begin the title and abstract screening process\textsuperscript{17}. Following this, independent reviewers will screen full text articles, based on the pre-determined exclusion/inclusion criteria (Table 2). An arbitrator from within the research team will be appointed to discuss any discrepancies that may have emerged. If there are any discrepancies regarding which articles to include or exclude and/or why, an independent arbitrator will be consulted to make the final decision (see Extended data\textsuperscript{15}, for the PRISMA flow diagram template\textsuperscript{18} that will be completed, including all numbers finalised, at the end of the RRR).

Quality appraisal
There are many different critical appraisal tools outlined within the literature that enable the quality assessment of papers. These include The Crowe Critical Appraisal Tool (CCAT)\textsuperscript{19} or

### Table 1. PICO search terms used in the review of the literature.

<table>
<thead>
<tr>
<th>Question</th>
<th>PICO</th>
<th>Search Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>What factors enable the successful implementation of a suite of Quality Care Process Nursing/Midwifery Metrics in nursing and midwifery practice</td>
<td>P</td>
<td>‘Nurse’ OR ‘Midwife’ OR ‘nurse specialist’ OR ‘nurse practitioners’ OR ‘clinical nurse specialists’ OR ‘midwife specialist’ AND ‘quality care’ OR ‘clinical care’ ‘nursing care’ and ‘measurement’ and ‘processes’ and ‘indicators’ as separate terms AND ‘comparison groups’ OR ‘control group’ OR ‘intervention group’ OR ‘intervention groups’ AND ‘facilitators’ OR ‘enablers’ OR ‘implementation’</td>
</tr>
</tbody>
</table>

### Table 2. Inclusion and exclusion criteria.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Humans</td>
<td>Any study population other than humans, i.e., animal studies</td>
</tr>
<tr>
<td>Language</td>
<td>Written in English</td>
<td>Any other language that is not in English</td>
</tr>
<tr>
<td>Time period</td>
<td>January 2010 – July 2020</td>
<td>Outside this time period</td>
</tr>
<tr>
<td>Study focus</td>
<td>Studies that report on the implementation and/or evaluation of the implementation of QCMs or other nursing quality care measurement processes, both nationally and internationally AND Interventions including barriers and facilitators to implementation and adoption of these healthcare initiatives</td>
<td>Articles that do not look at QCMs/other healthcare interventions/initiatives</td>
</tr>
<tr>
<td>Type of study</td>
<td>Peer reviewed primary studies from academic journals and grey literature e.g. reference list and institutional repositories</td>
<td>Non peer reviewed articles e.g. newspaper articles, opinion pieces, reviews</td>
</tr>
<tr>
<td>Geographic location</td>
<td>Any location – an international context</td>
<td>None</td>
</tr>
</tbody>
</table>
Critical Appraisal Skills Programme (CASP) checklists that include: Systematic Reviews, Randomised Controlled Trials, Cohort Studies, Case-Control Studies, Economic Evaluations, Diagnostic Studies, Qualitative studies and Clinical Prediction Rule\textsuperscript{30}. One of these critical appraisal tools will be utilised to ensure the highest quality papers and grey literature will be included in the review. CCAT scores papers out of 40 and only papers above 25 will be accepted\textsuperscript{19}. Grey literature will not be excluded based on quality scores but will be reviewed by the local panel for inclusion or exclusion.

**Step 4: Data extraction**

To ensure the most suitable information is extracted, a draft data extraction tool has been developed, based on RRR methodology\textsuperscript{11,21} (see Extended data\textsuperscript{15}). This tool will be pre-tested before use to ensure it captures all relevant information accurately. Data will be extracted from the article and checked by a second member of the research team. When extracting data, if an article does not include information relevant to a question in the form, the researcher will record this as ‘not reported’. The data extraction process will populate the data extraction table with evidence. Once the research team and sub-teams extract the data, the content from each team’s data extraction tables will be amalgamated into one single data extraction table to include all articles.

**Step 5: Validation of findings**

This RRR will be undertaken in consultation with a local reference panel. The local reference panel will consist of eight key intervention stakeholders\textsuperscript{1}, and knowledge users such as healthcare professionals who will further develop and implement the interventions. RRR is grounded in the local context, with explicit, extensive, iterative engagement with a local reference group comprising representatives of potential knowledge users\textsuperscript{2}. The benefits of including key stakeholders and knowledge users in the process of a review include increased relevance, clarity and awareness of review findings\textsuperscript{22}. In addition to the local reference panel, an expert panel will consist of researchers from two universities in the east and one in the west of Ireland. An expert panel will help to identify the relevant articles that should be included in the review and contribute to tailoring the search strategy, synthesis of findings and verifying appropriate interpretation of results. This expert panel will consist of researchers and practitioners who have experience in RRR methodology pertinent to nursing and midwifery healthcare settings and also have a connection or previous collaboration with the three universities involved with this review. As this review will be conducted in the midst of a healthcare pandemic, all contact with stakeholders and knowledge users will be conducted virtually through secure online communication platforms. Initially, the local reference panel and an expert panel will define the research questions, review the inclusion/exclusion and search strings of the RRR to ensure clarity and consistency. Following title and full-text screen by the team of researchers, the expert panel will meet the research team to review selected articles to ensure all relevant articles are included. A final consensus meeting will be convened with the expert panel and local reference panel once synthesis of the literature is complete, to highlight the different enabling and constraining contextual factors and mechanisms which influence the implementation of QC-Ms across seven practice areas.

**Step 6: Data synthesis**

We will develop an approach to synthesis, including the following steps, as outlined by Rycroft-Malone \textit{et al.} \textsuperscript{2012}:

1. Organisation of extracted data into evidence tables
2. Theming by individual reviewers
3. Comparison of reviewers’ themes for a specific article and formulation of chains of inference from the identified themes
4. Linking of the chains of inference, and tracking and linking of articles
5. Hypothesis formulation (mechanism, context, outcome chains)

The thematic analysis framework\textsuperscript{23} will be operationalised to analyse the findings from each selected paper within six non-linear planes; (1) familiarity with the information, (2) generate codes, search for themes, (3) review the themes, (4) define and (5) names the themes and (6) produce the findings. Selected papers will be imported into the software NVivo \textsuperscript{23}. Results and discussion sections will be coded in order to identify context, mechanism, outcome configurations in the findings.

**Step 7: Refining the programme theory**

The final stage involves the refining and testing of the programme theory, following synthesis of the data. It is envisaged that the programme theory will explain how and why QC-M’s produce outcomes from changes in contexts and their resultant interactions with mechanisms. The local reference and expert panel will assist in refining the final theory by providing us with their expertise in the field. After completing all steps in this review, any stage may be revisited in order to ensure data saturation and ‘theory saturation’\textsuperscript{14}. Once the review has been deemed to have reached data and theory saturation, no further documents will be added, and steps will not be repeated.

**Conclusions**

Findings from this review will help to give insights into realism as a framework and how nursing and midwifery QC-Ms have been implemented previously. Findings related to the barriers and facilitators to healthcare interventions/initiatives being evaluated could enable us to identify ways in which we can evaluate the bigger QC-M’s project. This RRR will provide a nationally and internationally unique approach to measuring nurses and midwives’ contribution to quality and safe care, representing a departure from traditional methodologies and will provide a robust lens into phase two of the evaluation research project.
Data availability
Underlying data
No underlying data are associated with this article.

Extended data

This project contains the following extended data:
- PRISMA-P_Supp_A.docx (Supplementary Material A – PRISMA-P checklist)
- Supp_Mat_B.docx (Supplementary Material B - potential academic databases and grey literature databases)
- Supp_Mat_C.docx (Supplementary Material C – PRISMA flow diagram)
- Supplementary Material C (1) Data Extraction Tool.docx (Supplementary Material D – data extraction tool)

Data are available under the terms of the Creative Commons Zero “No rights reserved” data waiver (CC0 1.0 Public domain dedication).

References

Mary Ellen Glasgow  
School of Nursing, Duquesne University, Pittsburgh, PA, USA

Well-written important article. I would suggest a bit more of a discussion/background of rapid realist review (RRR) and why it is an important methodology in these circumstances and nursing in particular. Rapid Realist Review' methodology (RRR) has been developed as a tool for applying a realist approach to a knowledge synthesis process for quality improvement in time-sensitive scenarios or emerging clinical issues. The RRR methodology is designed to engage knowledge users and review stakeholders to define the research questions, and to streamline the review process. Results are typically presented with a focus on context-specific explanations for what works within a particular set of parameters rather than producing explanations that are potentially transferrable across all populations or contexts.

Nursing can benefit from this methodology and I am glad to see the authors using this framework.

Is the rationale for, and objectives of, the study clearly described?  
Yes

Is the study design appropriate for the research question?  
Yes

Are sufficient details of the methods provided to allow replication by others?  
Yes

Are the datasets clearly presented in a useable and accessible format?  
Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Nursing education and leadership, quality improvement.
I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 02 December 2020

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Maura Dowling
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Martina Giltenane
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This is a very relevant rapid realist review. It will illuminate the reasons for successful implementation of quality care metrics (QCMs) and the challenges and/or barriers to implementing QCMs in different contexts. This will guide healthcare providers in relation to measurement for improvement in the future to enable them to learn from processes used in healthcare settings within similar contexts.

Introduction:
An explanation of the term ‘quality care-metrics’ would be useful.
The authors identify that nurses and midwives are at the centre of care delivery, delivering high-quality and safe care, yet there is no definition describing what high-quality care entails. What is quality care? This explanation would strengthen the background.
A specification of what indicators this paper will focus on would strengthen the paper i.e. all types of indicators structure, process and outcomes or just processes of care that are controlled by nurses and midwives. Within the protocol section process metrics are mentioned but an explanation of the difference between types of indicators coming earlier is recommended.
It is also recommended that the authors include an explanation that quality care metrics are made up of process indicators within the same clinical domain.
Regarding outcomes, it is not clear if the authors hope to demonstrate that quality care metrics were effective and if any specific reported outcomes were to be reported?

Research Question
Given the aim of the paper, we suggest that the authors consider additional research question(s), for instance: What are the barriers and/or challenges of implementing QCMs across Nursing and Midwifery Practice?

Methods
Search strategy: The authors do not indicate if a librarian or information specialist is part of the team and if not part of the team will a librarian or information specialist assist with the search strategy?
Screening: The authors outline how discrepancies regarding article selection will be addressed but
have not been explicit regarding how many authors (and who) will undertake title and abstract screening and full text screening is not outlined.

Quality appraisal: The authors outline that they will use either the CCAT or CASP and that ‘only papers above 25 [CCAT scores out of 40] will be accepted’. It would be more appropriate to use one quality appraisal tool across all studies and not exclude studies based on their score. Studies deemed lower quality may contribute useful findings to the review. Moreover, in terms of rigour, all quality appraisal should be undertaken independently by two authors and then compared before agreement reached.

Some minor grammatical errors noted as follows:
- Abstract-Background second last line QCM change to plural.
- Be consistent with the use of QCMs abbreviation or in full term.
- Data Synthesis-step 6 grammar -(5) names [sic] the themes.

Is the rationale for, and objectives of, the study clearly described?
Yes

Is the study design appropriate for the research question?
Yes

Are sufficient details of the methods provided to allow replication by others?
Yes

Are the datasets clearly presented in a useable and accessible format?
Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Maura Dowling: qualitative methodologies; qualitative evidence synthesis; concept analysis. Martina Giltenane: qualitative methodologies, modified Delphi, quality improvement and measurement.

We confirm that we have read this submission and believe that we have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however we have significant reservations, as outlined above.