

## A systematic review of criteria-led patient discharge

Lees-Deutsch, Liz; Robinson, Jane

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# A Systematic Review of Criteria-Led Patient Discharge

[AQ] Liz Lees-Deutsch, MSc, Dip HSM, RN; Jane Robinson, BSc, RN

## ABSTRACT

**Background:** This article reports on a systematic review conducted to critique safety, quality, length of stay, and implementation factors regarding criteria-led discharge.




**Purpose:** Improving patient flow and timely bed capacity is a global issue. Criteria-led discharge enables accelerated patient discharge in accordance with patient selection.

**Methods:** A systematic review was conducted to identify literature on criteria-led discharge from 2007 to 2017. The quality of articles was appraised using a tool for disparate studies. Two reviewers extracted relevant data independently.

**Results:** Fifteen studies were identified that showed no increase in patient readmission or complication rates with criteria-led discharge, demonstrating patient safety. The quality of the patient discharge was unremarkable. None of the studies showed an increase in length of stay.

**Conclusions:** The safety, quality, and length of stay for patients discharged through criteria-led discharge are inextricably linked to the process adopted for its implementation.

**Key words:** criteria-led discharge, discharge, patient discharge, patient safety, patient selection

 Increasing patient admissions to hospitals  pressure on providing adequate beds and have  been a catalyst for new approaches to expedite patient discharge.<sup>1</sup> One approach is criteria-led discharge (CLD), which focuses on the clinical optimization (discharge readiness) of the patient.<sup>2</sup> Internationally, criteria for patient discharge have been developed for elective and emergency environments. For elective procedures, the criteria for patient discharge are focused primarily on reducing unnecessary length of inpatient stay and to create bed capacity earlier in the day. In emergency care, criteria for patient discharge have been used by some inpatient wards to enable the timely transfer of

patients (awaiting beds) from the emergency department.<sup>3</sup> In each, the clinical criteria (parameters) for safe patient discharge are determined by the lead clinician and the health care team.

The principal function of criteria in the process of patient discharge is to assist appropriate patient selection within defined medical, nursing, and therapy parameters.<sup>4</sup> In the international literature, CLD is an approach referred to interchangeably with nurse-led and nurse-facilitated discharge from hospital.<sup>4,5</sup> The term “criteria-led” expands the scope of professionals permitted to lead the patient’s discharge, beyond that of nurses, to the most appropriate registered health care professional.<sup>5,6</sup> Criteria for patient discharge are identified according to clinical guidelines or best practice for particular conditions. In situations where patients have multiple conditions/issues, criteria for discharge are individualized according to circumstances.<sup>6</sup> Criteria or a protocol is explicitly introduced to the usual patient discharge process, where possible (electively) before the patient is admitted. Criteria assist patient selection for discharge and enable a transparent discharge process throughout the health care team (including the patient). They indicate when specific indicated clinical milestones have or have not been reached. This means when criteria for patient discharge are in place, the lead clinician does not need to direct when patients can be safely discharged from

**Author Affiliations:** The Heart of England NHS Foundation Trust, Birmingham, West Midlands, United Kingdom (Ms Lees-Deutsch); The University of Birmingham, Birmingham, West Midlands, United Kingdom (Ms Lees-Deutsch); Society for Acute Medicine, Edinburgh, United Kingdom (Ms Lees-Deutsch); National Health Service Improvement, London, United Kingdom (Ms Robinson); and Royal College of Nursing, London, United Kingdom (Ms Robinson).

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**Correspondence:** Liz Lees-Deutsch, MSc, Dip HSM, RN, The Heart of England NHS Foundation Trust, Bordesley Green, Birmingham B9 5SS, West Midlands, United Kingdom ([liz.lees-deutsch@nhs.net](mailto:liz.lees-deutsch@nhs.net)).

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hospital. The purpose of this systematic review was to critique the safety, quality, and length of stay related to CLD and factors facilitating it.

## BACKGROUND

The implementation of CLD in surgical settings dates back to 1992,<sup>7</sup> with subsequent patient discharge policies being developed internationally. Criteria have been used across the continuum of care, from preadmission to outpatients to postdischarge.<sup>8,9</sup> Bryant and Hopper<sup>8</sup> used criteria to aid decision making prior to a patient's admission, regarding possible alternatives to admission, whereas Turner et al<sup>9</sup> developed criteria based on respiratory outpatient attendances to optimize clinic bookings following discharge. Criteria have even aided the large-scale evacuation of patients from hospitals during instances of national emergency.<sup>10</sup> While 2 reviews of CLD literature were identified, which provided thematic<sup>11</sup> and pediatric perspectives,<sup>12</sup> and a care bundle for patient discharge in the United Kingdom launched by National Health Service Improvement,<sup>13</sup> namely, SAFER (senior review, all patients, flow, early, review), where CLD was a core element, the safety and quality of patient discharge and impact of CLD on length of stay were not described.

## REVIEW

This review is reported in accordance with the relevant points of the ENTREQ process statement.<sup>14</sup> A systematic search of the literature was conducted according to the University of York's Centre for Reviews and Dissemination guidelines.<sup>15</sup> The Population, Intervention, Comparison, Outcome (PICO) framework focused the purpose of the review (see Supplemental Digital Content, Table 1, available at: <http://links.lww.com/JNCQ/A478>). Results are displayed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) process.<sup>16</sup>

## Search methods

Electronic searches were conducted with the assistance of a trained librarian using the databases of PubMed, CINAHL, EMBASE, and the Cochrane Library, employing different search terms and Boolean combinations (see Supplemental Digital Content, Table 2, available at: <http://links.lww.com/JNCQ/A479>). In addition, the reference lists from the included articles were

searched. The search was limited to articles published in English language from 2007 to 2017 to ensure the evidence was contemporary.

## Search outcome

Seventy-two records were identified. The first author reviewed the title of each record and excluded duplicates ( $n = 12$ ). Both authors independently assessed the titles and abstracts of each potential study ( $n = 60$ ). The full texts of 22 articles were investigated in accordance to the inclusion criteria, resulting in 12 eligible studies. The reference lists of the 12 included full-text articles yielded ~~a further 3~~ relevant studies ( $n = 15$ ). Studies were excluded if they did not contain quantifiable evaluation/outcomes, no change had been introduced to the existing discharge process to include criteria, they were not available in English, and a purchase cost was required to access ( $n = 1$ ). A description of the search outcome was based on the flow diagram of the PRISMA<sup>16</sup> statement shown in Supplemental Digital Content, Figure 1 (available at: <http://links.lww.com/JNCQ/A480>).

## Quality appraisal

The quality of each included study ( $n = 15$ ) was appraised by the authors using the Hawker et al<sup>17</sup> appraisal tool for disparate studies. The tool has 9 domains, each domain having 4 possible scores ranging from 1 (very poor) to 4 (very good), with 36 being the maximum score possible. A minimum score of 18 (midpoint) was decided as eligible for inclusion. Both reviewers independently scored the studies; the scores ranged from 25 to 36. Concordance of scoring was achieved with the exception of 2 studies; the authors discussed this disparity and reached a consensus. None of the 15 studies selected were excluded on the basis of poor quality.

## Data extraction, abstraction, and synthesis

Each included article ( $n = 15$ ) was read and summarized by both authors, and data were independently extracted using an extraction tool based on the 4 questions of the review: (1) To what extent does the literature indicate that CLD is safe? (2) To what extent do discharges guided by criteria contribute to an improved quality of patient experience? (3) To what extent do discharges guided by criteria contribute to a reduction in length of patient stay in hospital? (4) What are the facilitators to implementing CLD?

## RESULTS

Study characteristics were extracted, tabulated, and synthesized (see Supplemental Digital Content, Table 3, available at: <http://links.lww.com/JNCQ/A481>).

### Review question 1: Safety of CLD

Four articles (n = 15) provided empirical data regarding the safety of using criteria to guide patient discharge.<sup>18-21</sup> Safety measures were described as follows: health care team agreement regarding clinical CLD protocols, staff training/preparation for CLD, patient information about CLD, patient follow-up (postdischarge), and monitoring patient readmissions following CLD. None of the studies found that readmission rates for patients discharged using CLD were increased.

Bowen et al<sup>19</sup> aimed to improve the efficiency of simple discharges without compromising patient safety through a protocol developed by the health care team. This enabled the discharge of patients by nurses without further review of a physician. Measures of safety were robust patient selection and the attainment of specific postoperative goals (milestones). Patient selection was undertaken according to the discharge protocol and accurately identified patients who were unsuitable for nurse-led discharge. This was described as a “safe system with multiple checkpoints”<sup>18(p113)</sup>; if the patient met all of their clinical goals, with the nurses and patients satisfied, discharge proceeded.

Gotz et al<sup>20</sup> developed patient discharge protocols for patients presenting with headache, chest pain, or deliberate self-poisoning at a clinical decision unit, an area where rapid patient assessment/investigations and observation were undertaken, with the aim of avoiding admission to hospital. Using the Delphi method, consensus was achieved and aided the development of the individual protocols. Patient information leaflets also supported patient discharges. None of the patients discharged by nurses (n = 146) were readmitted to the unit within a 30-day period following their initial attendance.<sup>20(p162)</sup> Kasthuri et al<sup>21</sup> developed nurse-led discharge and concluded that the use of specialist nurse support and aftercare (through follow-up phone calls, postdischarge) was important to patient safety. Education to the support staff was a major feature throughout the literature to execute safe practice for discharge.<sup>18-23</sup> Measures to monitor

outcomes related to safety hospital-wide were only described by Lees and Field<sup>23</sup> by using an “electronic dashboard” where data were collated and reported to the hospital board of directors.

Issues viewed contrary to patient safety were postoperative complication rates,<sup>21</sup> readmissions,<sup>24</sup> and poor/absent methods monitoring outcomes.<sup>25</sup> Cundy et al<sup>18</sup> measured complication rates for children with uncomplicated appendicitis, which demonstrated no significant increase. The protocol maintained “existing low morbidity,” although 2 patients were withdrawn, as expedited postoperative care protocols were noted as not applicable to all patients. In cases of laparoscopic interventions, Graham et al<sup>25</sup> identified that contacts postdischarge in primary care and readmission rates were not increased.

### Review question 2: Patient satisfaction with CLD

Only 2 studies measured patient satisfaction/experience from the CLD process.<sup>22,26</sup> Webster et al<sup>22</sup> established satisfaction using a scale rated from 1 to 100, where 95.4% overall mean satisfaction was reported, and by comparison with usual care, no reduction in quality was identified. Although positive satisfaction was mainly reported, some patients were not satisfied, with one patient stating, “they felt as though they were rushed out.”<sup>22(p1177)</sup> Despite this, positive experiences were reported. Gibbens<sup>26</sup> used an established system from the NHS including satisfaction feedback cards; while empirical data were not presented, the author cited examples of feedback as “no complaints” and “excellent professional child centered care.”<sup>26(p18)</sup>

Cundy et al emphasized that “there must be careful consideration of potential compromises in patient and parent acceptability, as well as overall quality of care”<sup>18(p274)</sup> when using CLD. Maher<sup>24</sup> described measures of satisfaction, using an established satisfaction tool. In 3 of the studies, patient experience was not formally assessed.<sup>21-22,27</sup> Similarly, Lawton<sup>27</sup> stated that although CLD had not been audited, anecdotally there was positive feedback. The remaining 6 studies included 2 reviews of CLD<sup>11-12</sup> where improved patient experience did not emerge. Equally, in 3 further studies,<sup>25,26,28</sup> patient satisfaction was not an outcome measure and the analysis of retrospective data precluded measurement of satisfaction in 1 study.<sup>28</sup>

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Despite what appears to be a relatively low profile for patient satisfaction, both toolkits reviewed<sup>2,3</sup> provide systems to explore patient experience. The first toolkit describes “a patient tracker system”<sup>2(p16)</sup> that includes 5 questions focused on exploring the patient’s experience; the second toolkit<sup>3</sup> provides outcome measures for nurse-led discharge, which include patient satisfaction. Hence, the quality of patient experience should be integral to studies on CLD. Audit data are prerequisite to making improvements to the discharge process. Comparison of CLD with the original process of patient discharge is necessary to demonstrate possible improvements. One article emphasized that nurse-led discharge will not have an effect on satisfaction until the discharge process is working satisfactorily.<sup>25</sup>

Although the literature was reviewed for patient experience with CLD, staff perspectives were also evident. Two aspects emerged, namely, empowerment of nursing staff<sup>11,19</sup> and overall work satisfaction.<sup>20-22</sup> Staff satisfaction improved following the introduction of CLD,<sup>22</sup> which was described as being “useful, user friendly, and easy to understand and apply.”<sup>20(p161)</sup> The staff also noted that CLD “streamlined the patient journey” and was “popular with patients.”<sup>20(p161)</sup> Staff who are content with the process continued to use criteria beyond the study period.<sup>20</sup> Nurse-led discharge was also noted to reduce demands on surgical residents and provided time for physicians to take part in training opportunities instead.<sup>19</sup>

#### Review question 3: Length of stay and CLD

The primary outcome measure for 3 studies (in surgical settings) was to achieve a reduction in length of patient stay in the hospital.<sup>18,22,25</sup> Equally, 3 other studies<sup>19,20,28</sup> reported that interventions instigated through CLD had contributed to reducing length of patient stay. The length of stay for children with uncomplicated appendicitis was reduced by 29% (median) using discharge criteria.<sup>18</sup> For laparoscopic patients, using a protocol increased same-day discharge rates from 4.7% (usual care) to 17.2% (with protocol).<sup>25</sup> Similarly, a protocol-driven nurse-initiated discharge process increased the proportion of patients discharged on time predetermined as 9 AM from 50% to 78%.<sup>22</sup>

Of the remaining studies, Mansbach et al<sup>28</sup> conducted a multicenter study to understand risk factors for children with respiratory disease.

They concluded that CLD reduces practice variability and safely shortens length of stay. Although the primary objective of the study by Bowen et al<sup>19</sup> was patient safety, they also cited a reduction in delayed discharges from 46% to only 5% delay in patients selected for nurse-led discharge. In an acute medicine setting (length of stay <48 hours), Gotz et al<sup>20</sup> reported a small (not statistically significant) reduction in length of patient stay from 20 to 18.26 hours. Importantly, none of the studies reported an increase in the length of stay for patients discharged according to criteria or protocols.

#### Review question 4: Factors facilitating CLD

Factors that facilitated the development or implementation of CLD were described across all studies. Two studies<sup>12,23</sup> discussed these elements in most detail. Aspects cited as facilitating the implementation of CLD were noted and thematically summarized (see Supplemental Digital Content, Table 4, available at: <http://links.lww.com/JNCQ/A482>).

#### DISCUSSION

Fundamental reasons for the introduction of CLD associated with safety supported by this review are to (1) support existing care pathways, (2) reduce the variability of care delivered, (3) increase the transparency of the discharge plan across the team, and (4) reduce complications.

Three essential elements of successful and safe CLD were identified: (1) a robust clinically based protocol; (2) an adapted or new discharge process, when using criteria; and (3) safe practice by staff through education and training. The studies emphasized that clinical guidelines (or best practice) must guide the development of the criteria.<sup>28,29</sup> This provides support for the criteria and makes the required clinical milestones transparent to the discharging team. Hence, in developing a safe process for CLD, the health care team must be consulted and their professional/managerial expertise acknowledged in the development of the criteria.<sup>19,23,26,27</sup> Nevertheless, the clinical criteria relate only to one aspect of introducing CLD; the safe selection of patients<sup>24</sup> and the management of the patient discharge process within a robust governance structure (discharge policy) are vital.

It is critical that patients and their families understand and are engaged in their discharge process to support a safe process and inspire

their confidence.<sup>27</sup> None of the authors describe service user or patient involvement in designing CLD, though several used staff feedback to initiate and refine their discharge protocol and associated documentation. Regular auditing of policies/procedures and formal reporting to the hospital board provide a platform for governance. This was explicit in some of the literature reviewed.<sup>19,20,23</sup> Nonetheless, patient involvement in the development of discharge criteria was grossly underreported in the literature. Safety of systems is absolutely paramount to the delivery of successful services, with the patient at the center of the process. CLD should enhance patient safety by using a structured approach and result in better patient compliance with discharge instructions.<sup>2</sup>

Measurement of the quality of patient experience features in only 6 of the studies. Involving patients is advocated by NHS England to “ensure that patients and carers are directly involved and to improve satisfaction.”<sup>30(p8)</sup> Methods for measurement of quality reported were both empirical<sup>22</sup> and qualitative<sup>26</sup> using validated assessment scales or reporting of anecdotal patient feedback.<sup>24</sup> A patient tracker system<sup>2</sup> provided the most systematic approach to enable parity of patient satisfaction to be measured across many clinical areas. Given the lack of robust reporting measures used in 9 of the articles reviewed, it is apparent that evidence is weighted toward criteria development, perhaps to the detriment of measuring quality of patient experience.

For day case surgery where patients have a short stay (up to 24 hours), CLD can assist in achieving the predetermined length of stay and time of discharge.<sup>18,22,25</sup> For emergency medicine (with stays between 48 and 72 hours), using discharge criteria does not reduce length of stay significantly, but it improves transparency and efficiency of the clinical parameters guiding the patient’s care.<sup>20</sup> Although Gotz et al<sup>20</sup> reported a statistically insignificant reduction in length of stay, this could be significant in terms of hospital patient flow from emergency department or patient experience. Nevertheless, from the patient’s perspective, the use of discharge criteria can reduce delays in decision making or preempt clinical reviews, which precede discharge.<sup>19</sup> There is a dearth of studies that analyze aspects of the discharge process that exert most influence (positive or negative) over

the length of stay. To this end, it is difficult to separate variances that most influence CLD.

Twelve factors contributing to the successful implementation of CLD were identified across the articles. The starting point is suggested as the development of a CLD policy or procedure.<sup>6,22</sup> The most successful projects were those where the criteria were developed and piloted by the health care team.<sup>19,22</sup> With the exception of 2 articles,<sup>11,12</sup> CLD was introduced for specific patient groups or clinical conditions, indicating that implicit to the facilitation is a point of focus. CLD cannot be implemented as a stand-alone project; patient discharge interfaces with and is interdependent upon other areas, such as pharmacy and the provision of take-home medications. Hence, good facilitation requires a view across an organization to understand the necessary cooperation or requirements that might be needed as a consequence of introducing CLD.

### Limitations and strengths

Limitations to this review include the 10-year limit on the search; however, this was justified in the quest to provide the most up-to-date information. In addition, only studies published in English were included, owing to resource implications for translation, although none were excluded on this basis. One study was excluded because of the cost of purchase. The strengths of this review relate to the process of independent evaluation by 2 reviewers, the PICO<sup>15</sup> framework to identify the review questions, and the quality appraisal process.<sup>17</sup>

### CONCLUSION

The findings of this review indicate that CLD is safe, dependent on appropriate patient selection supported through robust patient discharge protocols and training for the health care team. CLD could also be a mechanism to improve the quality of patient discharge, although future research is warranted. CLD contributes to a reduction in length of patient stay in some surgical settings. Safety, quality, and facilitation are each equally critical to the successful implementation and evaluation of CLD.

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[AQ5]

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