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### Cover Page Footnote

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# The use of patient experience data for quality improvement in hospitals: A scoping review

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## Abstract

In this paper we identified what was reported in the literature on qualitative and quantitative approaches used to capture and improve patient experiences in a hospital setting. For inclusion, articles were required to describe an embedded strategy for capturing patient experiences that was used to inform quality improvement in a hospital setting. Articles also had to be published in English between January 2004 and December 2020. Six databases (MEDLINE, EMBASE, PsycINFO, CINAHL, Health and Psychosocial Instruments and Cochrane Library) and grey literature (relevant hospital and government websites) were searched. All articles were screened by two reviewers and any disagreements were resolved through consensus. Data were extracted from the included articles using a study-specific form in Microsoft Excel and synthesized using descriptive qualitative and quantitative approaches. Thirty articles were included in this scoping review. Patient experience data were captured through a variety of methods including surveys, focus groups, patient complaints and informal feedback, with the majority using formal, paper-based surveys. A wide range of quality improvement initiatives were implemented as a result of hospitals' patient experience data, but there was limited contextual information regarding the hospital settings and population characteristics. Initiatives implemented by a dedicated and multidisciplinary quality improvement team (nurses, administrators, physicians, etc.) generally demonstrated positive outcomes. We conclude that more work is needed to better understand how best to capture and use patient experience data for quality improvement, the contexts in which initiatives are successful and how to integrate patients and families in the ongoing implementation and evaluation processes.

## Keywords

Patient experience, patient satisfaction, measurement, HCAHPS, quality of care, healthcare, scoping review, quality improvement, hospital

## Introduction

Patient experience is increasingly being recognized as an important indicator of the quality of healthcare within hospitals and health systems.<sup>1</sup> Patient experience is associated with measures of patient safety and clinical effectiveness.<sup>2</sup> Measuring patient experience alongside these components provides a more comprehensive picture of healthcare quality,<sup>3,4</sup> and can highlight areas for improvement.<sup>5</sup> Patient experience encompasses the range of interactions patients have with the healthcare system, which may include several aspects of care delivery (e.g., patient-provider communication, wait times for appointments).<sup>4,6,7</sup> Patient experience is often used interchangeably with patient satisfaction (i.e., were patient expectations of a healthcare encounter met).<sup>4,6</sup> The distinction between these two terms and how they are related to one another has been debated, with some suggesting that patient experience is a determinant of satisfaction and vice versa.<sup>6,8,9</sup> Patient experience provides needed context to any assessment of patient satisfaction

and has also been described as being different from patient satisfaction altogether. In any case, given the historical, interchangeable use of the terms patient experience and patient satisfaction, we included both terms in our literature search to ensure that we captured all relevant articles.

The importance of capturing patient experience data is increasingly being emphasized within health systems for the purposes of improving care (typically framed as quality improvement in the healthcare setting).<sup>10-12</sup> Patient experience data can be gathered through various methods, such as questionnaires, phone surveys, interviews/focus groups or patient complaints/compliments.<sup>7</sup> Patient experience data has the potential to provide a better understanding of what happened during a patient's healthcare encounter,<sup>7</sup> help monitor hospital performance, inform quality improvement initiatives,<sup>5</sup> and help secure funding for research and innovation initiatives.<sup>5</sup> However, patient experience data are only useful if used to inform change or action to improve care delivery.<sup>13</sup> Simply

reporting on patient experience data will not translate into better patient experiences.<sup>6,14</sup> Using, and not just collecting, patient experience data is a fundamental component of a learning health system, which can be defined as a health system that draws on data systematically, with the purpose of using it to inform care improvements and contribute to system efficiencies. As a result, patients can get higher quality care.<sup>15</sup> For health systems to deliver their best value for their users, it is critical that we understand what is important to patients and caregivers, understand how to capture this information, and most importantly, how to use this information to improve the quality of care provided by our healthcare systems.

Most hospital organizations collect patient experience data through surveys distributed by vendor organizations that provide little support with interpretation of the data and guidance on how to act on the data in a useful way.<sup>16,17</sup> Lack of expertise in data analysis and quality improvement can be a barrier to interpreting the data and implementing quality improvement initiatives.<sup>16,17</sup> Also, survey responses may not be descriptive or actionable enough to provide meaningful information for hospital staff and leadership to drive improvement of patient experiences.<sup>18</sup>

Improving quality of care requires a multi-pronged, coordinated approach that can be sustained over time.<sup>6,13</sup> For example, Coulter et al., suggest bringing together patient experience data from multiple sources to complete a more in-depth analysis of patient experience, improve patient experience measurement methods, and determine how to ensure that the data are being used for quality improvement initiatives.<sup>13</sup> We conducted this scoping review to explore how hospitals gather patient experience data and how they use the data to improve care and patient experiences (if at all). The main research question guiding this review was: *What is reported in the literature regarding qualitative and quantitative approaches used to capture and improve patient experiences in a hospital setting?* Given the limited evidence of patient experience data being used to inform healthcare practices,<sup>6,16</sup> our aim was to scope and synthesize the literature to date and highlight examples of how patient experience data were used to inform quality improvement initiatives aimed at improving care.

## Methods

A scoping review was conducted to identify the nature, range and extent of available literature, summarize and disseminate findings to inform future policies and practices, and to identify any gaps in the literature.<sup>19</sup> The six stage methodological framework by Levac et al.<sup>20</sup> and reporting guidelines for scoping reviews (PRISMA-ScR; see Appendix 1) by Tricco et al.<sup>21</sup> were followed. A protocol was registered on Open Science Framework on December 15, 2020

### **Eligibility Criteria**

To be included in this scoping review, articles needed to: (1) include an embedded strategy for capturing patient experiences; (2) include a hospital setting; (3) use patient experience data to inform quality improvement; (4) be published from January 1, 2004, to December 16, 2020; (5) be peer-reviewed literature or grey literature; and (6) be published in English. An embedded strategy was defined as a method for capturing patient experiences that was in place prior to the study. We chose to include articles published over the past fifteen years to ensure relevancy to current practice.

If articles met any of the following criteria they were excluded: (7) opinion piece or protocol (editorials, letters, commentaries, books, comments); (8) included an intervention that was not the result of patient experience data; and (9) conference abstract or an article in which the full text was unavailable/inaccessible. We excluded articles that met criteria seven (opinion pieces or protocols) to avoid articles with potential personal biases, and to only include articles with published results. Interventions that were not implemented as a result of patient experience data (criteria eight) were excluded because we were interested in knowing how patient experience data were used to inform quality improvement.

### **Information Sources**

Six databases were searched on December 16, 2020: MEDLINE, EMBASE, PsycINFO, CINAHL, Health and Psychosocial Instruments and Cochrane Library. Database searches were supplemented by searching Google (using advanced searches), Open Grey, TSpace and the websites of relevant healthcare organizations (NHS, Health Canada). Grey literature was searched until September 2, 2021.

### **Search Strategy**

A search strategy was developed in consultation with two librarians at Trillium Health Partners (see Appendix 2 for the full MEDLINE search strategy), in which concepts related to patient experience (preference, satisfaction, attitude), measurement strategies (survey, questionnaire, interview), hospitals and quality (quality care, improvement, evaluation) were combined.

### **Selection Process**

Following Bramer's method,<sup>22</sup> articles were de-duplicated in EndNote X9 (reference manager software) and uploaded to Covidence for article screening. The core study team (KK, LC, AD, MM) conducted interrater screens in subsets of twenty-five titles and abstracts to ensure good agreement. All disagreements were discussed by the core study team in a virtual meeting until consensus was achieved, and minor revisions/ clarifications were made to the eligibility criteria. The remaining articles were

divided amongst the core team and screened by a single reviewer. After title and abstract screening, the core study team conducted an interrater screen of a subset of ten full-text articles to ensure good agreement. All articles included for full-text review were then screened by two reviewers. Disagreements were discussed until consensus was achieved.

### **Data Collection Process**

A study-specific, data extraction form was created in Microsoft Excel by the core study team (KK, LC, MM). The data extraction form was tested in a virtual meeting using one of the included full-text articles. This was an iterative process where data were extracted, and minor revisions were made to the extraction form. The core study team was responsible for independently and manually extracting data from all of the articles. A spot check of extracted data was conducted to ensure the extracted data was complete, accurate and consistent. Any incomplete, inaccurate or inconsistent information was updated and discussed in a virtual team meeting.

### **Data Items**

The data extraction form captured information on the study characteristics (e.g., objectives, methods, eligibility criteria, country, setting, outcomes), population characteristics (e.g., sample size, sex, gender, age, ethnicity), patient experience characteristics (e.g., name of experience measure, description, target population, type of measure, psychometric properties), quality improvement characteristics (e.g., quality improvement initiatives, description, content, method of delivery, frequency, duration), study outcomes (e.g., results, key findings) and conclusions.

### **Synthesis Methods**

Quantitative and qualitative approaches were undertaken to analyze the extracted data. Descriptive quantitative analyses included summarizing the articles based on their year of publication, country, study design, method for capturing patient experiences and type of quality improvement initiative. Based on the extracted data, we summarized the types of patient experience measurements, quality improvement initiatives and impact of quality improvement initiatives on patient experiences.

## **Results**

### **Article Identification**

The database searches identified 26,473 records. Following deduplication, the titles and abstracts of 19,417 articles were screened. 19,089 articles were excluded at this stage, leaving 328 articles for full-text review. The full texts of fifteen articles could not be retrieved, therefore 313 articles were assessed for eligibility. Twenty-six articles met all criteria for inclusion. Through searching grey literature and reviewing the references lists of relevant systematic,

scoping and literature reviews, an additional twenty-two potential articles were identified. Twenty of these were retrieved and screened, with four meeting all eligibility criteria. Therefore, thirty articles were included in this scoping review (see Figure 1).

### **Article Characteristics**

Studies were conducted in six countries, including: the United States (n=21), the United Kingdom (n=3), Brazil (n=1), New Zealand (n=1), India (n=1) and Spain (n=1). From 2000 to 2020, there was a fairly even distribution of articles based on their year of publication. Of the 30 included articles, the majority were quantitative (n=15), followed by qualitative (n=8), mixed methods (n=5) and summaries of quality improvement initiatives (n=2). Most study designs were case studies or quality improvement initiatives. Since most studies were quality improvement initiatives, specific characteristics of the populations were not reported (Table 1 in Appendix 3).

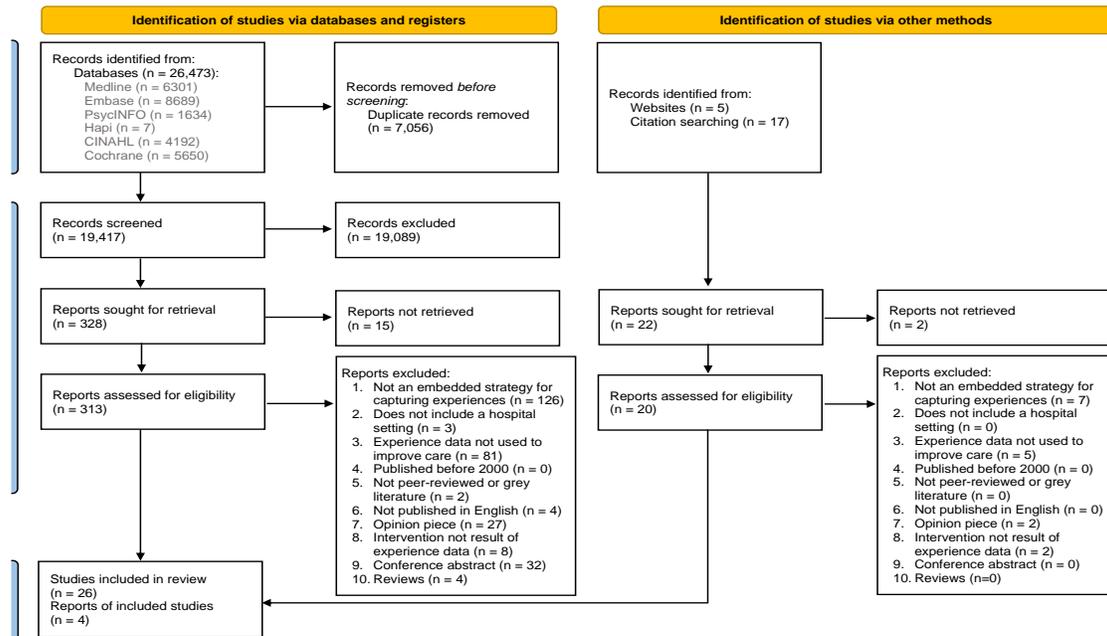
### **Patient Experience Measurements**

Patient experiences were measured using a variety of different assessments, typically surveys, including generic surveys (n=11), the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS, n=9), Press Ganey (patient satisfaction survey; n=6) and Picker Survey (patient experience questionnaire; n=3). Twelve other measures for capturing experiences were identified and included: the Survey of Healthcare Experiences of Patients,<sup>23</sup> Service Quality in Hospitals Questionnaire,<sup>24</sup> Measurement Framework,<sup>25</sup> Real-time Patient Satisfaction Survey,<sup>26</sup> National Health Service Patient Experiences Survey,<sup>27</sup> Patient Comment Cards,<sup>28</sup> Sisters' Development Days (monthly meetings where discharged patients discussed their care experiences),<sup>29</sup> Ambulatory Care Experiences Survey,<sup>30</sup> Voice of the Customer Survey,<sup>31</sup> patient workshops,<sup>32</sup> informal feedback,<sup>33,34</sup> and patient complaints.<sup>29,33,35,36</sup> Four articles also described using focus groups, interviews or observations to qualitatively capture patient experiences in addition to quantitative surveys.<sup>26,29,33,37</sup> Eleven articles used multiple methods (both quantitative or quantitative and qualitative) for capturing patient experiences. The patient experience assessments were typically completed on paper, but other methods also included telephone, online and in-person.

### **Quality Improvement**

The majority of quality improvement initiatives were identified as being at the unit-level within hospitals, rather than the system-level (e.g., infrastructure, policies, guidelines, etc. within the healthcare system). Specific quality improvement methods used to implement

Figure 1. PRISMA 2020 flow diagram of included articles



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: <http://www.prisma-statement.org/>

initiatives were not frequently reported; however, some articles mentioned use of plan, do, study, act (PDSA) cycles,<sup>30,34,36</sup> the Ishikawa diagram,<sup>34</sup> Pareto chart,<sup>34</sup> or Lean principles/methods.<sup>38</sup> Patient experience quality improvement initiatives were focused on the following areas: patient comfort and services (e.g., cleanliness, food, noise reduction, visiting hours), patient and provider communication (e.g., bedside charting, multidisciplinary and walking rounds, patient-centered communication, information sharing), provider attitudes, behaviour and care delivery (e.g., staff courtesy, physician and nursing care, physician engagement, friendly demeanor and caring attitude), system information, navigation and education for patients (e.g., patient navigator program, comprehensive discharge information packets, post-discharge phone calls, revising information and amenity guides), staff training, education and culture (e.g., staff development, director courses, relationship building, leadership in culture change, increased/new staffing) and other (e.g., data transparency, workplace organization).

### Impact of Patient Experience Data on Quality Improvement

The majority of quality improvement initiatives were implemented as a result of declining patient experience or patient satisfaction scores on a unit or within a specific hospital, scores below state or national averages, or the results of surveys being publicly released. The process in which patient experience data were used to develop and

implement quality improvement initiatives was not well described across the included articles. However, of those that did describe the process, most developed working groups (i.e., multidisciplinary teams, task forces) to identify targeted improvement efforts. Lee and colleagues described a seven year exceptional patient experience initiative, with implementation of quality improvement initiatives driven by working groups.<sup>39</sup> The target areas of improvement were identified during a leadership retreat, using patient stories and patient experience survey results (Press Ganey and HCAHPS). Working groups, led by faculty members and administrators, were then created to address the main causes of patient complaints or factors impacting quality of care and overall experiences. Over the seven-year initiative, patient satisfaction increased significantly, with additional improvements in overall quality, risk management and employee satisfaction. Similarly, Allen and colleagues created a complaint management team as a method of capturing, coding, analyzing and acting on patient complaints received on the open-ended section of their generic patient satisfaction survey.<sup>40</sup> This team was responsible for defining the complaints, creating categories of complaints, designing a method for reporting and providing feedback and understanding how complaints could be used to support quality improvement efforts. Specific teams were then developed to design and implement quality improvement efforts specific to the main categories of complaints – parking, food, cleanliness, and noise. The majority of

working groups did not incorporate patients and families as members.

## Discussion

The purpose of this scoping review was to examine what was reported in the literature on qualitative and quantitative approaches used to capture and improve patient experiences in a hospital setting. Based on the 30 included articles, our findings highlighted that (1) current methods for capturing experiences vary, but should be multidimensional; (2) there was a wide range of quality improvement initiatives implemented, but future work should consider applying an implementation science approach in order to better understand the contextual factors contributing to positive outcomes; (3) dedicated quality improvement teams were beneficial in supporting implementation of initiatives, but increased integration of patients and families on these teams is needed; and as an extension of our findings we conclude that (4) collecting and using patient experience data is a fundamental component of a learning health system.

Patient experience data were captured through a variety of methods including surveys, focus groups, patient complaints and informal feedback; however, the majority of included articles used formal, paper-based surveys. These findings are similar to a review conducted by Maxwell on the use of patient experience data in different National Health Service settings in the United Kingdom.<sup>41</sup> More generalizable and less descriptive methods of collecting patient feedback (e.g., surveys, comment cards) were identified more frequently than less generalizable but more descriptive methods (e.g., patient stories, complaints). While quantitative surveys are the most common method for capturing patient experiences in hospital, they often lack important contextual information about why patients and families feel a certain way. A total of eleven articles in our scoping review described using multiple methods for collecting patient experiences, and only four articles supplemented the use of quantitative surveys with qualitative data collection in the form of focus groups, interviews or observations.<sup>26,29,33,37</sup> Qualitative data is often used to help interpret and understand quantitative data.<sup>42</sup> It has the potential to enhance hospital administrators' understanding of their patient experience data by discovering why patients or families may have experienced things a certain way.<sup>43</sup> Therefore, in order to develop a more comprehensive and holistic understanding of patient experiences, which will also help create more targeted improvement efforts, hospitals should consider using multidimensional approaches to collecting and using patient experience data.<sup>41</sup>

The second key finding was the wide range of quality improvement initiatives implemented as a result of

hospitals' patient experience data, but limited information on how initiatives were implemented, as well as contextual information (settings and population characteristics). The quality improvement initiatives described in the articles were categorized into the following domains: communication, patient comfort and services, provider attitudes, behaviour and care delivery, system information, navigation and education, staff training, education and culture and other (e.g., data transparency, modifying patient rehabilitation goals, workplace organization). Many of these initiatives led to improved patient experience scores; however, with limited reporting of the populations' sociodemographic and clinical characteristics, the uptake and transferability of initiatives may also be limited. It is not enough to simply understand if a quality improvement initiative works, but why it works.<sup>44</sup> To facilitate knowledge exchange and promote the uptake of quality improvement initiatives across units, hospitals and other health systems, it is critical to understand the context (setting and population) in which initiatives have positive or negative outcomes. This highlights a unique opportunity for future exploration, understanding why quality improvement initiatives work, as well as barriers and facilitators to implementation.

We found that many quality improvement initiatives were implemented because of declining scores on a unit or within a specific hospital, scores below state or national averages, or the results of surveys being publicly released, but there was a paucity of information on the actual process from collecting data to implementing and assessing the quality improvement initiatives. Of those that described this process, it was apparent having a dedicated team that was responsible for the development, implementation and monitoring of the quality improvement initiative was beneficial. The composition and functioning of these teams has not been well documented, but Montgomery and colleagues recently conducted a focused ethnography to explore the functioning of healthcare teams working on quality improvement initiatives.<sup>45</sup> Teams that contained both clinical and non-clinical staff (e.g., healthcare assistants, clerks, senior managers, consultants) showed greater progress, more confidence engaging with the data, and implemented more ambitious projects than those with just clinical staff. The authors noted the importance of 'team capital' or involving individuals across all levels of the healthcare hierarchy for increased access to resources (economic capital), networks (social capital), visibility and support through involvement of individuals with reputation or status (symbolic capital), and those who could provide insight into patient experiences and contribute to the overall goals of the quality improvement initiative (cultural capital). Patients and families were not included as members on these teams, which is similar to the findings from our scoping review. In most cases, articles did not report the involvement of patients or

families as part of the quality improvement teams focused on implementing initiatives to improve patient experiences. Few exceptions were identified, as Gomez Martin et al. included patient-identified needs as part of their areas of improvement to address,<sup>24</sup> Parr and colleagues included a consumer representative on their steering committee<sup>25</sup> and Reeves and Secombe involved patients in a root cause analysis to obtain additional information.<sup>27</sup> Patients and caregivers should be integrated as equal members of quality improvement teams focused on improving patient experience, as they can provide valuable insights based on first-hand experience and will enhance the range of ‘team capital’.<sup>45</sup> Collaborative teams, including the involvement of patients and caregivers, can facilitate the collection of rich insights into patient experience through collective sense-making of data, as well as ensure that initiatives are focused on what matters to them.<sup>46,47</sup>

Our scoping review suggests that there is broad consensus in the literature that it is important to act on patient experience data (consistent with the goals of a learning health system), but the few examples of *how* these data are actioned suggests that we are not quite at the stage where learning health systems have become operational within health systems, particularly with patient experience data as a core input.

### Limitations

There are a few limitations of this scoping review to be noted. First, despite a comprehensive search strategy and grey literature search, it is possible that relevant articles were missed. We limited the inclusion of articles from 2004 to 2020 and to the English language, so articles published prior to January 1, 2004, or in a different language were not included in this review. Second, despite not being a requirement of scoping reviews,<sup>48</sup> a critical appraisal of the included initiatives was not conducted. Therefore, we cannot make specific recommendations on which quality improvement initiatives should be implemented to improve patient experiences.

### Conclusions

This scoping review highlighted articles that used patient experience data for quality improvement initiatives in hospital. We identified a number of methods for capturing patient experiences, with the most common being standardized quantitative surveys. The quality improvement initiatives targeted a wide range of topics, and when implemented by a quality improvement team who had time to make sense of the data and work together, initiatives generally had positive results. More work is needed to better understand the complex process from gathering data to implementing and evaluating the impact of initiatives, the context in which initiatives are

successful and how to integrate patients and families in the implementation and evaluation of initiatives.

### Acknowledgements

We would like to thank Dr. Robert Reid and Dr. Simona Minotti for their contributions to the protocol development and considerations for the search strategy. We would also like to thank Jane Sandercock for her contributions to team discussions and reviewing tables and Aditi Desai who supported the screening of articles.

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## Appendix 1

### Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
<b>TITLE</b>			
Title	1	Identify the report as a scoping review.	Page 1
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	Page 1
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	Pages 1-2
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	Page 2
<b>METHODS</b>			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	Page 2
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	Pages 2
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	Page 52
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Page 2 and supplemental table
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	Pages 2-3
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	Page 3
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	Page 3
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	N/A
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	Page 3
<b>RESULTS</b>			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	Page 3
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Pages 3

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	N/A
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Table 1 (Appendix 3)
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	Pages 3-5
<b>DISCUSSION</b>			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	Pages 5-6
Limitations	20	Discuss the limitations of the scoping review process.	Page 6
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	Page 6
<b>FUNDING</b>			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	Page 6

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

\* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med.* 2018;169:467–473. doi: 10.7326/M18-0850.

## Appendix 2

### MEDLINE Search Strategy

#	Search Term
1	Patients/ OR inpatients/
2	(Patient* OR in?patient* OR client*).ti,ab
3	1 OR 2
4	Patient Satisfaction/ OR patient preference/ OR attitude to health/ OR patient-centered care/ OR delivery of health care/
5	(Patient* OR in?patient* OR client*) ADJ3 (Experienc* OR prefer* OR attitude* OR patient reported experience measure OR prem OR perspectiv* OR perception* OR expect* OR belie* OR view* OR feedback* OR percei* OR opinion* OR participat* OR conversation*).tw,kf
6	4 OR 5
7	Hospitals/ OR community hospitals/ OR general hospitals/ OR group practice hospitals/ OR high-volume hospitals/ OR low-volume hospitals/ OR exp private hospitals/ OR exp public hospitals/ OR rural hospitals/ OR satellite hospitals/ OR osteopathic hospitals/ OR exp teaching hospitals/ OR exp urban hospitals/ OR secondary care centres/
8	(Hospital*).tw,kf
9	7 OR 8
10	Surveys/ OR questionnaires/ OR health care surveys/ OR Patient Reported Outcome Measures/ OR patient outcome assessment/ OR Health Impact Assessment/ OR Interviews as Topic/ OR focus groups/ OR self report/ OR narration/ OR narrative medicine/
11	(Survey* OR questionnaire* OR interview* OR assess* OR focus?group* OR narrat* OR self?report*).tw,kf
12	10 OR 11
13	"Quality of Health Care"/ OR Health Care Process Assessment/ OR Total Quality Management/ OR Quality Improvement/
14	((quality or perform*) ADJ3 (care or health?care or improv* or assurance or indicat* or evaluat* or enhanc* or manage*).tw,kf
15	13 OR 14
16	3 AND 6 AND 9 AND 12 AND 15
17	exp animals/ not humans/
18	16 NOT 17
19	limit 18 to English language
20	limit 19 to yr="2000 -Current"

Total Results: 6,301

## Appendix 3

Table 1. Characteristics of Included Articles (n=30)

Author (year)	Country	Objective	Methodology (Study Design)	Key Findings
Aboumatar et al. (2015) <sup>49</sup>	United States	<ul style="list-style-type: none"> <li>To explore interventions that hospitals with high performing Hospital Consumer Assessment of Health Care Providers and Systems (HCAHPS) scores have implemented to improve patient experience</li> </ul>	Mixed Methods  Online Survey	<ul style="list-style-type: none"> <li>Hospitals with high performing HCAHPS scores used multi-level, patient-centred processes to address individual patient preferences and needs</li> </ul>
Allen et al. (2000) <sup>40</sup>	United States	<ul style="list-style-type: none"> <li>To describe the process for capturing, coding and analyzing patient complaints received from satisfaction surveys</li> </ul>	Mixed Methods  Quality Improvement Initiative	<ul style="list-style-type: none"> <li>Most complaints were related to accommodations, care quality, respect/caring, timeliness and communication</li> <li>Complaint tracking allows for targeted improvement efforts based on qualitative and quantitative data</li> </ul>
Barr et al. (2006) <sup>50</sup>	United States	<ul style="list-style-type: none"> <li>To explore how public reporting of patient satisfaction impacts quality improvement in hospitals</li> </ul>	Qualitative  Study design not reported	<ul style="list-style-type: none"> <li>Public reporting of patient satisfaction can improve quality improvement efforts in hospital</li> </ul>
Berger et al. (2020) <sup>34</sup>	Brazil	<ul style="list-style-type: none"> <li>To explore the use of patient feedback for improving quality of care in hospital</li> </ul>	Qualitative  Exploratory, Qualitative Multiple Case Study	<ul style="list-style-type: none"> <li>The use of patient feedback to guide quality improvement should involve: a health team, multiple methods of obtaining feedback and the use of quality tools</li> </ul>
Chaplin et al. (2015) <sup>51</sup>	United Kingdom	<ul style="list-style-type: none"> <li>To assess the impact of a quality improvement program (Quality Mark) on the experiences and quality of care</li> </ul>	Quantitative  Study design not reported	<ul style="list-style-type: none"> <li>The Quality Mark program improved care quality ratings in most areas</li> </ul>
Davies et al. (2011) <sup>23</sup>	United States	<ul style="list-style-type: none"> <li>To assess factors impacting care experiences in order to improve them</li> </ul>	Qualitative  Study design not reported	<ul style="list-style-type: none"> <li>Survey data on care experiences can be used to guide quality improvement initiatives</li> <li>Facilitators for using data for quality improvement included: patient-centred culture, regular data review, triangulation of survey data with other methods</li> </ul>
Deitrick et al. (2007) <sup>52</sup>	United States	<ul style="list-style-type: none"> <li>To improve inpatient Press Ganey (patient satisfaction) scores and promote patient satisfaction and loyalty</li> </ul>	Qualitative  Ethnographic Case Study	<ul style="list-style-type: none"> <li>Patient satisfaction and loyalty increased by 24%, driven by creating a caring and compassionate culture</li> </ul>
Friedberg et al. (2011) <sup>12</sup>	United States	<ul style="list-style-type: none"> <li>To identify if and how physician groups in Massachusetts use patient experience data to improve care</li> </ul>	Qualitative  Study design not reported	<ul style="list-style-type: none"> <li>The use of patient experience data by physician groups varied, but initiatives commonly targeted patient access, workplace processes and communication</li> </ul>
Gomez Martin et al. (2019) <sup>24</sup>	Spain	<ul style="list-style-type: none"> <li>To assess patient satisfaction and note areas for improvement</li> </ul>	Mixed Methods  Kano Methodology	<ul style="list-style-type: none"> <li>Subjective quality was rated more highly (personal attention, courtesy, willingness to help, trust and confidence) than objective quality (room conditions, ability to get to hospital, directions, employee appearance)</li> <li>Overall, patients were highly satisfied with care</li> </ul>

**Table 1. Characteristics of Included Articles (n=30) (Cont'd.)**

<b>Author (year)</b>	<b>Country</b>	<b>Objective</b>	<b>Methodology (Study Design)</b>	<b>Key Findings</b>
		•		•
Hedges et al. (2019) <sup>53</sup>	United States	• To improve patient experience HCAHPS scores for quietness through the implementation of a quiet time initiative	Quantitative  Quality Improvement Initiative	• The quiet time initiative improved patient satisfaction with quietness on both units
Kane et al. (2015) <sup>38</sup>	United States	• To report the impact of an emergency department performance improvement initiative on throughput and patient satisfaction	Quantitative  Performance Improvement Initiative	• The initiative improved hospital throughput (length of stay, time to see doctor, time from disposition to transfer) and patient satisfaction
Kushell et al. (2007) <sup>37</sup>	United States	• To improve patient satisfaction scores on units with the lowest ratings	Quantitative  Study design not reported	• Patient satisfaction scores improved initially, but were not sustained over time
Lee et al. (2016) <sup>39</sup>	United States	• To describe a 7-year initiative (Exceptional Patient Experience) implemented to change system culture and improve experiences	Quantitative  Quality Improvement Initiative	• Patient satisfaction significantly improved, with no negative impacts on quality, risk management or employee satisfaction
Lee et al. (2018) <sup>35</sup>	United Kingdom	• To explore how patient feedback is used to develop strategies to improve care quality	Qualitative  Study design not reported	• Quantitative and qualitative feedback was used to develop targets for quality improvement, but ongoing feedback should be used to monitor progress
Locock et al. (2020) <sup>33</sup>	United Kingdom	• To explore how frontline providers use patient experience data to improve care	Qualitative  Ethnography	• Teams interpreted formal and informal sources of patient feedback to help guide the implementation of initiatives
Macrino and Roeder (2000) <sup>54</sup>	United States	• To describe how a hospital used a patient survey to identify and address service issues	Methods Not Reported  Quality Improvement Initiative	• Patient satisfaction increased, as well as improved communication, staff and physician satisfaction and staff productivity
McFarlan et al. (2019) <sup>55</sup>	United States	• To examine the effects of nursing and leader rounds on patient experience in the emergency department	Quantitative  Study design not reported	• Patient experiences with emergency care increased through nursing and leader rounds
Nash et al. (2010) <sup>56</sup>	United States	• To describe the use of a data-driven strategy to improve patient satisfaction	Quantitative  Retrospective Study	• The data-driven strategy and use of reporting tools (dashboards, scorecards) resulted in improved patient experience and satisfaction
Parr et al. (2018) <sup>25</sup>	New Zealand	• To describe the development and implementation of a quality improvement initiative	Mixed Methods  Quality Improvement Initiative	• Overall improvements were seen on the majority of units
Pottenger et al. (2016) <sup>57</sup>	United States	• To improve patient experience by targeting care transitions and discharge processes with Comprehensive Unit-based Safety Program (CUSP) teams	Quantitative  Time Series Study Design	• Patient experience was improved by the CUSP teams

**Table 1. Characteristics of Included Articles (n=30) (Cont'd.)**

<b>Author (year)</b>	<b>Country</b>	<b>Objective</b>	<b>Methodology (Study Design)</b>	<b>Key Findings</b>
Quigley et al. (2010) <sup>36</sup>	United States	<ul style="list-style-type: none"> <li>To describe the implementation of a quality improvement initiative targeted at improving emotional support</li> </ul>	Quantitative Case Study	<ul style="list-style-type: none"> <li>Patient care and patient experiences were improved through providing emotional support to patients</li> </ul>
Quinn et al. (2004) <sup>26</sup>	United States	<ul style="list-style-type: none"> <li>To describe the implementation of a real-time assessment of patient and staff satisfaction</li> </ul>	Mixed Methods Case Study	<ul style="list-style-type: none"> <li>The program was effective for ongoing goal-setting and accountability</li> <li>Food temperature satisfaction improved</li> </ul>
Reeves and Seccombe (2008) <sup>27</sup>	United Kingdom	<ul style="list-style-type: none"> <li>To explore perceptions of the national patient survey program, identify how results are used and assess factors impacting the use of survey results</li> </ul>	Qualitative Descriptive	<ul style="list-style-type: none"> <li>Attitudes and beliefs towards the survey were positive, specifically in response to the traffic light charts</li> </ul>
Robinson and Watters (2010) <sup>58</sup>	United States	<ul style="list-style-type: none"> <li>To describe the development and implementation of a Patient Navigator program designed to improve patient experience</li> </ul>	Quantitative Quality Improvement Initiative	<ul style="list-style-type: none"> <li>Results indicated a sustained improvement in patient and visitor experiences</li> </ul>
Scalise (2005) <sup>59</sup>	United States	<ul style="list-style-type: none"> <li>NR</li> </ul>	Neither Quality Improvement Initiative	<ul style="list-style-type: none"> <li>Improved patient and staff satisfaction, including rewards for positive patient satisfaction (pizza parties, picnics and prizes)</li> </ul>
Shaller Consulting Group and Ferrari (2011) <sup>30</sup>	United States	<ul style="list-style-type: none"> <li>To present three cases (practices) and how they improved different aspects of care (communication, access and health promotion, customer service and access)</li> </ul>	Quantitative Case Study	<ul style="list-style-type: none"> <li>All cases demonstrated improvement in their respective areas and identified the following factors as contributing to their success: combined micro and macro approaches, strong leadership, need for patient survey data and alignment with organizational goals</li> </ul>
Smith et al. (2000) <sup>60</sup>	United States	<ul style="list-style-type: none"> <li>To improve care delivery through the development and implementation of quality measurement initiatives</li> </ul>	Quantitative Study design not reported	<ul style="list-style-type: none"> <li>Public accountability is supported by continuous quality improvement and engagement of providers as partners in all aspects of measurement and reporting process</li> </ul>
Triolo et al. (2002) <sup>28</sup>	United States	<ul style="list-style-type: none"> <li>To describe a performance strategy aimed at improving patient satisfaction scores</li> </ul>	Quantitative Case Study	<ul style="list-style-type: none"> <li>Patient satisfaction improved over the six-month period</li> </ul>
Uberoi et al. (2013) <sup>31</sup>	India	To describe the Voice of Customers survey and its use for improving services in hospital	Quantitative Quality Improvement Initiative	<ul style="list-style-type: none"> <li>Voice of Customers (experience) scores significantly improved with regular monitoring</li> </ul>
Williams (2002) <sup>29</sup>	United Kingdom	<ul style="list-style-type: none"> <li>NR</li> </ul>	Quantitative Quality Improvement Initiative	<ul style="list-style-type: none"> <li>The feedback of patient experience data to staff was helpful in improving care and services</li> </ul>

Abbreviations: NR = not reported