The effectiveness of the Liverpool Care Pathway in end of life care: a systematic review protocol

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Review question/objective
The objective of this review is to present the best available evidence related to the implementation of the Liverpool Care Pathway in end of life care in the hospital setting.

The specific questions to be addressed are as follows:

1. What is the effectiveness of the Liverpool Care Pathway on the quality of life (QoL) of the dying patient?
2. What is the effectiveness of the Liverpool Care Pathway on the quality of end of life care in the dying patient?

More specifically, questions to be explored informing the quality of end of life care will include:

What is the effectiveness of the Liverpool Care Pathway on symptom management and physical severity of symptoms in the dying patient?

What is the effectiveness of the Liverpool Care Pathway on the communication between healthcare professionals, patients and their families?

Background
End of life is defined as a phase of life when a person is living with an illness that will worsen and eventually cause death. Patients in this end phase of life and their families have complex needs that are physical, psychological and spiritual in nature. The aim of end of life care, or palliative care, in patients close to death is to support and promote, as much as possible, a high quality of end of life of patients who are facing life-limiting illness and their families. Ideal end of life care is achieved through the prevention and relief of suffering by means of early assessment, identification and treatment of pain and other potential problems; these other problems for the patient may present as physical, psychological and/or spiritual. For healthcare professionals providing care for patients in the terminal
phase of their illness, ensuring a high quality of care is essential. Despite this, numerous studies however, have highlighted the poor quality of end of life care that is delivered in hospitals, including where patients in the final stages of life experience undignified deaths with uncontrolled symptoms.\textsuperscript{1-7} Furthermore, in such cases, family members are often left feeling isolated and helpless,\textsuperscript{5} due to healthcare professionals’ poor communication skills and specifically, their inability to appropriately communicate bad news to family members.\textsuperscript{5} Unlike the reports from the hospital setting, research suggests that those patients who are cared for in a hospice receive high quality end of life care that is appropriate to their needs, so much so that the care provided in this setting has been recognized as a model of excellence in caring for the dying.\textsuperscript{8, 9} Barriers to high quality end of life care have been identified, and may include where health professionals fail to recognize where treatment is futile, where there is an apparent lack of communication among decision makers resulting in no agreement on a course of end-of-life care, and where there is apparent failure to implement a timely end of life plan of care.\textsuperscript{10}

The Liverpool Care Pathway (LCP) is an integrated care pathway developed in collaboration between the Royal Liverpool University Hospital and Marie Curie Palliative Care Institute in Liverpool in the late 1990s.\textsuperscript{11} The rationale underlying the use of the LCP in the acute care setting was to transfer the hospice model of excellence for care of the dying into hospital and other healthcare settings.\textsuperscript{12} Aligned with this reasoning, the LCP was also developed to assist healthcare professionals in their provision of care to dying patients in a non-specialist context.\textsuperscript{2} Inappropriate end of life care may result in the continuation of unnecessary invasive treatments that can result in negative consequences both in terms of impact on the QoL of the dying patient and also on the resource management of the health care provider.\textsuperscript{13} The LCP provides a template for appropriate, evidence-based, multidisciplinary care of the dying, that is designed to replace all other documentation at the end of life. It is also structured to facilitate auditing of important outcome measures.\textsuperscript{8, 14} Overall, the goals of the LCP are manifold and principally focus on ensuring and maximizing patient comfort, and reviewing the need for invasive and/or life-prolonging treatment in patients as well as anticipatory prescribing of appropriate medication. Guidance for psychological and spiritual support of patients and their families is also included in the LCP.\textsuperscript{2, 15}

The LCP has been translated into several languages and has been implemented in over 20 countries.\textsuperscript{1} Consequently, there is increasing acceptance of the use of the LCP as a potential gold standard for guiding treatment of care for the dying patient in the hospital setting.\textsuperscript{3, 7, 16} Research findings to date have concluded that the implementation of the LCP has a positive impact on end of life care,\textsuperscript{17, 18} with benefits from these studies reported to include the potential to empower non-specialist palliative healthcare professionals to deliver basic, quality care to dying patients and their families.\textsuperscript{2} Use of the LCP however, is not without its critics and controversy, with some authors suggesting that the LCP is more akin to a euthanasia tool, with its implementation resulting in overly sedated patients.\textsuperscript{19}

Healthcare professionals have a responsibility to ensure their practice is based on sound clinical evidence and is of a high quality.\textsuperscript{20} Therefore, there is considerable need for health care professionals to be fully informed about the identifiable benefits, if any, with implementation of the LCP in the acute care setting. Chan and Webster\textsuperscript{21} conducted a Cochrane systematic review of all randomized controlled trials and quasi-experimental studies comparing use of end of life care pathways with usual
care (no pathway), or care guided by another end of life pathway in dying patients in the hospital setting. Despite 920 potentially relevant titles being identified by the search that was conducted in 2009, no studies met the strict inclusion criteria for the review and hence no conclusions could be drawn regarding the effectiveness of end of life care pathways. In recent years, following the interest in the LCP and other end of life care pathways, more studies have been initiated in this field, including experimental research investigating the LCP.\(^{14}\)

**Keywords**

Liverpool Care Pathway; end-of-life; end-of-life care; quality of end-of-life

**Inclusion criteria**

*Types of participants*

This review will consider studies that include adult patients, 18 years of age and over, at the end stage of life in the hospital setting. The end stage of life is defined as a phase of life when a person is living with an illness that will worsen and eventually cause death, or from a point at which it becomes clear that the patient is in a progressive state of decline towards death. Inclusion will be independent of diagnosis.

The review will also consider studies that include health care professionals providing care to dying patients in the hospital setting, caregivers and the families of patients at the end stage of life.

*Types of intervention(s)/phenomena of interest*

This review will consider studies that evaluate the use of the LCP in end of life care. Where comparative studies are located, use of the LCP will be compared with usual care (where no pathway is used). Studies evaluating other integrated pathways of care for the dying, or comparing LCP to another pathway of care will be excluded.

*Types of outcomes*

The primary outcomes of interest are:

- The QoL of the dying patient, measured by validated instruments designed for use in this population including the McGill Quality of life Questionnaire\(^{22}\) and Quality of life at end of life (QUAL-E) scale.\(^ {23}\)

- Assessment of the quality of end of life care will include any instruments designed for this purpose; for example, items of the toolkit “After death bereaved family member interview” and other similar validated measurement instruments.\(^ {24}\)

- Symptom management/ severity in the dying patient including pain, nausea/vomiting, agitation and respiratory secretions. Acceptable measures will include those using instruments such as The European Organisation for Research and Treatment of Cancer, Quality of Life of Cancer patients (EORTC QLQ-C30), \(^ {25}\)The National Institute for Clinical Excellence (NICE) guideline\(^ 7\)

- Quality of communication between healthcare professionals, patients and families. This is commonly established with items from the Views of Informal Carers- Evaluation of Service (VOICES)
questionnaire. The VOICES is an instrument specifically developed for proxies to evaluate the care and services received by patient and their relatives in the last months of the patient’s life.26

The secondary outcomes of interest will be patient/staff satisfaction with the provision of care and any noted adverse events attributable to the use of the LCP, for example over sedation or under nutrition in patients.

Types of studies

This review will consider both experimental and epidemiological study designs including randomized controlled trials, non-randomized controlled trials, quasi-experimental, before and after studies, prospective and retrospective cohort studies, case control studies and analytical cross-sectional studies for inclusion.

Search strategy

The search strategy aims to find both published and unpublished studies. A three-step search strategy will be utilised in this review. An initial limited search of MEDLINE and CINAHL will be undertaken followed by analysis of the text words contained in the title and abstract, and of the index terms used to describe the article. A second search using all identified keywords and index terms will then be undertaken across all included databases. Thirdly, the reference lists of all identified reports and articles will be searched for additional studies. Studies published in English will be considered for inclusion in this review. Studies published from 1995-2013 will be considered for inclusion in this review. As the LCP was developed in the late 1990s, the period between the years 1998 and 2013 will encompass any studies investigating the use of the LCP in the hospital setting.

The databases to be searched will include:

- CINAHL
- MEDLINE
- Cochrane Central Register of Controlled Trials
- Current controlled Trials
- Clinicaltrials.org
- Australian and New Zealand trial registry
- EMBASE
- PsycINFO

The search for unpublished studies will include:

- ProQuest Dissertation and Theses
- Care Search
Other sources of grey literature will be located using Mednar

Initial keywords to be used will be:

- Liverpool Care Pathway
- dying patient
- patient at end stage of life
- terminal illness
- end of life care
- quality of end of life
- palliative care

Assessment of methodological quality

Papers selected for retrieval will be assessed by two independent reviewers for methodological validity prior to inclusion in the review using standardised critical appraisal instruments from the Joanna Briggs Institute Meta Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) (Appendix I). Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer.

Data collection

Data will be extracted from papers included in the review using the standardized data extraction tool from JBI-MAStARI (Appendix II). The data extracted will include specific details about the interventions, populations, study methods and outcomes of significance to the review question and specific objectives. Where potentially relevant information appears to be missing from included primary studies, attempts will be made to contact the authors for clarification and where possible, provision of data.

Data synthesis

Quantitative data will, where possible be pooled in statistical meta-analysis using JBI-MAStARI. All results will be subject to double data entry. Effect sizes expressed as odds ratios (for categorical data) and weighted mean differences (for continuous data) and their 95% confidence intervals will be calculated for analysis. Heterogeneity will be assessed statistically using the standard Chi-square and also explored using subgroup analyses based on the different study designs included in this review. Where statistical pooling is not possible, the findings will be presented in narrative form including tables and figures to aid in data presentation where appropriate.

Conflicts of interest

The author (Prapaphan Pensuk) is a Registered Nurse who uses the LCP in daily practice.
Acknowledgements

The author wishes to thank Dr. Edoardo Aromataris for advice and guidance in the preparation of this protocol and also thanks to Kerry Peek, MSc Clinical Science Candidate for acting as secondary reviewer.
References


766-773.


Appendix I: Appraisal instruments

MAStARI appraisal instrument

### JBI Critical Appraisal Checklist for Randomised Control / Pseudo-randomised Trial

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
<th>Not Applicable</th>
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</thead>
<tbody>
<tr>
<td>1. Was the assignment to treatment groups truly random?</td>
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<td>2. Were participants blinded to treatment allocation?</td>
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<td>3. Was allocation to treatment groups concealed from the allocator?</td>
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<tr>
<td>4. Were the outcomes of people who withdrew described and included in the analysis?</td>
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<tr>
<td>5. Were those assessing outcomes blind to the treatment allocation?</td>
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<td>6. Were the control and treatment groups comparable at entry?</td>
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<td>7. Were groups treated identically other than for the named interventions</td>
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<tr>
<td>8. Were outcomes measured in the same way for all groups?</td>
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<tr>
<td>9. Were outcomes measured in a reliable way?</td>
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<tr>
<td>10. Was appropriate statistical analysis used?</td>
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Overall appraisal: [ ] Include [ ] Exclude [ ] Seek further info. [ ]

Comments (Including reason for exclusion)

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________________________________________________________________________

doi: 10.11124/jbisrir-2013-1107
JBI Critical Appraisal Checklist for Descriptive / Case Series

Reviewer .................................. Date ........................................

Author .................................. Year ........ Record Number ......

1. Was study based on a random or pseudo-random sample? □ □ □ □
2. Were the criteria for inclusion in the sample clearly defined? □ □ □ □
3. Were confounding factors identified and strategies to deal with them stated? □ □ □ □
4. Were outcomes assessed using objective criteria? □ □ □ □
5. If comparisons are being made, was there sufficient descriptions of the groups? □ □ □ □
6. Was follow up carried out over a sufficient time period? □ □ □ □
7. Were the outcomes of people who withdrew described and included in the analysis? □ □ □ □
8. Were outcomes measured in a reliable way? □ □ □ □
9. Was appropriate statistical analysis used? □ □ □ □

Overall appraisal: Include □ Exclude □ Seek further info □

Comments (Including reason for exclusion)

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**JBI Critical Appraisal Checklist for Comparable Cohort/ Case Control**

Reviewer ___________________________ Date ___________________________

Author ___________________________ Year ______ Record Number ______

<table>
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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
<th>Not Applicable</th>
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</thead>
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<tr>
<td>1.</td>
<td>Is sample representative of patients in the population as a whole?</td>
<td>☐</td>
<td>☐</td>
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<td>2.</td>
<td>Are the patients at a similar point in the course of their condition/illness?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>3.</td>
<td>Has bias been minimised in relation to selection of cases and of controls?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>4.</td>
<td>Are confounding factors identified and strategies to deal with them stated?</td>
<td>☐</td>
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<td>5.</td>
<td>Are outcomes assessed using objective criteria?</td>
<td>☐</td>
<td>☐</td>
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<td>6.</td>
<td>Was follow up carried out over a sufficient time period?</td>
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<td>7.</td>
<td>Were the outcomes of people who withdrew described and included in the analysis?</td>
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<td>8.</td>
<td>Were outcomes measured in a reliable way?</td>
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<td>9.</td>
<td>Was appropriate statistical analysis used?</td>
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Overall appraisal: Include ☐ Exclude ☐ Seek further info. ☐

Comments (Including reason for exclusion)

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doi: 10.11124/jbisrir-2013-1107
Appendix II: Data extraction instruments

MAStARI data extraction instrument

JBI Data Extraction Form for Experimental / Observational Studies

Reviewer ____________________________ Date ____________________________

Author ____________________________ Year ____________________________

Journal ____________________________ Record Number __________________

Study Method

RCT ☐ Quasi-RCT ☐ Longitudinal ☐

Retrospective ☐ Observational ☐ Other ☐

Participants

Setting

Population

Sample size

Group A ____________________________ Group B ____________________________

Interventions

Intervention A

Intervention B

Authors Conclusions:

____________________________________________________________________

____________________________________________________________________

Reviewers Conclusions:

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**Study results**

**Dichotomous data**

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**Continuous data**

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