

# Tailored implementation strategy for the intervention Liverpool Care Pathway for the Dying

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## Introduction

Each year over 136.500 people pass away in the Netherlands. If they do not die a sudden death, then in most cases cancer is the cause of death.<sup>1</sup> Most cancer patients prefer to die at home, but the majority passes away in a hospital.<sup>2-5</sup> It has been estimated that the number of institutional deaths will increase with 20% by the year 2030.<sup>6</sup> Care during the last days of their lives remains problematic. It is difficult to diagnose dying and to communicate about the end of life.<sup>7</sup>

The Liverpool Care Pathway for the dying patient (LCP) is a pathway designed by The Royal Trust in the United Kingdom and the Marie Curie Centre in Liverpool.<sup>5</sup> Ellershaw used the care in hospices as an example and golden standard to develop this pathway that could be used in hospitals.<sup>8</sup> The LCP is an instrument providing a template of evidence-based multidisciplinary care and has been developed to optimize the care for dying patients and their relatives. The pathway replaces all other records of the patient because it is a patient related record, a checklist as well as an evaluation instrument.<sup>3,6,8,9</sup>

Nowadays there are four different versions of the LCP, a hospital, hospice, nursing home and a home care version. Research has been done about the effect of the LCP on the quality of care and the support of the dying. It showed: improvement of communication between caregivers and patients/relatives, and less symptom burden.<sup>10-13</sup>

The LCP has been translated in Dutch by Erasmus MC and the Integral Cancer Centre Netherlands (IKNL). In Dutch the LCP is called 'Zorgpad Stervensfase'. The LCP is already implemented in several Dutch hospitals.

The studies about the LCP were effect or observational about the intervention itself. An implementation strategy based on a theoretical framework was not reported.<sup>3,5,6,11-13</sup>

Research hasn't been conducted about effective ways to implement the LCP. Research about implementation of other interventions showed that better results were to be expected if a tailored implementation strategy was used.<sup>12</sup> The implementation will be tailored to the nature of the intervention, the specific settings and the target group, based on potential barriers and facilitators.<sup>13</sup> It is important to first identify the specific barriers to change and thereby using theoretical frameworks of behavior change and then develop strategies dealing with these barriers. Thereby the use of theory is needed to understand the implementation.<sup>12,14</sup>

There are several implementation models.<sup>15</sup> One of these models is the Innovation Contingency (IC) model of Van Linge. The IC model has proofed to be useful in tailoring implementation strategies.<sup>16</sup> This model explains that a successful implementation is

depending on a fit between the characteristics of the innovation, characteristics of the organization and the implementation strategy.<sup>17</sup> The model assumes the necessity of a relationship between the demands of the innovation and characteristics of the organization/context to realize a successful implementation (Figure 1). It describes what is needed to create an effective innovation process and whether there exist similarities or differences between the organization and the innovation. A (mis)fit between these systems can be described based on the configurations. A configuration is a coherent total of different characteristics of a system. The four configurations are: team-, development-, rule- and goal-oriented. They are based on two dimensions; external versus internal and flexible versus control oriented.<sup>17</sup> In this research project the IC model of Van Linge will be used to tailor the implementation strategy.

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## Insert Figure 1

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### Rationale

There is no research conducted about effective ways to implement the LCP. Implementation of the LCP has been done without using a theoretical framework. In this research the IC model of Van Linge was used, based on tailored implementation. Tailored implementation strategies can lead to an effective implementation.<sup>17</sup>

Therefore the aim of this study was to investigate if a tailored implementation strategy for the LCP can contribute to improve patient care on an internal medicine ward of a general medical hospital. Considering ultimate implementation effectiveness may not be accomplished in three months, the intermediate outcome was measured in this study.

### Research Question

What is the intermediate effectiveness of a tailored implementation strategy on a multidisciplinary intervention LCP on an internal medicine ward of a general medical hospital.

Secondary research question:

How does the process of delivering the tailored implementation strategy proceed and which are influencing factors.

## Method

### Design

A mixed method design combined with one group pretest-posttest design seemed suitable. The primary research question needed to be answered by quantitative data collection and analyses while the second research question needs to be answered by qualitative data collection and analyses. Implementation effectiveness has been measured with a pretest-posttest design.<sup>18</sup> Quantitative data was used to determine the effect of a tailored implementation strategy to compare documentation of patient care and to analyze the characteristics of the organization and the intervention.<sup>18,19</sup> Qualitative data concerned a process evaluation, consisting of semi-structured interviews.<sup>19</sup>

### Population

The 43 (student) nurses included in this study worked on an internal medicine ward of a general medical hospital with an associate or bachelor degree, aged between eighteen and 65 years old. Management chose that ward, because most people passes away there. Also the project leader of the implementation of the LCP was included. Excluded were (student) nurses working less than two months on the ward. The sample was convenience based.<sup>17</sup> Charts of patients (older than eighteen years) deceased between January 2011 and April 2012 on an internal medicine ward of general medical hospital were examined. Twenty charts were necessary to obtain a reliable result.<sup>9</sup>

The purposive sampling technique was used to determine the subjects required for the semi-structured interviews.<sup>19</sup> The project leader, physician, head of the ward and the senior support nurse were included. They represented the groups involved in the implementation process.

## Data collection

### Variables and instruments

#### Demographic characteristics

Demographic questionnaire for the nurses consisted of questions about gender, age, degree of education, years of registration and employment at the ward.

#### Documentation of patient care

The documentation of patient care was measured with a questionnaire developed by the IKNL and the Erasmus MC. Consisting of 17 questions which can be answered with yes or

missing, containing items on recognition of dying, medication, spiritual needs, symptom burden and communication. This instrument has not been validated.<sup>9</sup>

#### Configuration of the ward and the innovation

The observed characteristics of the ward were measured with a questionnaire, the Wak (Waargenomen afdelings kenmerken). The observed characteristics of the innovation (the LCP) were measured with a questionnaire, the Wik (Waargenomen innovatie kenmerken). The questionnaires are based on the mentioned IC model. Both questionnaires contains of four variables: team-orientation, development-orientation, regulation-orientation and goal-orientation. These variables are based on two dimensions; external versus internal oriented and flexible versus control oriented. The questionnaires originally consists of 24-items. Research showed using the 24-items Wak a Cronbach's Alpha between 0.76 and 0.91 for the four variables.<sup>20</sup> In this study the abridged version of the questionnaires were used. These versions consist of 12-items which were answered on a five point Likert scale from I totally disagree {1} till I totally agree {5}. Unpublished study of Van Berkomp (2009) using the abridged Wak version showed a Cronbach's Alpha between 0.71-0.78 for the four variables. Unpublished study of Roodbergen (2007) using the abridged Wik version showed a Cronbach's Alpha between 0.70-0.81 for the four variables.

#### Implementation effectiveness

The implementation effect of the tailored implementation strategy for the LCP was measured with the Implementation Effectiveness Questionnaire. The questionnaire is developed by Van Linge and consists of fourteen items on a five point Likert scale from I totally disagree {1} until I totally agree {5}. The questionnaire contains items on knowledge, motivation, satisfaction, communication support and solving problems. The items are divided into three subscales: implementation effect on individual-, group- and patient level. A higher score indicates a higher level of implementation effectiveness. Unpublished study of Beemsterboer (2005) resulted in a Cronbach's Alpha of 0.90 for the total instrument.

#### Process evaluation

The process has been evaluated with four semi-structured interviews. The topic list consisted of several themes. Facilitators and barriers: of the personal characteristics of the caregivers, the ward and the organization. Furthermore the experience of the caregivers, working with the LCP.

## Procedures

The study took place on an internal medicine ward of a general hospital in the Netherlands from December 2011 till May 2012.

### Pre-implementation measurements

In December 2011 documentation of care of twenty charts of deceased patients in the ward were examined with the questionnaire from the IKNL and the Erasmus MC.

All caregivers in the ward were informed in a meeting about the research in December 2011. The ones not present received an email explaining the purpose of the study also indicating all information would be held confidential. They were asked to fill in the demographic questionnaire and the Wak. The questionnaires were handed out to the nurses. They had to send the questionnaires to the researcher. After one week the nurses who didn't completed the questionnaires received an email reminder to fill in the questionnaires. The project leader, the head of the internal medicine ward and the senior support nurse were asked to fill in the questionnaire Wik, because they had knowledge about the intervention LCP. They had to send the questionnaires to the researcher.

### Choice of the tailored strategy

The outcome of the Wik, Wak and the baseline measurement questionnaire were analyzed. The project leader of the implementation of the LCP, the head of the ward and the senior support nurse determined that the primary focus of the innovation ( LCP) was result- and rule-oriented. Secondary it also contained team-oriented aspects. (Table 2) The outcome of the Wik and Wak were used to determine the tailored implementation strategy. Based on the differences and similarities between the ward and the innovation the evolution strategy was chosen. This strategy has been designed to maintain the team-oriented aspects and to strengthen rule- and result-oriented aspects.<sup>17</sup> In January 2012 the tailored implementation strategy (the evolution strategy) was used to implement the LCP.

### Tailored interventions based on using the evolution strategy:

- In December 2011 all the nurses received an email about the LCP also indicating when they had to start working with the pathway,
- in the first week of January 2012 a filled in example of a fictional patient of the LCP had to be read by all nurses and one week later they could ask questions during a meeting,
- the results of the questionnaire Wik, Wak and the patient outcomes of the examined charts were communicated with the nurses by email,
- an instruction card was made to help the nurses when they had to fill in the LCP,
- the senior support nurse instructed four other nurses at the ward about working with the LCP, so they could help their colleagues with working with the LCP,
- a presentation was held for all the physicians about the LCP,

- on the intranet of the hospital it was announced that the internal ward started to work with the LCP,
- in the first week of February the nurses were treated to cake,
- posters at the ward remind all nurses and physicians that the ward was going to work with the LCP,
- all nurses knew where to ask for help when they had to work with LCP for the first time,
- from the start someone was present at the ward from Monday till Friday or could be called if one of the nurses needed help with the LCP.

On the first of February working with the LCP started.

### Intermediate measurements

The semi-structured interviews took place in April and the first week of May 2012.

At the end of April all 43 nurses, the head of the ward and the project leader were asked to fill in the questionnaires Wik, Wak and Effectiveness implementation.

The previous measurement (December 2011) was repeated in April 2012 to examine all charts of patients deceased between February and April 2012.

## Analysis and statistics

Quantitative data has been collected to process in Statistical Package for the Social Sciences (SPSS) version 18. Descriptive statistics were carried out to describe the demographic data, results of all the questionnaires and the data of the patient charts. As in other research Mann Whitney was used to compare means between the pre-implementation and the intermediate outcome of the data of the patient charts.<sup>11</sup> Cases with missing values were not included for the analyses. The interviews were recorded, verbatim transcribed and anonymised. Data analysis was qualitative. A category scheme was developed and coded for correspondence to the categories.<sup>19</sup> The data has been analysed by the first author, supervised by the second one. The qualitative data was processed with NVIVO 9.

## Ethical Approval

The study has been conducted according to the principles of the Declaration of Helsinki.<sup>21</sup> Approval by Medical Ethics Committee of the hospital was granted. Informed consent is orally granted. All data has been anonymised.

## Results

### Demographic characteristics

In total 43 nurses have been approached for the study, 24 of them participated in the pre-implementation and twelve nurses in the intermediate measurement, a response rate of 55.8% and 27.9% respectively. The response rate of the intermediate measurement can be explained by maternity leave and negative feelings towards the questionnaires. All nurses responding were female. In both groups the average was 32 and 37 respectively and there were no significant differences between them. (Table 1)

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Insert table 1

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#### Documentation of patient care

In the pre-implementation measurement twenty charts were examined . For the intermediate outcome eleven charts out of 27 were included for analyzing. The sixteen charts left were not digitally available for the researcher. The mean age of both groups was 77 and 80. The groups weren't significantly different in age (.682) nor in gender (.063). There were significant differences in aspects of care on the topics: assessment of religious or spiritual needs (.004), secretion of mucus (.002), nausea and vomiting (.009), oral care (.003), secretion of urine (.022), defecation (.000), patient counseling (.001), family counseling (.019), provision of bereavement leaflet (.021) and using the LCP (.000). (Table 2)

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#### Ward and innovation configuration

Pre-implementation measurement: 24 respondents were included in the configuration measurement of the ward. The ward scored highest on team-orientation (3.85) and development-orientation (3.68). Regarding the innovation configuration three respondents were included. The highest scores were on rule and result oriented with both a mean of 4.0. The outcome resulted in the evolution strategy for implementing the LCP.

Intermediate outcome: twelve respondents were included in the configuration of the ward. The highest scores concerned development- and result-orientation both 3.44. All configuration scores dropped and were more equally distributed. For the innovation configuration ten respondents were included. The highest scores were on rule- and result-oriented with a mean of respectively 3.81 and 3.50. (Table 3)



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#### Implementation effectiveness

Thirteen respondents completed the questionnaire, a response rate of 30.23%. There were missing values in the questionnaires of two respondents. The average implementation score was 3.43. The individual level was 3.90. (Table 4)

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Insert table 4

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#### Process evaluation

Time of the interviews varied from 30 until 90 minutes. Table 5 shows that the interviews resulted in several themes. Barriers and facilitators related to individuals, the LCP, the organization and education and how they experienced the tailored implementation of the LCP. More often facilitators were mentioned than barriers. For education no barriers were mentioned.

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Insert table 5

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## Discussion

This study has shown that a tailored implementation of the intervention LCP on an internal medicine ward of a general hospital was partially successful. It showed a low result of implementation effectiveness on group- and patient level, 3.15 and 3.25 respectively. There were no clear changes in the configuration, only a fit on rule- and not on result-oriented (Table 3). But the implementation effect on individual level was promising (3.90). Also the results of the process evaluation were positive (Table 5). More often facilitators were mentioned than barriers. The interviewee mentioned that the tailored implementation was successful and supported by management, physicians and nurses. Finally the documentation of patient care showed several significant improved topics (Table 2).

An explanation of the results on implementation effectiveness can be the individually focused education as well as documentation of patient care being an individual process. For an early implementation stage it is necessary and sufficient that there is a positive result on individual

level, but for further implementation it is necessary to reach implementation effectiveness on group- and patient level. Therefore the focus of education in the next stage must be on group level. Successful implementation is related to team learning activities, like giving and taking feedback, or challenge one another for new viewpoints on specific matters in patient care.<sup>20</sup> These processes can improve implementation effectiveness on group level.<sup>22</sup>. No clear changes in the configuration scores can be caused by two factors: the outcome is intermediate and the implementation of the LCP is still processing.

The evolution strategy is a complex strategy.<sup>17</sup> There were maybe other factors influencing the implementation strategy such as the project leader accepting another position in the hospital one month after the start of the implementation.

In research is described that interventions to improve quality of care such as the LCP can improve professional practice whether or not tailoring had been undertaken.<sup>12</sup> Effect studies about the LCP show improvement in documentation, although no tailored implementation strategy was used.<sup>3,11</sup> That is why we don't know for sure if significant changes in documentation of patient care also would have accomplished not using a tailored implementation strategy. The results regarding the process evaluation showed organization related facilitators like: positive attitude from management, physicians and the nurses towards the innovation (LCP) and the need for motivated nurses. These results are similar compared with other research.<sup>23</sup> The mentioned barrier necessary time is also consistent with other research.<sup>16,24</sup>

The strength of this study is that a theoretical framework was used to implement the LCP. Previous studies about the LCP were mostly effect studies on symptom burden. Whereas a theoretical framework describes all elements that are important for a successful implementation of the LCP.<sup>17</sup>

Limitation of the study is the generalisability. The study was conducted in only one hospital at one internal medicine ward and all nurses were women. Also a randomized clinical trial was impossible because of practical and ethical considerations, a pre- and post-test design was used. The advantage is that the ward being their own control group. The disadvantage is that changes can be caused by other factors than the implementation strategy.<sup>18</sup> The number of respondents was relatively small, 24 and 12 respectively, to measure significant differences in the configuration scores of the ward and innovation.

In the pre-implementation measurement twenty charts of deceased patients were examined and for the intermediate measurement only eleven charts were available. A better comparison could have been made if for the intermediate outcome at least twenty charts

were available. Furthermore the documentation of patient care was measured and not the experienced patient care in daily practice by patients and relatives.

The nurses indicated that the questionnaire Implementation Effectiveness was difficult in terms of language and understanding. Also it was difficult for them to answer the questions about working with the LCP, because not all nurses worked with the LCP yet.

## **Conclusion**

The intermediate effectiveness of a tailored implementation strategy for the multidisciplinary intervention LCP on an internal medicine ward of a general medical hospital was partially successful. The implementation effectiveness scores were modest on group- and patient level. The evolution strategy didn't result in a complete fit between the organization and the innovation, only a fit on rule-orientation. However the scores indicate implementation effectiveness on individual level. The documentation of patient care is significantly improved on several topics. The results of the process evaluation showed that more often facilitators were mentioned than barriers. It is possible that there were not enough respondents. Time could have been too short to determine overall implementation effectiveness.

## **Recommendations**

Nurses indicated that they found the questionnaire Implementation Effectiveness difficult in terms of wording and understanding while not all nurses had worked with the LCP yet.

Therefore research is recommended to simplify the questionnaire.

To accomplish implementation effectiveness on group level the concept of team learning can be used for educating the nurses about patient care in the dying phase. Discussing the results of the intermediate outcome could be helpful to accomplish implementation effectiveness on patient level.

The LCP must be implemented on other wards of the hospital by using a tailored implementation strategy, based on the IC model, because of the significantly improved outcome of documentation of patient care, the positive outcome of the interviews and positive attitude of caregivers towards the tailored implementation strategy.

Further research with a longer time schedule and repeated measurements of the configurations including experienced patient care by patients, relatives and caregivers will be necessary to determine if a tailored implementation strategy for the LCP is indeed effective.

## **Acknowledgment**

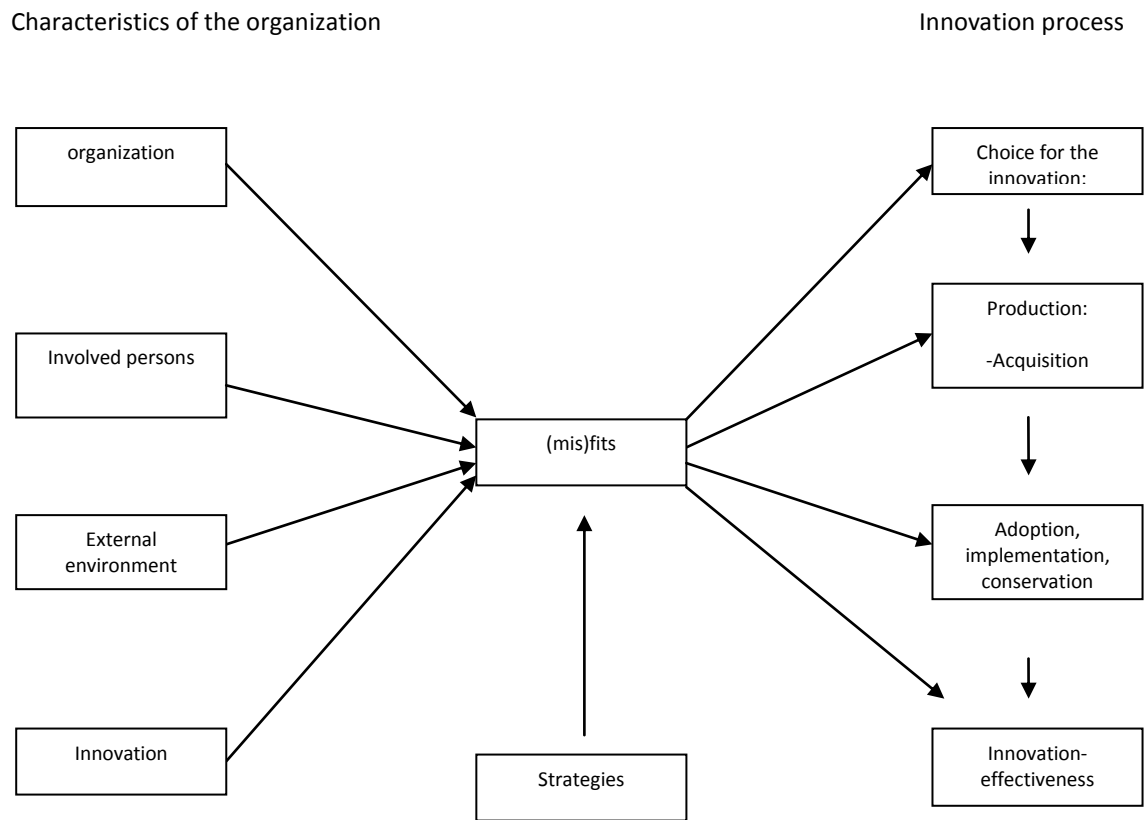
Appreciation is owed to the course instructor Dr. H. Van Os-Medendorp for her valuable contribution.

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**Figure 1:** The contingency model of Van Linge



**Table 1** Demographic characteristics

<b>Population of the Internal Ward</b>	<b>Preliminary N=24; n</b>	<b>Post N=13; n</b>	<b>p-value</b>
<b>Gender</b>			
Male	0	0	
Female	24	13	1.000 <sup>a</sup>
<b>Age</b>			
18-25 years	10	3	
26-40 years	7	4	
>40 years	6	6	
Missing	1	0	
Mean age	32	37	.161 <sup>a</sup>
<b>Level of education</b>			.527 <sup>b</sup>
Associate degree	14	8	
Bachelor degree	6	3	
Student nurse	0	0	
Other	1	1	
Missing	3	1	
<b>Years working as a registered nurse</b>			.878 <sup>a</sup>
0-3 year	13	3	
4-6 year	4	3	
>6 year	6	7	
Missing	1	0	
<b>Number years working at the ward</b>			.874 <sup>a</sup>
0-3 year	13	3	
4-6 year	4	3	
>6 year	5	7	
Missing	2	0	
<sup>a</sup> Mann-Whitney			
<sup>b</sup> Kruskal-Wallis			



**Table 2** Documentation of patient care

Aspects of care	Pre-intervention n= 20		Intermediate outcome n=12		P- value <sup>a</sup>
	Mean(SD)		Mean(SD)		
Age	77(12.3)		80(9.3)		.682
Gender					
Male	10		10		.063
Female	10		2		
	yes	missing	yes	missing	
Assessment of current medication	8	12	8	4	.151
Prescription of medication as required	6	14	7	5	.120
Discussion about resuscitation	20	0	11	1	.197
Recognition of dying by caregivers	13	7	10	2	.272
Recognition of dying patient	9	11	6	6	.787
Recognition of dying by relatives	14	6	10	2	.407
Assessment of religious or spiritual needs	2	18	7	5	.004
Symptom burden					
Pain	12	8	10	2	.175
Agitation	15	5	10	2	.587
Secretion of troublesome mucus	7	13	11	1	.002
Nausea and Vomiting	4	16	8	4	.009
Oral care	3	17	8	4	.003
Secretion of urine	13	7	12	0	.022
Defecation	7	13	12	0	.000
Dyspnoea	12	8	11	1	.058
Patient counselling	4	16	10	2	.001
Relatives counselling	8	12	10	2	.019
Contact with GP Practice about patient's death	15	5	10	2	.587
Discussion of procedure following death	13	7	10	2	.272
Provision of bereavement leaflet	0	20	3	9	.021
LCP used	0	20	8	4	.000

<sup>a</sup>Mann Whitney  $p < 0.05$  significant

**Table 3** Configuration scores

	<b>Pre- intervention</b>	<b>Intermediate outcome</b>
	N=24	N=12
	Mean (SD)	Mean (SD)
<b>Configuration organization</b>		
Team oriented	3.85 (0.44)	3.33 (0.68)
Development oriented	3.68 (0.33)	3.44 (0.70)
Rule oriented	3.46 (0.52)	3.39 (0.61)
Result oriented	3.57 (0.49)	3.44 (0.57)
	N=3	N=10
<b>Configuration innovation</b>		
Team oriented	3.78 (0.19)	3.30 (0.71)
Development oriented	3.33 (0.33)	3.33 (0.52)
Rule oriented	4.00 (0.58)	3.81 (0.85)
Result oriented	4.00 (0.67)	3.50 (0.82)

**Table 4** Implementation Effectiveness

	<b>Intermediate outcome</b>
	N=13
	Mean (SD)
<b>Level</b>	
Individual	3.90 (0.42)
Group	3.15 (0.51)
Patient	3.25 (0.76)

Higher score indicates a higher level of implementation effectiveness

**Table 5** Quotes of the interviewee

	<b>Individual</b>	<b>LCP</b>	<b>Organisation</b>	<b>Education</b>
<b>Barriers</b>	Nurses need someone to push them to work with new interventions Physicians do not feel they benefit from the LCP	Much paper work for nurses and physicians First time working takes time Much work when people die quick Missing that the LCP can't be adjusted to the hospital. Sometimes difficult to fill in	Lack of time  Short of personal	
	Nurses had fear to start			
	Nurses felt they had not enough knowledge about the dying phase			
	Feel that they aren't allowed to write a report			
<b>Facilitators</b>	Motivated nurses	Clear document	Willing to implement new interventions	No obliged education
	Enthusiastic nurses	Structured document	Open for new development	Senior support nurse gave positive feedback to colleagues Train the trainee
	Enthusiastic and motivated project leader	Well-organised and insightful document	Positive attitude of management towards the LCP	
	Nurses feel they benefit from the LCP	Self-explanatory		Adjusted to nurses and physicians Nurses positive about introduction email
	Young nurses are more willing to work with new interventions	Improves quality of care for patients		
	Nurses and physicians positive attitude towards the LCP Nurses felt there was always someone to help them to fill in the LCP	Better than usual care  No flowchart		
		Multidisciplinary		

**Tailored implementation of the LCP**

Very successfully implemented  
 Excellently implemented  
 Implementation at well time schedule  
 Intervention implemented by nurses  
 Nurses want information about the intermediate outcome during a meeting

## Dutch Summary / Nederlandse Samenvatting

**Titel:** Een op maat gemaakte implementatiestrategie voor de interventie Zorgpad Stervensfase.

**Inleiding:** In Nederland overlijden ieder jaar meer dan 136.500 mensen. Het Zorgpad Stervensfase biedt evidence-based, multidisciplinaire verzorging voor stervenden en is ontwikkeld om zorg voor stervenden en hun naasten te optimaliseren. Onderzoek naar een effectieve vorm van implementatie voor het Zorgpad Stervensfase is nog niet verricht. In deze studie is het Zorgpad Stervensfase op maat geïmplementeerd volgens het Innovatie Contingentie model van Van Linge.

**Doel en onderzoeksvraag:** Onderzoeken of een effectieve op maat gemaakte implementatiestrategie voor het Zorgpad Stervensfase kan leiden tot verbetering van zorg voor patiënten op een afdeling Interne Geneeskunde van een algemeen ziekenhuis.

Onderzoeksvraag: Wat is de intermediaire effectiviteit van de op maat gemaakte implementatiestrategie op de multidisciplinaire interventie Zorgpad Stervensfase op een afdeling Interne Geneeskunde van een algemeen ziekenhuis.

**Methode:** Een mix-method pre- en posttest design.

Populaties: Verpleegkundigen en dossiers van overleden patiënten.

Parameters: Implementatie effectiviteit, de configuratie van de afdeling en de innovatie (het Zorgpad Stervensfase), documentatie van patiëntenzorg en een procesevaluatie.

**Resultaten:** Implementatie effectiviteit op groeps- en patiëtniveau was 3.15 en 3.25 (schaal 1-5). Er waren geen duidelijke veranderingen zichtbaar in de configuratie scores. Implementatie effectiviteit op individueel niveau was 3.9. Het dossieronderzoek leidde tot verschillende significante verbeteringen in documentatie van patiëntenzorg. Bij de procesevaluatie werden vaker faciliterende dan belemmerende factoren genoemd.

**Conclusie:** De intermediaire effectiviteit van een op maat gemaakte implementatiestrategie voor de multidisciplinaire interventie het Zorgpad Stervensfase op een afdeling Interne Geneeskunde van een algemeen ziekenhuis was deels succesvol.

**Aanbevelingen:** Verder onderzoek met een langer tijdpad, meerdere meetmomenten en includeren van patiëntenzorg is noodzakelijk om te kunnen bepalen of een op maat gemaakte implementatiestrategie voor het Zorgpad Stervensfase daadwerkelijk effectief is.

**Trefwoorden :** Evolutiestrategie, op maat gemaakte implementatie en het Zorgpad Stervensfase.

## English Abstract

**Title:** Tailored Implementation Strategy for the intervention Liverpool Care Pathway for the Dying.

**Background:** Each year over 136.500 people pass away in the Netherlands. The Liverpool Care Pathway for the dying (LCP) is a template of evidence-based, multidisciplinary care of dying and optimizes the care for dying patients and their relatives. There is no research conducted about effective ways to implement the LCP. The LCP is tailored implemented according to the Innovation Contingency model of Van Linge.

**Aim and research question:** To investigate if an effective tailored implementation strategy for the LCP can contribute to improve care for patients on an internal medicine ward of a general medical hospital.

Research question: what is the intermediate effectiveness of a tailored implementation strategy for the multidisciplinary intervention LCP on an internal medicine ward of a general medical hospital.

**Method:** A mix method one group pretest-posttest design.

Populations: Nurses and charts of deceased patients.

Parameters: implementation effectiveness, the configuration of the ward and innovation (LCP), documentation of patient care and a process evaluation.

**Results:** The implementation effectiveness on group- and patient level was 3.15 and 3.25 (scale 1-5). There were no clear changes in the configuration scores. The implementation effectiveness on individual level was 3.90. The charts showed several significant results in documentation of patient care. In the process evaluation more often facilitators were mentioned than barriers.

**Conclusion:** The intermediate effectiveness of a tailored implementation strategy for the multidisciplinary intervention LCP on an internal medicine ward of a general medical hospital was partially successful.

**Recommendations:** Further research with a longer time schedule, repeated measurements and including patient care will be necessary to determine if a tailored implementation strategy for the LCP is indeed effective.

**Keywords:** Evolution strategy, tailored implementation and Liverpool Care Pathway for dying (LCP).