



# Evaluation of an advance care planning education programme for nursing homes: A Longitudinal study



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## SUMMARY

*Purpose:* To evaluate the success of a programme of Advance Care Planning education for nursing homes by examining the effect on staff knowledge, Advance Care Planning practice within the home and end-of-life hospital admission rates.

*Method:* Three longitudinal questionnaires assessing staff knowledge, Advance Care Planning Practice and hospital deaths completed before and after the initiation of the Advance Care Planning education programme by homes that had completed the training and those yet to undergo the training.

*Results:* Superior Advance Care Planning knowledge was evident in those staff that had completed the training. There was an increase of 85% in the number of Advance Care Plans completed in the training homes and an overall reduction in hospital deaths of 25% for residents from training homes.

*Conclusion:* A programme of Advance Care Planning education for nursing homes is successful in improving nursing home staff knowledge, increasing Advance Care Planning practice and reducing hospital deaths.

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## Introduction

There are approximately 18,500 nursing homes in England providing accommodation as well as nursing and personal care, with around 400,000 beds; it is estimated that between 92,000 and 119,000 of these residents die each year, representing between 19% and 25% of all deaths per year in England (NAO, 2008).

The End of Life Care Strategy, published by the Department of Health in 2008 with the aim of setting out a vision for giving people approaching the end of life more choice about where they would like to live and die, highlighted the accumulating evidence that many nursing home residents are transferred to hospital in their last days or weeks of life when this may not be their wish or in their best interests (DH, 2008).

Advance Care Planning (ACP) entails discussions and documentation of individuals' wishes and preferences for their future care. It is a means of improving end-of-life care by allowing planning and provision of care in line with patients' and their carers' priorities at a time when they may not be able to communicate their choices. ACP can include advance statements detailing patients' particular needs and preferences, advance decisions to refuse specific treatments which may be offered, such as non-oral feeding, and the appointment of a person to make decisions regarding care in the event of loss of capacity, e.g., Lasting Power of Attorney (Brinkman-Stoppelenburg et al, 2014).

Evidence shows that older people want to discuss end-of-life issues (Murray et al, 2006), and it has been demonstrated that ACP can have a

range of positive outcomes, including achievement of end-of-life preferences (Molloy et al, 2000; Detering et al, 2010) and in particular reduced end-of-life hospital admissions (Ratner et al, 2001; Degenholtz et al, 2004; Caplan et al, 2006). ACP can be particularly relevant and important for residents of nursing homes (Sharp et al, 2013 and Stone et al, 2013). These individuals are usually older and increasingly frail (26 % of those over 85, Clegg et al, 2013) may be in the last years of life and recognise that this is the setting where they will spend the remainder of their life (Mathie et al, 2012).

Both the End of Life Care Strategy and the Healthier Horizons for the North West (a paper published by the Strategic Health Authority detailing a vision for the health of people in the North West of England) recommend training to enable care home staff to carry out advance care planning for residents, with one anticipated outcome being reduction of inappropriate hospital admissions (DH, 2008; NHS North West, 2008). The Gold Standards Framework in Care Homes programme (GSFCH, 2004) is the most widely used end-of-life care training programme for care homes in the UK (Thomas and Lobo, 2011). It has pioneered the education around ACP for care homes and been shown to demonstrate positive outcomes for residents, staff and relatives (Kinley et al, 2013); however, it is costly and requires facilitator support.

The variable prevalence of ACP in care homes currently is in part down to lack of staff knowledge and confidence as well as other resident, family and communication factors (Froggatt et al, 2009; Stone et al, 2013). The ACP facilitator role for nursing homes in Wigan, a 'working class' town in Greater Manchester, England, with a population of approximately 97,000 was developed in response to the initiatives

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described above (DH, 2008; NHS North West, 2008) and began in April 2011 as a fixed 2-year post. The initial task of this project was to develop a programme of ACP training for nursing home staff, the 'intervention' in this study. The programme is based on the Gold Standards Framework in Care Homes programme (GSFCH, 2004) and responses to a baseline questionnaire carried out by the ACP facilitator to gauge local training needs. It consists of four workshops of around two hours each delivered over a period of 4 to 6 weeks covering 'Introduction to ACP', 'Legal and Ethical Issues', 'Communication' and 'Documentation' delivered using a combination of didactic teaching and interactive learning strategies such as role play and case study discussion, a format which has been shown to be associated with successful courses (Pulsford et al, 2013).

## Purpose

To evaluate the success of a programme of ACP education for nursing home staff by examining its effect on staff knowledge, ACP practice within the home and end-of-life hospital admission rates from the nursing home.

## Methods

### Sampling and Recruitment

There are twenty registered nursing homes in the Wigan borough. By August 2012, thirteen of the nursing homes had completed the training programme, with seven remaining to undergo the training between August 2012 and Spring 2013. All nursing homes were invited to participate in the study. The nursing homes are all privately owned by a number of different proprietors and vary in the number of beds they comprise.

A letter was sent to each nursing home manager of the homes whose owners had given consent, explaining the study and asking them to contact the researcher if they wished to participate. In nursing homes that agreed to participate, questionnaires and participant information sheets (PIS) were then left for staff to collect or sent to staff to complete.

The study population was all health care assistants and qualified nursing staff in all registered nursing homes in Wigan that consented to participate. Staff that did not have resident contact were excluded. Residential care homes were excluded.

### Data Collection

Three surveys were used to collect the data to address the study purpose:

- i) Knowledge-based questionnaire consisting of twelve fact-based questions on ACP with True/False/Don't Know responses designed by the ACP facilitator to test the awareness and understanding of ACP by individuals. A score of one point for each correct answer was awarded. This questionnaire was completed by staff from nursing homes that had gone through the training programme by August 2012, at the first training workshop (pre-intervention). Post-intervention, the same questionnaire was administered to all staff at all nursing homes that agreed to participate in this research, whether they had been through the training programme or not.
- ii) Survey of ACP practice within the nursing home (adapted by the ACP facilitator from the work of Froggatt et al, 2009), intended to ascertain the home's current level of engagement with ACP and completed by each nursing home manager. This survey collected data on ACP practice within the home looking at attitudes, confidence, and values around ACP; tools in use by the home; staff involved in ACP and also included the number of advance care plans in place at the point of question for their current residents.

The survey was administered to all nursing homes at the beginning of the project by the ACP facilitator and repeated by the researcher post-intervention.

- iii) Survey collating data on resident deaths completed by each nursing home manager. Nursing home managers were asked to record the number of nursing home deaths, hospital deaths and reason for and length of admission to hospital prior to death for each month of the year retrospectively. Data on hospital deaths were collected by the ACP facilitator for the 12-month period before the initiation of the project and was repeated for the period 1st August 2011 (2 months after the start of the ACP training programme for nursing homes project) to 31st July 2012 (the start of the research period).

### Data Analysis

The responses to the twelve questions on the knowledge-based questionnaire from both the original questionnaires administered before the training programme and the questionnaires administered in this study period were entered onto SPSS Statistics (version 20) and the percentage of correct answers calculated.

The means and 95% confidence intervals of the scores on the original pre-intervention questionnaires were calculated and compared with those post-intervention questionnaires completed by those having undergone the training. This was done individually for each of the twelve nursing homes that had received the training to date, and also as a pooled sample.

There was also a comparison of means between the post-intervention questionnaire results of those participants that did complete the training with participants who did not complete the training but work in nursing homes where the training had been delivered and with participants in nursing homes that were yet to receive any training, using a one-way analysis of variance test.

Numbers of advance care plans detailed on the ACP survey completed by nursing home managers both before the training intervention and after were entered onto SPSS Statistics (version 20.) The two sets of figures were compared to each other for each individual nursing home and analysed using descriptive statistics. There was also a pooled data comparison of all the homes' baseline answers with those following the training intervention.

The number of nursing home residents that died in hospital each month between April 2010 and March 2011 and the number of nursing home residents that died each month between August 2011 and July 2012 as recorded on the hospital death survey were entered on to SPSS Statistics (version 20) and the numbers compared. The total number of deaths was compared rather than the number of deaths month by month as the hospital admission rate and death rate is likely to be affected by the month of the year. A comparison was made for each nursing home and also a pooled data comparison.

### Ethical Considerations

Wigan and Leigh Hospice was the host organisation providing governance support for this study. This study did not require research ethics committee approval according to the Department of Health governance arrangements (DH, 2011) as it did not involve collecting data from patients. This position was confirmed with the National Research Ethics Service by consulting the Local Research Ethics Committee (North West).

Each care home proprietor was contacted to seek permission via their individual approval process to access the manager and staff in their care home and administer the relevant questionnaires.

## Results

Of the 20 nursing homes in Wigan, 16 proprietors gave approval for their home/s to be approached and invited to participate in the study. All 16 of these homes agreed to participate, 12 homes that had undergone training between June 2011 (14 months prior to the study start date) and June 2012 (2 months prior to the study start date) and 4 homes that were yet to receive the training.

### Knowledge-based Questionnaire

A total of 265 complete questionnaires were collected at the baseline point (beginning of workshop one) by the ACP facilitator. During this study, 80 questionnaires were completed by staff that had undergone the training, 89 by staff who did not receive the training when it was delivered at their home, and 40 questionnaires were completed by staff working in homes that were yet to receive the training. There were 4 questionnaires completed where it was not detailed whether the individual had undergone the training or not.

Ninety-one percent of the study participants were female, 8% male and 1% not recorded. One percent of the population were aged 16–18 years, 14% aged 19–25 years, 24% aged 26–35 years, 29% 36–50 years, 20% 51–65 years and 1% over the age of 65 years. Data were missing in 10% of cases. The majority of participants were health care assistants (78%), with 12% nurses, 4% managers and <1% 'other'. The information was missing in 6% of cases.

Table 1 shows the numbers of and mean scores on the knowledge-based questionnaires pre- and post-intervention for staff that underwent training for each nursing home that had received the programme by August 2012.

As Fig. 1 shows, there does not appear to be the anticipated trend in knowledge according to timing of training with there being no identifiable relationship between the percentage increase in knowledge and the time the training was received. Importantly, there does not appear to a significant loss of knowledge in those staff that received the training earliest, up to 14 months previously.

Analysis of the knowledge-based ACP questionnaire results as a pooled sample, rather than by individual home, revealed an anticipated trend in knowledge, with those staff who undertook the training scoring highest (mean score 74%; 95% CI 71% to 77%) staff in the homes where training had been delivered but had not undergone the training themselves scoring slightly lower (mean score 63%; 95% CI 60% to 67%) and staff in homes that had not yet received training scoring lowest (mean score 59%; 95% CI 54% to 64%). This compares with a pre-intervention baseline mean score of 55%; 95% CI 54% to 57% (Fig. 2).

A one-way between-group analysis of variance was conducted between the three groups of staff post-intervention: those that received the training, group 1; those working in homes where the training was delivered but who did not personally receive the training, group 2; and those in homes that have not yet received any training, group 3. There was a statistically significant difference at the  $p < 0.05$  level in questionnaire scores  $F(2, 206) = 16.7, p < 0.001$ . Post-hoc comparisons using the Tukey HSD test indicated that the mean score for group 1 ( $M = 74.13\%$ ,  $SD = 13.39$ ) was significantly different from group 2 ( $M = 63.06\%$ ,  $SD = 16.577$ ) and group 3 ( $M = 59.00\%$ ,  $SD = 16.5$ ). Group 2 did not differ significantly from group 3.

### ACP Survey (Table 2)

In the homes that had undergone the training and complete data were available, four out of the six demonstrated an increase in the mean number of advance care plans in place for current residents, with the mean increase being 11, representing an 85% increase in the number of completed advance care plans. At baseline, there was a mean of 13 completed advance care plans per home (24% of residents) and post-intervention a mean of 24 completed advance care plans per home (43% of residents). There was a reduction in the number of advance care plans in place for one trained home, one had a consistent number at baseline and follow-up, and there was incomplete data for six homes.

In the homes that had not yet undergone training, there was no meaningful increase observed, with the mean number of advance care plans recorded on the baseline questionnaire being zero and a mean number of advance care plans when the questionnaire was repeated during the study of one. Overall, two of the non-training homes had an increase in the number of advance care plans, one stayed the same and there was incomplete data for the fourth home.

### Resident Death Survey (Table 3)

For those homes that had had training by the start of the study period, August 2012, six out of nine homes for which comprehensive data were available (67%) had a reduction in hospital deaths for their residents. Overall, in these nine homes, there were 79 hospital deaths in 1 year pre-intervention and 59 hospital deaths post-intervention, representing an overall decrease of 25%. Three out of the nine homes had an increase but of these three one only had the training in June 2012, 11 months after the start of the data collection period; in another home, the training occurred in February 2012, 7 months after the data collection period with only one hospital death occurring after the

**Table 1**  
Knowledge-based Advance Care Planning questionnaire.

Home	Number of beds	Date of training	No. of baseline questionnaires completed	Mean score on baseline questionnaire	No. of questionnaires completed by staff who received training	Mean score on questionnaires completed by staff who received training	Difference
3	180	June 2011	23	56%	1	75%	↑19%
4	72	August 2011	53	58%	4	73%	↑15%
5	67	August 2011	12	49%	11	76%	↑27%
11	46	October 2011	25	53%	11	68%	↑15%
6	48	October 2011	15	63%	3	86%	↑23%
2 <sup>a</sup>	132	December 2011	72	53%	32	72%	↑19%
8	45	January 2012	16	61%	5	87%	↑26%
10	49	February 2012	22	57%	9	74%	↑17%
1	39	March 2012	12	45%	2	88%	↑43%
9	50	June 2012	2	67%	2	71%	↑4%
7	45	June 2012	13	54%	–	–	–

<sup>a</sup> Data combined for two homes as baseline data were amalgamated due to the two homes receiving the training together.

Bar Chart showing the mean percentage of correct answers on the knowledge-based questionnaire for staff that underwent the training by date of training

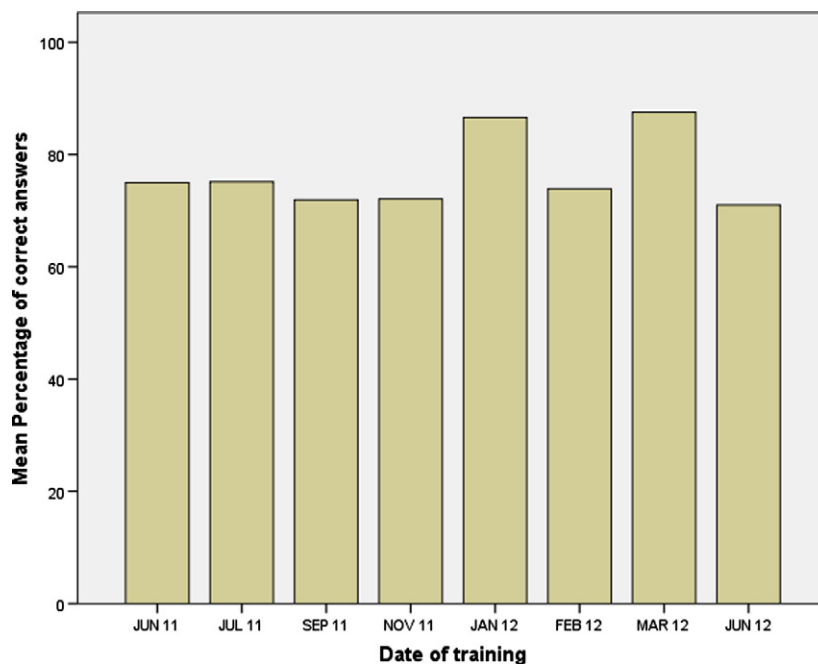


Fig. 1. Bar chart showing the mean percentage of correct answers on the knowledge-based questionnaire for staff that underwent the training by date of training.

training. In the remaining home, the training occurred 5 months after the start of the data collection period and the reasons for the admissions after the training appeared appropriate, e.g., unstable diabetes. The three homes that had not yet had the training and data were available

all had an increase in the number of hospital deaths between the two year-long data periods, from a total of 14 hospital deaths in 1 year at baseline to 26 hospital deaths in 1 year during the study, an overall increase of 86%.

Box plot displaying the distribution of scores on the knowledge-based questionnaires in the different groups

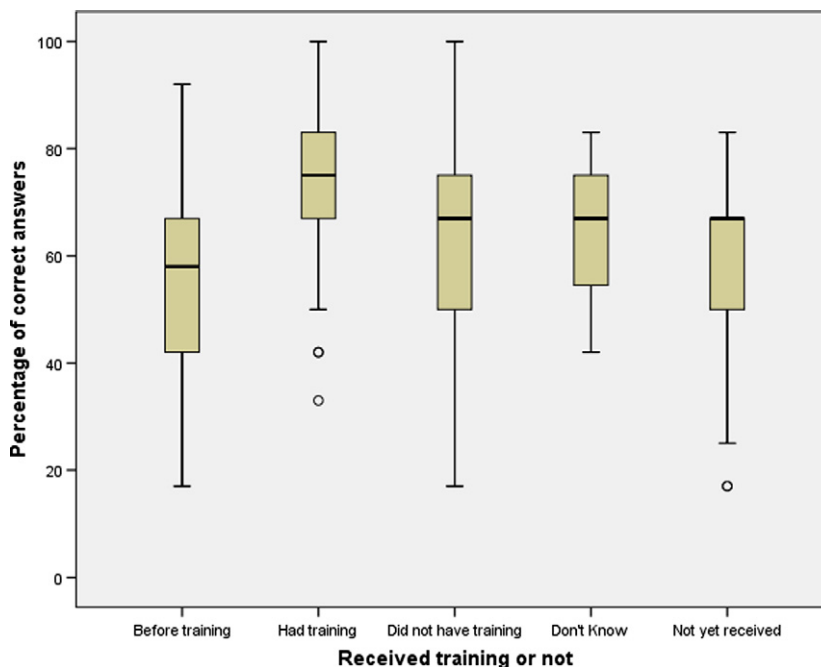


Fig. 2. Box plot displaying the distribution of scores on the knowledge-based questionnaires in the different groups.

**Table 2**

Survey of Advance Care Planning practice within the nursing home.

Home	Number of beds	Training status	No. of ACP documents at baseline (% of residents)	No. of ACP documents during the study (% of residents)	Difference (%)
3	180	Received training June 2011	–	–	–
4	72	Received training August 2011	1 (1.4)	10 (13.9)	↑9 (12.5)
5	67	Received training August 2011	3 (4.5)	65 (97.0)	↑62 (92.5)
11	46	Received training October 2011	0 (0)	30 (65.2)	↑30 (65.2)
6	48	Received training October 2011	43 (89.6)	2 (4.2)	↓41 (85.4)
2a	52	Received training December 2011	0 (0)	0 (0)	→
2b	80	Received training December 2011	–	–	–
8	45	Received training Jan 2012	32 (71.1)	–	–
10	49	Received training February 2012	32 (65.3)	35 (71.4)	↑3 (6.1)
1	39	Received training March 2012	5 (12.8)	–	–
9	50	Received training June 2012	0 (0)	–	–
7	45	Received training June 2012	–	–	–
12	58	Not received training	0 (0)	1 (1.7)	↑1 (1.7)
13	50	Not received training	0 (0)	1 (2)	↑1 (2)
14	62	Not received training	0 (0)	0 (0)	→
15	48	Not received training	0 (0)	–	–

## Discussion

Implementation of ACP improves end-of-life care and patient and family satisfaction (Detering et al, 2010); however, the nursing home workforce are generally not well equipped to execute this (Froggatt et al, 2009). A programme of ACP training for nursing home staff delivered using a recognised approach of a course of training and identification of link nurses (Waldron et al, 2008) in this town in Greater Manchester, England, has been shown to be effective in improving nursing home staff knowledge about ACP, increasing ACP practice within the home and reducing end-of-life hospital admission rates. This supports previous work where palliative care education programmes have increased staff knowledge with improved patient care as a result (Kenny, 2001; Stillman et al, 2005). The results were manifest across the homes regardless of the length of time since training demonstrating that the effect was enduring. This is in keeping with previous research into a palliative care education programme for community nurses, where the improvement in knowledge scores following the education initiative were maintained at 1 year (Hughes et al, 2006).

It is important that the person initiating or responding to discussions about end-of-life care preferences is appropriately trained, with sufficient knowledge and skills to engage in a meaningful process and

answer questions appropriately (Barnes et al, 2007; Stone et al, 2013). The intervention in this study did result in improved knowledge of ACP. There was a statistically significant difference at the  $p < 0.05$  level in the scores on the knowledge-based ACP questionnaire of staff that underwent the training compared with those that did not receive it at the time the training was delivered in their home, and staff in homes where the training has not yet been delivered, with those that underwent the training scoring highest. There were superior scores in the group of staff that did not attend training when it was delivered in their home compared to those staff in homes that have not yet received the training. Although this was not a statistically significant difference at the  $p < 0.05$  level, it does still demonstrate the effect of 'knowledge drift' in the nursing home population workforce, which again appears to be persistent over time. There have been different methods of sharing knowledge recognised in the literature. Trained staff can role-model good practice, which has been shown to be an effective learning tool in ACP education (Thomas and Lobo, 2011) and more explicit communication of information about training received also occurs to disseminate learning (Froggatt, 2000) as well as the more formally recognised link-nurse model (Froggatt and Houlst, 2002; Waldron et al., 2008).

In the homes that had undergone the training, four out of the six for which complete data were available demonstrated an increase in the

**Table 3**

Resident death survey.

Home	Training status	No. of hospital deaths 2010/11	No. of hospital deaths 2011/12 out of total deaths (%)	Percentage difference	Comment
3	Had training June 2011	38	25/100 (25%)	34% decrease	
4	Had training August 2011	–	3/19 (16%)		Cannot comment on no. but all admissions appear appropriate
5	Had training August 2011	4	2/9 (22%)	50% decrease	Only one hospital death after training
11	Had training October 2011	–	0/12 (0%)	–	No comparable data but no hospital deaths since training
6	Had training October 2011	8	5/20 (25%)	38% decrease	
2a	Had training December 2011	3	2/5 (40%)	33% decrease	No deaths after training
2b	Had training December 2011	7	12/28 (43%)	71% increase	71% increase but reasons appropriate, e.g., unstable diabetes and raised calcium
8	Had training Jan 2012	4	2/9 (22%)	50% decrease	
10	Had training February 2012	5	7/16 (44%)	40% increase	Only one death after training
9	Had training June 2012	1	2/27 (7%)	100% increase	Small numbers and all deaths before training
7	Had training June 2012	9	2/5 (40%)	78% decrease	Training June 2012, 11 months after start of data collection period
12	Not had training yet	5	12/27 (44%)	140% increase	Big increase but not had training yet
13	Not had training yet	4	6/30 (20%)	50% increase	Not had training yet
14	Not had training yet	5	8/19 (42%)	60% increase	Not had training yet
1					No data
15					No data



mean number of advance care plans in place for current residents, with a mean increase of 11, representing an 85% increase in the number of advance care plans. At the post-intervention stage, in homes that had undergone the training and had complete data, 43% of residents had an advance care plan in place. Despite the relatively short time frame in measuring change in this study, the results are comparable with other work, where rates of approximately 50% for advance care plan completion have been quoted as achievable following education interventions (Molloy et al, 2000). There was a reduction in the number of advance care plans in place for one training home which may reflect better understanding of what constitutes an advance care plan at follow-up, with the baseline figures perhaps not being a true representation of the situation. In the homes that had not yet undergone training, there was no real change in the number of advance care plans in place observed as expected. These data demonstrate that the training has had an impact on practice relevant to nursing home residents.

Nationally in the UK, there is a drive to reduce end-of-life hospital admission rates, particularly for nursing home residents (DH, 2008). This together with the fact that if given the choice residents would prefer to stay in their care home rather than be transferred to hospital at end of life (Mathie et al, 2012), and the significant cost of end-of-life hospital admissions (mean of £3173 per patient in one study; Abel et al, 2009) means that reducing hospital deaths is an important goal for any intervention. Of the nine homes that had completed the training by the start of the study period and complete data were available, six (67%) had a reduction in hospital death rates. The overall reduction was 25%. Of the three homes that had not received the training and data were available, all had an increase in the number of hospital deaths between the two year-long data periods, with the overall increase being 86%. This finding of reduced hospital admissions is in keeping with other ACP programme initiatives published in the literature (Molloy et al, 2000; Caplan et al, 2006 and Brinkman-Stoppelenburg et al, 2014).

#### *Implications of Findings and Further Work*

This study shows that a programme of ACP training for nursing home staff is effective and results in a change in practice. It is not possible to say from this study how long the intervention effect lasts, but it is possible to conclude that the outcomes persist for at least 14 months and therefore training would not need to be repeated more than on an annual basis.

To truly see if the effect of the intervention was persistent the study would need to be repeated again in the future; however, this should be at least 18 months after the last home received training to allow a significant amount of time to have passed to meaningfully measure this. Many studies, highlighted in a recent literature review have revealed the necessity of long-term commitment to education programmes for enduring change to ensue (Nolan et al, 2008). As discussed above, although ACP has been shown to result in achievement of end-of-life wishes (Detering et al, 2010), it is not clear from this study whether the initiative resulted in residents' wishes and preferences being achieved. Further research would be required to look at this as an end-point.

#### *Limitations*

One of the strengths of this study is the focus on three methods of assessing success, staff knowledge, number of advance care plans completed and hospital death rates. However, despite this, it does not consider the quality of the advance care plans in place or look at whether residents' preferences were achieved after completion of an advance care plan.

A common problem with educational initiatives in care homes is the high rate of staff turnover (Hockley et al, 2010). This study did not routinely collect data on nursing and health care staff turnover rates, but it

did elicit that in at least four of the homes the managers were different at the time the original ACP data were collected in April 2011 and when the post-intervention questionnaires were initiated in August 2012. It is therefore difficult to directly compare the responses related to knowledge and confidence on the two ACP surveys as any differences could be attributable to the individuals rather than an effect of the training.

The quality of the data collected on all three surveys was inconsistent, as was the response rate from the different homes. A key piece of information often missing from the knowledge-based questionnaire was whether the individual had completed training or not, meaning that these questionnaires had to be excluded from the analysis. The data would have been more powerful if individuals were tracked from the pre-intervention stage through to the study period. This direct comparison of results rather than that of the pooled sample would have potentially provided stronger evidence for a cause and effect relationship.

Regarding the ACP questionnaire, in many homes, the data recorded were incomplete, most commonly the number of advance care plans in place was missing. As this information relied on the manager's interpretation of an advance care plan, it is also unclear whether the understanding was consistent across the homes or between the pre- and post-intervention stage, which may explain why in some homes the number of advance care plans actually reduced after the training had taken place.

Regarding the death survey, again the data were often incomplete, with some homes not returning any information as their administration systems did not support it. Other homes did not provide any information on reasons for admission or length of stay prior to death, making it difficult to assess whether the admission was appropriate or not. Therefore, this aspect of the study is a fairly crude measurement of success of the programme, and again it is not possible to suppose a cause effect relationship.

#### **Conclusion**

A programme of ACP training for nursing homes in Wigan has been shown to be successful in improving nursing home staff knowledge, increasing ACP practice within the home and reducing hospital deaths.

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