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A residential aged care end-of-life care pathway (RAC EoLCP) for Australian aged care facilities

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Abstract

The objective of this study was to develop, implement and evaluate an end-of-life (terminal) care pathway and associated infrastructure suitable for Australian residential aged care facilities that improves resident and health system outcomes. The residential aged care end-of-life care pathway was developed by a multidisciplinary collaboration of government and non-government professionals and incorporated best clinical management for dying residents to guide care and increase palliative care capacity of generalist staff. Implementation included identifying and up-skilling Link Nurses to champion the pathway, networking facilities with specialist palliative care services, delivering education to generalists and commencing a Palliative Care Medication Imprest System in each facility. The primary outcome measure for evaluation was transfer to hospital; secondary measures included staff perceived changes in quality of palliative care provided and family satisfaction with care. Results indicated that the pathway, delivered within a care framework that guides provision of palliative care, resulted in improved resident outcomes and decreased inappropriate transfers to acute care settings.

What is known about the topic? Residential aged care facilities (RACFs) are the hospices of today. Many RACF staff are not confident in the delivery of high quality palliative care, resulting in inappropriate transfers of dying residents to acute care facilities. Needs-based palliative care pathways are being used increasingly to direct care in a variety of healthcare environments.

What does this paper add? Provides the first evidence in Australia that a residential aged care end-of-life care pathway (RAC EoLCP) improves outcomes of care for dying residents and results in fewer residents being inappropriately transferred to acute care facilities.

What are the implications for practitioners? Use of the RAC EoLCP will improve resident and health system outcomes by guiding the delivery of high quality palliative care and improving the palliative care capacity of generalist health providers.

Introduction

There is agreement across policymakers, peak relevant professionals in palliative care and aged care, consumers and carers that residents of residential aged care facilities (RACFs) should be able to age and, if possible, to die 'in place' in their RACF.[1,2] In Australia, 7% of people aged over 65 years live in RACFs and in 2006 the proportion of separations from RACFs due to death was 86.8% with 25% of those residents having had a length of stay of less than 26 weeks.[3] RACFs are the hospices of today and likely to remain so into the future; nonetheless there is professional consensus that people in RACFs frequently receive less than optimal palliative care.[4] Management and staff of Australian facilities need to be supported to provide high quality end-of-life care for this growing and vulnerable population. Failure to do so can result in poor resident outcomes as well as poor health system outcomes if dying residents are inappropriately transferred to emergency departments.

There is increasing support for the use of integrated care pathways to implement and monitor standardised best practice of various medical conditions or sets of symptoms.[5] The Liverpool Care Pathway (LCP) for the Dying Patient is a palliative care pathway designed in the UK to enable all healthcare workers to provide optimal end-of-life care to dying patients in their last hours or days of life by guiding clinical decision making. The LCP is evidence-based and provides guidance around key aspects of care including symptom control, comfort measures, anticipatory prescribing of medications, discontinuation of inappropriate interventions, psychological

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and spiritual care and care of the family (both before and after death of the patient). It is structured to facilitate audits of documented processes rather than evaluating outcomes of care.[6,7] The LCP has been adapted to suit most local healthcare environments, including many in Australia where evaluation of effect has been limited to documentation audits.[8]

The aim of this project was to develop an end-of-life (terminal) care pathway suited for use within Australian RACFs, to implement it within a framework of care across demonstration sites and to evaluate it using various outcome measures.

Methods

The pathway and associated infrastructure

A working group was established to produce the residential aged care end-of-life care pathway (RAC EoLCP). The group was a multidisciplinary collaboration of professionals from government and non-government bodies including Aged Care Queensland, the Royal Australian College of General Practitioners (RACGP), Divisions of General Practice, Metro South Palliative Care Services (Queensland Health), Blue Care Queensland, as well as clinical representatives from RACFs.

Development of the pathway was an iterative process requiring numerous drafts to achieve a user-friendly final document. The document needed to provide a comprehensive template of care that could empower generalist workers to deliver consistent and appropriate palliative care and which complied with jurisdictional and workplace constraints.

Particular developmental requirements of the pathway were:

- Inclusion of evidence and consensus-based best clinical management and care coordination for dying residents as defined by the core values of palliative care expressed by Palliative Care Australia (PCA).[9]
- Relevance of content in the context of Australian RACFs and, specifically, the need for content to be simple to understand and follow.
- Avoidance of the need for clinicians to duplicate the documentation of clinical information in multiple records.
- Compliance with Australian Council of Health Care Standards (ACHS) and Aged Care Standards accreditation requirements.
- Fulfilment of Health Insurance Commission (HIC) requirements to enable General Practitioners (GPs) or other medical officers to claim Medicare items, if appropriate.
- Compliance with Aged Care Funding Instruments (ACFI) to facilitate claiming item 12 'Complex Health Care'.

Iterations continued until RACF staff, not involved in the pilot, reported that the RAC EoLCP document was easy to use, understand and follow.

A marketing strategy to ensure buy-in from pilot RACF site management and staff, GPs and specialist palliative care services was run out throughout the project timeframe from 1 April 2007 to 31 December 2008. This strategy included face-to-face meetings, articles in sector newsletters, presentations at RACFs, production of health professional specific resource folders, change management and palliative care education workshops and onsite education sessions. GPs working within pilot RACFs were targeted; relevant information was posted to surgeries and six workshops, accredited with the RACGP for continuing professional development, were conducted to inform over 60 GPs of the uses of the pathway and end-of-life care.

RACF management nominated staff to become Link Nurses and to champion the RAC EoLCP and associated infrastructure within their facility. Link Nurses were mentored by a palliative care nurse practitioner who provided onsite and telephone support as well as organising regular Link Nurse workshops.

A medication imprest system for drugs commonly used in palliative care was considered necessary to ensure residents had timely access to medications after commencing on the pathway. Confirmation was received from Queensland Health, the jurisdictional body, that it was possible to commence imprest systems within all pilot sites.

Pilot sites

Inclusion criteria for RACF pilot sites were: location within Brisbane, large number of high care beds, management knowledge of the Department of Health and Ageing document 'Guidelines for a palliative approach in residential aged care facilities'[10] and in principle management support for the project. Based on geographical convenience, a cohort of seven potential RACFs was identified. After ethics clearance, sites provided written agreement to participate.

All pilot RACFs were managed by non-government organisations. The total number of high care beds across the facilities was 693.

Implementation

Prior to implementation, introductory education sessions were scheduled at individual sites to introduce the RAC EoLCP to management and clinical staff. Clinical staff education focussed on recognition of the signs and symptoms associated with the terminal phase of life,[10] as these constituted the criteria for the commencement of the pathway as well as management of end-of-life symptoms.

Evaluation

An evaluation strategy, based on outcome and process measures concerning dying residents, staff and bereaved relatives, was constructed.

Although there are no established clinical indicators of best outcomes for palliative care patients, PCA acknowledges that hospitalisation is inappropriate for many people at the end-of-life and is thus a potential indicator of sub-optimal care.[1] It was decided for the project that the primary outcome measure of clinical care would be transfer to hospital of dying patients. Place of death, for all deaths occurring in the trial sites, was audited 3 months before implementation and during implementation. For the implementation period, place of death was also cross-classified according to whether or not the patient had been commenced on the RAC EoLCP.

Surveys were developed to evaluate any perceived changes by staff (registered nurses, endorsed enrolled nurses, enrolled nurses and nursing assistants) in the quality and processes surrounding the palliative care they delivered consequent to the use of the RAC EoLCP, particularly over the last 3 days of a resident's life. Issues addressed were directly related to the 'Standards for the provision of providing quality palliative care for all Australians' PCA[9] and measured on 7-point scales (endpoints of strongly disagree and

strongly agree). Surveys were administered confidentially on four different occasions: at pre-implementation and three times during implementation at 3, 9 and 18 months.

Similar surveys were developed for bereaved relatives (or those indicated as the contact person on the RACF records) of residents dying during the 3 month pre-implementation and throughout the implementation periods. In the implementation period only bereaved relatives of residents commenced on the RAC EoLCP were surveyed. Survey items addressed perceptions about the relatives' experiences and resident care. Responses were measured on 7-point scales (endpoints of strongly disagree and strongly agree). Surveys were posted to bereaved relatives 1 month after the death of a resident. If no response was received within 1 month a second survey was sent with no further follow-up. Confidentiality was ensured.

Results

Development and implementation

Copies of the RAC EoLCP can be downloaded from www.caresearch.com.au. It was tailored from existing pathways including the LCP and the NSW Central Coast Collaborative Pathway (see http://nscchealth.nsw.gov.au/areas/ccahs/pall_care/index.htm, accessed 10 January 2010). The RAC EoLCP specifically aims to promote:

- Advance care planning.
- Proactive and multidisciplinary management of resident and family care across all domains of palliative care.
- Dying 'in place' for residents with timely and optimal symptom management.
- Increased professionalism and palliative care capacity for generalist care providers within RACFs.
- Compliance with medico-legal reporting requirements.

In June 2007, 17 pre-implementation workshops were presented to 157 RACF management and non-RACF attendees. Introductory implementation sessions for RACF clinical staff were conducted during day, evening and night shifts. One site was unable to arrange for any staff to attend any pre-planned sessions. Issues cited by the Link Nurse included staff shortages and a lack of management interest and support. This RACF was withdrawn. Implementation proceeded from 1 July 2007 to 31 December 2008.

Throughout the project a total of 53 education and training sessions were delivered across the RACFs to familiarise staff with the concepts of care that underlie the RAC EoLCP. Sessions were facilitated by Link Nurses and specialist palliative care service providers. A total of 514 health care generalists attended the sessions.

During implementation a palliative care nurse practitioner provided ongoing opportunistic case-by-case support for the six RACFs and a palliative care medical officer offered telephone support, as needed, for participating GPs.

Primary outcome measure: transfer to hospital

Over the project timeframe a total of 299 deaths were audited, including 46 in the pre-implementation period and 253 in the implementation period (see Table 1).

Table 1. Place of death for all dying residents (299) across the six pilot sites during the project timeframe: (*a*) pre-implementation period (46 deaths) and (*b*) implementation period (253 deaths)

Significantly more residents who were commenced on the EoLCP were able to die in the RACF compared to those not commenced on the pathway, $\chi^2 = 22.9$, d.f. = 1, $P < 0.001$

	Percentage (*n*) of residents commenced on RAC EoLCP	Percentage (*n*) of residents not commenced on RAC EoLCP
(*a*) Place of death, pre-implementation		
RACF	Not applicable	78.3% (36)
Hospital	Not applicable	21.7% (10)
(*b*) Place of death, implementation		
RACF	98.3% (116)	78.5% (106)
Hospital	1.7% (2)	21.5% (29)

During the implementation period 12% (31/253) of dying residents were transferred to hospital compared with 21.7% (10/46) in the pre-implementation period. 98.3% of residents commenced on the RAC EoLCP were able to die 'in-place' in their RACF. During the implementation period, the proportion of residents transferred to hospital at end-of-life was significantly less for those on the RAC EoLCP (1.7%) than for those not commenced on the RAC EoLCP (21.5%). The difference in place of death between those commenced on, and those not commenced on, the RAC EoLCP is statistically significant ($\chi^2 = 22.9$, d.f. = 1, $P < 0.001$).

An unexpected result was that only 47% (118/253) of dying residents were commenced on the RAC EoLCP in the implementation period. Across facilities the percentages of dying residents commenced on the RAC EoLCP ranged from 27.6 to 69.3% (see Fig. 1). Uptake was not correlated with facility size.

Secondary evaluation measures: RACF staff surveys

A total of 224 RACF clinical staff returned 473 questionnaires over the four sampling times. Due to staff turnover and staff availability, only 52 staff members completed the questionnaire

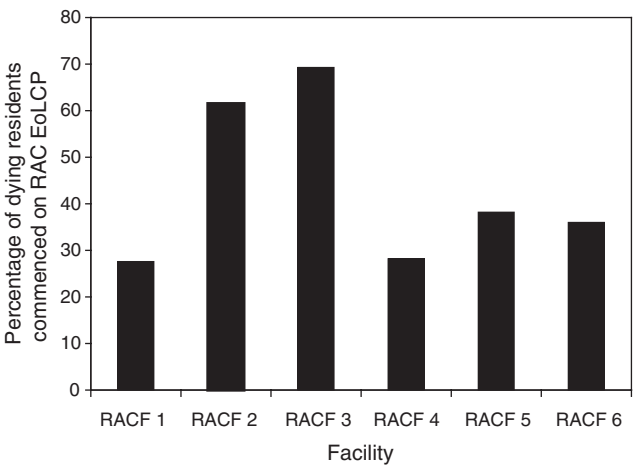

Fig. 1. Percentages of dying residents commenced on the RAC EoLCP in the implementation period across the various RACFs.

on all four occasions. Table 2 lists the 16 survey items rated and corresponding PCA Standard number. For these items there was high internal consistency at each of the time points, with Cronbach's α of at least 0.95 at each time point. These reliability analyses were based on the number of staff who completed all 16 questions. Similarly, principal components analysis indicated that one factor, perceived quality of palliative care delivered, adequately captured the variability in the ratings, with the percent of variability accounted for by the factor ranging from 59 to 74% across time points; all items load at least 0.6 on the factor across each time point, supporting the internal consistency indices.

Due to different numbers of staff completing questionnaires at different time points, ratings were analysed as independent samples across time, with the number of staff members contributing ratings being 170 at time one (pre-implementation), 88 at time two (after 3 months), 114 at time three (after 6 months) and 96 at time four (after 18 months). Mean rating at each time point was computed and statistical tests of linear trend were conducted to test for systematic increases in ratings across the roll-out of the RAC EoLCP. On all items, except item 10, there was evidence of a significant increase in ratings across the time points. Averaged across items, mean total scores were 5.6 pre-implementation, 6.0 at both 3 and 9 months, and 6.3 at 18 months. The linear increase across time was statistically significant, $F(1,468) = 30.7$, $P < 0.001$. Taken as a whole these results indicate that staff perceived an improvement in the quality of, and their satisfaction with, the palliative care and end-of-life care provided by their RACF consequent to the introduction of the RAC EoLCP and associated infrastructure.

Staff were invited to add comments relevant to their pathway experience. In the main they were appreciative of the introduction of the RAC EoLCP – 'before staff have had little training in palliative care and are sometimes very scared of caring for the dying', 'the pathway has shown to be an excellent teaching tool for AINs' – and many reported positive consequences –'I believe our facility has become more skilled and competent when caring for palliative residents since the introduction of the EoLCP', 'since the introduction of the pathway I feel like I now do more to make residents on pathways more comfortable'– though others were more circumspect –'I strongly feel that the staff programme

Table 2. Evaluation items rated by RACF staff over the project timeframe, corresponding PCA Standard and mean ratings over the four time points
Time of evaluation ratings could range from one to seven, with higher score indicating stronger agreement. For all items except item 10 there was a statistically significant increase in ratings across time points as assessed by tests of linear trend

Number	PCA standard number	Survey item	Time of evaluation			
			Pre-implementation $n = 170$	After 3 months $n = 88$	After 9 months $n = 114$	After 18 months $n = 96$
1	10	This aged care facility provides high quality end-of-life care for residents	5.7	6.1	6.0	6.3
2	9	This aged care facility offers information regarding palliative care and end-of-life care to residents and their relatives	5.5	6.1	6.0	6.4
3	7	This aged care facility routinely accesses specialist palliative care services	5.7	6.2	6.0	6.4
4	11	This aged care facility fosters a culture of evidence-based palliative and end-of-life care	5.3	6.0	6.0	6.3
5	13	This aged care facility offers support for staff providing palliative and end-of-life care	4.8	5.7	5.5	5.9
6	12	This aged care facility routinely provides palliative care training and education for staff	5.0	5.6	5.8	6.1
7	4	Care is well coordinated in the last 3 days of each resident's life	5.5	6.1	6.1	6.4
8	2	The holistic needs of each resident are addressed in the last 3 days of their life	5.4	6.1	6.0	6.2
9	1	Care is extended to relatives as well as residents in the last 3 days of each resident's life	5.7	6.1	6.1	6.3
10	6	Residents' relatives are routinely informed of changes in each resident's condition, including when the resident is approaching death	6.2	6.3	6.3	6.5
11	5	Residents' relatives are routinely given information, support and guidance in the last 3 days of a resident's life	5.9	6.2	6.1	6.4
12	1	Residents' relatives are included in decision making regarding a resident's care in the last 3 days of their life	6.1	6.2	6.2	6.5
13	2	The emotional, religious and cultural needs of residents' relatives are addressed in the last 3 days of each resident's life	5.9	6.1	6.0	6.2
14	3	The needs of each resident are regularly reassessed in the last 3 days of their life	5.9	6.2	6.3	6.5
15	3	The needs of the relatives are regularly reassessed in the last 3 days of each resident's life	5.5	5.9	5.9	6.2
16	8	Information regarding the availability of bereavement support services is routinely provided to residents' relatives	5.1	5.4	5.6	5.7

is still not done well/standard by certain registered nurses', 'especially don't know when to start someone on the pathway', 'there are difficulties with doctors at times'.

Secondary evaluation measures: bereaved relatives' evaluations

Surveys were returned by 87 bereaved relatives: 21 during the pre-implementation period (53% response rate) and 66 from the implementation period (59% response rate).

Reliability analysis indicated that the internal consistency of the scale was excellent (Cronbach's $\alpha = 0.97$), suggesting that the items assess a single dimension of overall quality of care. Principal components analysis revealed that a single factor accounted for 73.3% of the variability in responses, corroborating the high internal consistency coefficient.

As can be seen from Table 3, all pre-implementation means tended to be high, indicating that relatives were satisfied with the standard of care received by their loved one within the RACF before the project. Averaged over items and carers, total mean level of satisfaction pre-implementation was 6.0 (s.d. = 1.2, $n = 21$) and 5.9 (s.d. = 1.2, $n = 66$) during implementation. Unlike staff evaluations, there was no significant difference in relatives' ratings across the pre- and post-implementation periods, $t(85) = 0.38$, $P = 0.7$. Satisfaction with care remained high throughout the project.

Relatives were invited to add any comments relevant to their experience or that of their loved one during the dying process. Comments were generally positive; the most common exceptions were related to resource issues, for example staffing levels were mentioned several times, with one relative reporting 'shameful staff-to-resident ratios'.

Discussion

Previous support for the use of end-of-life care pathways, both internationally and in Australia, has been derived from compliance documentation audits; that is, whether staff successfully completed pathway documentation processes.[5,8] This project has

Table 3. List of evaluation items rated by bereaved carers over the project timeframe, the corresponding PCA Standard, pre and implementation mean ratings and the 95% confidence interval

Number	PCA standard number	Item	Pre-mean (s.d.)	Post-mean (s.d.)	95% CI of the difference
1	10	I feel the residential aged care facility provided high quality end-of-life care for my loved one	6.20 (1.39)	6.15 (1.09)	–0.55, 0.64
2	6	I was made aware of what changes to expect when my loved one was approaching death	5.87 (1.50)	5.34 (1.79)	–0.37, 1.43
3	1	I was involved in the decisions made regarding the care of my loved one	6.33 (0.83)	5.88 (1.42)	–0.23, 1.14
4	4	I feel the care of my loved one was well planned	6.10 (1.49)	5.96 (1.25)	–0.53, 0.80
5	4	I always knew who to approach if I had questions	6.35 (0.95)	5.81 (1.63)	–0.23, 1.30
6	5	I was provided with all the information, support and guidance I needed regarding my loved one's condition	6.05 (1.25)	5.73 (1.51)	–0.42, 1.06
7	3	Staff regularly checked with me to see if I was happy with changes in the care given to my loved one	5.89 (1.38)	5.52 (1.60)	–0.44, 1.18
8	1	I felt that the staff extended their care to include me	6.15 (1.47)	5.87 (1.52)	–0.48, 1.05
9	8	Staff talked to me about loss and grief feelings that I may experience	4.69 (1.91)	4.60 (2.09)	–1.00, 1.19
10	8	Staff advised me where to get support if I needed it	3.84 (2.17)	4.28 (2.16)	–1.57, 0.70
11	7	I would recommend this facility to other people who have loved ones who are close to death	6.20 (1.29)	6.14 (1.5)	–0.68, 0.81
12	1	The staff showed respect for my loved one and treated him/her as an individual	6.44 (1.00)	6.32 (1.06)	–0.42, 0.67
13	1	The care given to my loved one was tailor-made to his/her wishes	5.87 (1.34)	6.03 (1.35)	–0.88, 0.56
14	2	Staff were attentive to my loved one's physical well-being	6.26 (1.09)	6.28 (1.10)	–0.59, 0.55
15	2	Staff were attentive to my loved one's spiritual well-being	5.83 (1.55)	5.85 (1.69)	–0.90, 0.87
16	2	Staff were attentive to my loved one's emotional well-being	5.89 (1.58)	6.07 (1.35)	–0.93, 0.57
17	2	Staff were attentive to my loved one's cultural well-being	6.06 (1.17)	6.11 (1.25)	–0.75, 0.65
18	3	Staff were flexible when responding to changes in my loved one's condition	6.07 (1.28)	6.19 (1.21)	–0.77, 0.53
19	4	The care of my loved one was well coordinated by all those involved	6.02 (1.27)	6.09 (1.26)	–0.72, 0.57
20	6	The dignity of my loved one was always maintained	6.33 (0.93)	6.31 (0.96)	–0.46, 0.49
21	6	Staff always tried to keep my loved one comfortable and control symptoms	6.26 (1.27)	6.39 (1.10)	–0.70, 0.44
22	7	Overall, the care of my loved one in the last days of his/her life was excellent	6.24 (1.36)	6.29 (1.15)	–0.66, 0.56
Total scale			6.00 (1.20)	5.89 (1.19)	–0.48, 0.71

generated the first evidence in Australia that the implementation of an end-of-life care pathway (the RAC EoLCP) and associated infrastructure within RACFs significantly improves outcomes of care for dying residents. Specifically, it provides evidence that residents commenced on the RAC EoLCP are significantly more likely to die 'in place', therefore less likely to be inappropriately transferred to an acute care facility. Facilitating residents to die 'in place' has clear economic advantages to the Australian health system. The methodology used in the study was easy to generalise across facilities, suggesting that it can be used as a means to standardise end-of-life care within RACFs.

Commencement of a patient on the pathway was a clinical decision, guided by the signs and symptoms associated with the terminal phase. It is possible that individual clinicians' decisions may have introduced bias and thereby possibly confounding the study. Certainly the relatively low percentage (47%) of dying residents commenced on the RAC EoLCP was unexpected. Other studies have suggested that low pathway commencement rates may reflect difficulties experienced by RACF clinical staff in making a diagnosis of dying.[11,12] In our study, research staff commented that many dying residents not commenced on the RAC EoLCP were actually eligible for the pathway as they had met three or more of the commencement criteria. This suggests that more education is required in this area.

The other unexpected result was individual differences between the facilities in pathway use. Anecdotally, RACF clinical staff suggested that RAC EoLCP use was influenced by various factors including facility management support for the project, Link Nurse commitment and turnover, RACF clinical staff turnover, GP support and the principal diagnosis of the resident – residents with cancer were more likely to be commenced on the pathway. Interestingly, the two facilities (RACF numbers two and three in Fig. 1) with the highest percentages of dying residents commenced on the RAC EoLCP were the only facilities that retained the same Link Nurse throughout the project. These facilities also had the highest numbers of staff attending educational sessions, suggesting higher levels of management support for the project.

RACF clinical staff reported significant improvements in the quality of palliative care provided by their facility as a result of the project. Aspects of improved care included symptom management, care coordination, inclusion of relatives in care decision making, information provided to residents and families and access to specialist palliative care service providers. These improvements are mirrored in qualitative findings reported in statewide reviews in Victoria and Western Australia concerning the use of palliative care pathways.[11,13] In this study the only aspect of care that did not rate significant improvement was related to communication with family regarding changes in the resident's condition. For this item the pre-implementation mean was high – indicating that facility staff were already proficient at informing relatives of changes in residents' conditions. A ceiling effect is the most likely explanation as to why the mean ratings for this item did not increase. Taken overall, the positive caring outcomes, which increased progressively throughout the project timeframe, suggest that the model of using the RAC EoLCP, supported by a Link Nurse networked with a specialist palliative care service, provides ongoing increases in palliative care capacity of generalist staff working in RACFs.

Relatives' satisfaction with care was rated highly in the pre-implementation phase and did not change significantly during implementation. The importance of this finding is difficult to interpret, particularly considering the lower numbers of residents transferred to hospitals and the improved quality of care reported by RACF staff consequent to the RAC EoLCP. Some literature argues that bereaved relatives' satisfaction with the standard of palliative care provided is not the most sensitive measure of quality of care as the death of a loved one is a unique experience.[3] Furthermore, the present study did not assess how closely involved the relative was with the resident or the RACF. In retrospect, given the low recruitment of eligible residents on the RAC EoLCP, it may have been useful to survey bereaved relatives of residents not commenced on the pathway during the implementation period rather than limiting relatives' surveys to the pre-implementation period. Such surveys may have provided data to further evaluate the effect of the pathway, both for the dying residents commenced on the pathway as well as those who were not.

The use of the RAC EoLCP and associated infrastructure may provide a mechanism to contribute to the key health reform area of 'Caring for people at the end of life' as outlined in the National Health and Hospitals Reform Commission Final Report 'A Healthier Future for all Australians', 2009. To enhance RACF management uptake of the model the RAC EoLCP and associated infrastructure could be more formally linked with the Aged Care Funding Instrument or facility accreditation processes.

Conclusion

This project focussed on the development, implementation and evaluation of an end-of-life (terminal) care pathway tailored to the clinical and jurisdictional requirements of Australian RACFs. Evaluation indicates that as well as guiding the delivery of high quality palliative care, the RAC EoLCP acts as an educational tool to increase the capacity of generalist staff within RACFs. It provides the first evidence in Australia that the use of a palliative care pathway improves outcomes for residents of RACFs, by allowing more residents to die 'in place'. This result has positive economic implications for the Australian health system.

Competing interests

The authors declare that no conflicts of interest exist.

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References

1 End of life care is everyone's affair – tackling the challenge of 'end of life'. Submission to the National Health and Hospitals Reform Commission. Canberra: Palliative Care Australia; 2008.

2 Abbey J. The reality for aged and community care and end of life. In: A Matter of Life and Death: Confronting the New Reality, Palliative Care Australia National Stakeholder Forum; 13 March 2008; Canberra. 2008.

3 Residential aged care services in Australia 2006–6: a statistical overview. Aged Care statistics series 26 No. AGE 56. Canberra: Australian Institute of Health and Welfare; 2008.
4 Abbey J, Froggatt KA, Parker D, Abbey B. Palliative care in long-term care: a system in change. *Int J Older People Nurs* 2006; 1(1): 56–63. doi:10.1111/j.1748-3743.2006.00010.x
5 Chan R, Webster J. End-of-life care pathways for improving outcomes in caring for the dying. *Cochrane Database Syst Rev* 2009; (Issue 4): CD008006.
6 Ellershaw J, Wilkinson S. Care of the Dying – A Pathway to Excellence. New York: Oxford University Press, 2003.
7 Ellershaw J, Foster A, Murphy D, Shea T, Overill S. Developing an integrated care pathway for the dying patient. *Eur J Palliat Care* 1997; 4: 203–7.
8 Hardy J, Maresco-Pennisi D, Gilshenan K, Yates P. Barriers to the care of the dying in Queensland, Australia. *J Palliat Med* 2008; 11(10): 1325–9. doi:10.1089/jpm.2008.0170
9 Standards for providing quality palliative care for all Australians. Palliative Care Australia; 2005. Available at http://www.palliativecare.org.au/Portals/46/Standards%20for%20providing%20quality%20palliative%20care%20for%20all%20Australians.pdf [verified 23 June 2011].
10 Guidelines for a palliative approach in residential aged care. Enhanced version approved by National Health and Medical Research Council. The National Palliative Care Program, Australian Government Department of Health and Ageing; 2006. Available at http://www.nhmrc.gov.au/_files_nhmrc/file/publications/synopses/pc29.pdf [verified 23 June 2011].
11 A pilot study of the use of the Liverpool Care Pathway in Western Australia. Final Report. Perth: WA Cancer and Palliative Care Health Network, Department of Health, Western Australia; 2009.
12 Duffy A, Woodland C. Introducing the Liverpool care pathway into nursing homes. *Nurs Older People* 2006; 18(9): 33–6.
13 Pathways for care in the last days of life: a review of current utilisation in Victoria. Melbourne: State Government of Victoria, Department of Health; 2009.

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