

**Design and evaluation protocol for 'DEALTS 2': a simulation-based dementia education intervention for acute care settings.**

Dr Michelle Heward<sup>1,2</sup>, Dr Michele Board<sup>1,3</sup>, Ashley Spriggs<sup>1,3</sup>, and Prof Jane Murphy<sup>1,2</sup>.

<sup>1</sup> Ageing and Dementia Research Centre, Bournemouth University, Royal London House, Lansdowne Campus, Bournemouth, Dorset, BH1 3LT.

<sup>2</sup> Department of Human Sciences and Public Health, Royal London House, Lansdowne Campus, Bournemouth University, Dorset, BH1 3LT.

<sup>3</sup> Department of Nursing and Clinical Science, Bournemouth House, Lansdowne Campus, Bournemouth University, Dorset, BH1 3LH.

Corresponding author: Dr Michelle Heward [mheward@bournemouth.ac.uk](mailto:mheward@bournemouth.ac.uk)

Telephone: +44 (0)1202 962536

Fax: +44 (0)1202 962736

Ageing and Dementia Research Centre, Bournemouth University, R313a, Royal London House, Lansdowne Campus, Bournemouth, Dorset, BH1 3LT.

## **Design and evaluation protocol for 'DEALTS 2': a simulation-based dementia education intervention for acute care settings.**

### **Background**

There is a paucity of simulation-based dementia education programmes for acute care settings that support the development of interpersonal skills pertinent to good care. Moreover, few studies measure the effectiveness of such programmes by evaluating the persistence of practice change beyond the immediate timeframe of the workshops. We were commissioned by Health Education England (HEE) to develop and evaluate 'DEALTS 2', a national simulation-based education toolkit informed by the Humanisation Values Framework, developed at Bournemouth University and based on an experiential learning approach to facilitate positive impacts on practice. This paper describes the process of developing DEALTS 2 and the protocol for evaluating the impact of this intervention on practice across England.

### **Methods**

**Intervention development:** Following an initial scoping exercise to explore the barriers and enablers of delivering the original DEALTS programme, we developed, piloted and rolled out DEALTS 2 across England through a Train the Trainer (TTT) model. Key stakeholders were asked to critically feedback during the development process.

**Evaluation design:** Mixed methods approach underpinned by Kirkpatrick Model for evaluating effectiveness of training; assessing reaction, learning, behaviour and results. Evaluation forms and telephone interviews (quantitative and qualitative) with trainers that attended TTT workshops (n=196) and, once implemented in individual Trusts, the staff that the trainers train.

### **Conclusions**

Evaluation of implementation and impact on care delivery for people with dementia will provide evidence of effectiveness. This will support the future development of simulation-based education programmes, amidst the current complexity of pressure in resource limited healthcare settings.

**Key words:** simulation-based education; dementia; intervention; evaluation; experiential learning; train the trainer; implementation; Humanisation Values Framework

**Running title:** 'DEALTS 2' protocol: simulated dementia education

## **Introduction**

Worldwide the numbers of people with dementia (PWD) are predicted to continue to rise (WHO, 2017). Dementia is therefore a global public health priority. Despite this, evidence suggests that there are gaps in health professionals' knowledge, skills and attitudes towards dementia (Handley et al, 2017). In acute care settings, for example, communication is often a low priority due to workload and task oriented care, and this means that staff can lack the skills and knowledge to communicate properly with PWD which can lead to staff burnout (Downs and Collins 2015; Stans et al., 2013 cited Machiels et al., 2017). Therefore, effective education is needed in acute care settings to improve knowledge, communication and understanding of dementia to ultimately facilitate positive outcomes for PWD, their families and professionals. It has been noted that education that engages staff emotions is more successful at promoting person-centred care than a traditional classroom based lecture style approach (Cowdell, 2010; Scerri et al, 2017). Simulation is about imitating a situation or process, and is one approach that could help educators in acute care settings to engage staff emotions (Adefila et al, 2016; Leah et al, 2017).

Simulation-based education enables the imitation of real world scenarios in a safe environment to develop skills, knowledge and attitudes; whilst protecting patients from unnecessary risks (Lateef, 2010). Increasingly, simulation is being used in healthcare to educate and assess staff performance, with positive effects on staff behaviour and patient outcomes (Cook et al, 2011). Health educators use simulation as an educational method to teach and practice a range of clinical and non-clinical skills (Ryall et al., 2016), usually excluding interpersonal skills. In dementia education, the value of simulation for staff to gain insight into the lived experience

and develop their interpersonal skills has been acknowledged (Adefila et al, 2016; Leah et al, 2017). One pilot study reported increases in confidence amongst experienced hospital staff after a simulation-based dementia training day, which highlights the value of such approaches (Leah et al, 2017). However, few simulation-based dementia education programmes in hospitals have measured their effectiveness through evaluating the persistence of practice change beyond the immediate timeframe of the workshops (Surr et al, 2017a), indicating further research is needed.

### **The need for standardised dementia education in England**

In England there are currently over 700,000 PWD and this number is expected to rise to 850,000 by 2021 (Prince et al, 2014). Of those PWD living in England 451,561 or approximately 68 percent of PWD aged 65 and over and 39 percent of those aged under 65 have received a formal dementia diagnosis (NHS Digital, 2018). A quarter of PWD in England are admitted to hospital once per year (Young et al, 2011), which equates to 25 percent of beds at any one time (Alzheimer's Society, 2009; 2016). Older PWD are likely to be in hospital longer than an older people without dementia and have a worse mortality a year after admission (Reynish et al 2017). Hospital environments are not generally appropriate for PWD, as the layout can be impersonal and disorientating, whilst the presence or absence of staff can influence PWD emotionally (Dewing and Djik, 2014). Care focused on tasks or the condition rather than person-centred care can also mean that hospital environments are insufficient for PWD (Dewing and Djik, 2014). Staff need knowledge and skills to support good dementia care: as identified in dementia

studies (Dewing and Dijk, 2014; Griffiths et al, 2011; Young et al, 2011); audits and policy documents (Alzheimer's Society, 2009; 2016; Care Quality Commission 2014; Department of Health, 2009; Royal College of Psychiatrists, 2013). Whilst a plethora of training exists; there remains a lack of standardisation, making it difficult to measure effectiveness of training in acute settings. In England, for example, 135 acute Trusts employ trainers to deliver their own in-house training.

In direct response, the Dementia Education And Learning Through Simulation (DEALTS) programme was developed by Health Education England (HEE) to standardise dementia education across England in 2013/14. DEALTS utilised simulated learning approaches focusing on three topic areas supported by case studies: assessment; person-centred care; communication (Clarke, 2014; 2015). This was delivered using a Train the Trainer (TTT) model in 11 of 13 HEE regions, with trainers responsible for implementation in their employing Trust (Clarke, 2014; 2015). Implementation of DEALTS varied across England, and since its implementation a new three tiered programme of dementia training for all National Health Service (NHS) staff has been introduced, entitled the 'Dementia Core Skills Education and Training Framework' (DCSETF) (Skills for Health et al., 2015). This has since (in 2018) been reviewed and retitled the 'Dementia Training Standards Framework' to include food, drink and oral health (Skills for Health et al., 2018). The DCSEFT supports objectives for education, training and workforce development set out in the Prime Minister's Challenge on Dementia 2020 in the UK (Skills for Health et al., 2015). The three tiers build understanding and knowledge of dementia with Tier 1 focused on dementia awareness raising, Tier 2 on developing knowledge, skills and attitudes of staff in roles that have regular contact with people living with

dementia, and Tier 3 for those in key (expert) roles to enhance their knowledge, skills and attitudes of working with people with dementia in leadership roles (Skills for Health et al, 2015). With this in mind, HEE commissioned Bournemouth University (BU) to review the DEALTS programme to ensure it was mapped to Tier 2 of the DCSETF (Skills for Health et al., 2015). Undertaking this exercise was difficult as the DEALTS materials focused on person-centred care, communication and assessment which meant they actually mapped across tiers 2 and 3. Whilst reviewing the materials we also noted that the DEALTS materials lacked references to empirical evidence or a theoretical basis, something which has been highlighted as important in successful education programmes (Surr et al., 2017a; 2017b). These findings were feedback to HEE by BU, leading to a decision to develop new DEALTS 2 materials, which HEE commissioned BU to develop and evaluate.

DEALTS 2 is a simulation-based dementia education programme for staff in acute hospitals across England. It builds on DEALTS and is based on an experiential learning approach, using Kolb's (1984) four stage experiential learning cycle to frame the process of learning. Effective learning means the learner progresses through all four stages of the cycle: (1) having a concrete experience followed by (2) observation of and reflection on that experience which leads to (3) the formation of abstract concepts (analysis) and generalizations (conclusions) which are then (4) used to test hypothesis in future situations, resulting in new experiences (Kolb, 1984). In terms of DEALTS 2 this involves placing all hospital staff in regular contact with PWD (including Nurses, Medical Practitioners, Allied Health Professionals, Health Care Assistants, Porters and Receptionists) into the shoes of a person with dementia to gain an insight into the lived experience and reflecting on that

experience to support the development of interpersonal skills with the aim of facilitating positive impacts on practice (Adefila et al, 2016; Leah et al, 2017).

The training was mapped against learning outcomes described for Tier 2 of the DCSETF (Skills for Health et al, 2015), which addresses foundational knowledge, skills and attitudes relating to dementia and is underpinned by the Humanising Values Framework (HVF) (Todres et al, 2009). The HVF is a philosophical lens developed at BU that supports healthcare research, education and professional practice. The HVF identifies potentially humanising and dehumanising elements in caring systems and interactions (Todres et al, 2009). Integrating the HVF within DEALTS 2 allows staff to reconsider what it means to be human, and ultimately reflect this learning in their approach to patients, colleagues and the value of their own contribution (Hemingway et al, 2012). The aim is for staff to see the person behind the diagnosis.

### **Measuring effectiveness of dementia education**

There is paucity of evidence of the most effective approaches to training healthcare staff about dementia. Recent systematic reviews identify features of successful programmes to ensure the effectiveness of future dementia education programmes (Scerri et al, 2017; Surr et al, 2017a; 2017b). These include the use of group based activities and discussion of case examples, experiential and active learning approaches and combining in practice learning with theory/knowledge content (Scerri et al, 2017; Surr et al, 2017a; 2017b). Most published acute care dementia

education evaluation studies to date focus on the general awareness level which addresses Tier 1 of the DCSETF (Scerri et al, 2017; Surr et al, 2017a; 2017b). The present study therefore fills a gap by focusing on the development and evaluation of DEALTS 2 which is mapped to Tier 2 of the DCSETF relating to knowledge, attitudes and skills rather than just awareness (Skills for Health et al, 2015). DEALTS 2 was implemented through a TTT model, with trainers responsible for implementation in their employing Trust. This approach has been shown to be cost effective and therefore crucial as the healthcare sector continues to face resource pressures and reductions in training budgets (Wang, 2017; Pearce et al, 2012; Straus et al, 2009). Previous studies have focused on the implementation of dementia education in individual Trusts or regionally (for example Sampson et al, 2016), however DEALTS 2 is the first theory and evidence-based simulation toolkit to be rigorously evaluated nationally across England. The scale of this study therefore means that the findings will be of interest to those involved in dementia care and healthcare education in the UK and internationally.

### **Aims of study**

The aim of this study is to develop and evaluate DEALTS 2: a flexible simulation-based education and learning intervention. DEALTS 2 is suitable for all staff in acute care settings who have regular contact with PWD, including clinical and non-clinical staff and those with a professional registration. In this paper we describe the process of developing DEALTS 2, and the protocol for evaluating this intervention. Identifying key aspects of this process will support the future development of such education programmes across all healthcare settings (Scerri et al, 2017).



## **Method**

### **Intervention development**

Prior to developing DEALTS 2, understanding strengths and weaknesses of DEALTS and the barriers and enablers to implementation was important. This enabled BU to learn key lessons from the DEALTS programme and resulted in the development of new materials different to those used in DEALTS. Thus, DEALTS 2 was created using an iterative five stage process, enabling feedback to inform content development: (1) scoping exercise exploring barriers and enablers of delivering DEALTS (2) development of draft training materials (3) pilot of draft training materials (4) delivery of training (5) dissemination of training materials for implementation.

#### ***(1) Scoping exercise to explore barriers and enablers of delivering DEALTS***

The scoping exercise included a desk based internet search to explore existing dementia education and current best practice, alongside extensive discussions with HEE staff involved in DEALTS. A pre-existing package<sup>1</sup> aligned to Tier 1 of the DCSEFT informed the development of a structured session plan, slides, notes and worksheets for DEALTS 2. This was considered vital to ensuring consistency in the materials circulated to the trainers for use in their own training. Features of successful dementia education programmes identified in recent systematic reviews also shaped the design (Table 1). During the discussions with HEE staff, questions

---

<sup>1</sup> <https://hee.nhs.uk/our-work/person-centred-care/dementia/tier-1-training>

were asked about practicalities of implementing DEALTS and lessons learnt and if/how DEALTS was currently being delivered and any adaptations. HEE staff reported that DEALTS continued to be delivered in some HEE regions (predominately in one region). However, as Trusts deliver training in direct response to staff needs, all except one had adapted the contents accordingly. Some Trusts continued to deliver only the three topics covered in the original DEALTS programme, whilst others covered a range of topics aligned to quality targets (but in less depth): for example, one Trust included safe guarding, falls prevention and patients walking out of hospital. Of those Trusts delivering an adapted version of DEALTS, HEE staff were asked to comment on variances about how sessions were delivered. The reported variances were: length of session (whole/half day), target audience (all staff/select groups such as Ward Staff/Senior Managers); numbers of staff receiving training (regular monthly/less frequently), type of simulation (video/case studies/vignettes/role play), and use of additional resources (simulation suits to simulate frailty). HEE staff suggested a key enabler in one region was the opportunity for trainers to support their peers initially attending each other's training sessions and feeding back constructively. The main implementation barrier was the reliance on actors/colleagues to help run the simulations and the associated costs and training requirements this entailed.

## ***(2) Development of draft training materials***

Information gathered in the scoping exercise informed the development of a proposed structure of DEALTS 2, which was presented to a group of experts from HEE (including local dementia leads) in a half day workshop. Feedback informed the

development of the training materials. Training materials were developed by three of the authors (MH, MB, AS), each developing content for one topic, and then coming together to review as a team. It was evident from workshop feedback that not all Trusts have access to the same training resources. As such the toolkit would be aligned with variation theory providing a blend of simulation activities (role play/video/case studies) (Oliver and Trigwell, 2005), enabling individual Trusts to meet staff training needs within resources limitations. To ensure inclusivity and access for all Trusts low cost simulations requiring few resources (for example, printed sheets of paper) were created. For those with access to additional resources (such as suits designed to simulate declines in mobility, glasses to simulate eye conditions, and volunteers to help run simulations) examples of how these could enhance the simulations were discussed with trainers in the workshops. After implementation, examples of variation or adaption of the simulations being delivered by trainers will be captured in the evaluation data. .

To align to the DCSETF (Skills for Health et al. 2015), the (Tier 2) competencies were applied as the learning outcomes. This included a recap on Tier 1 at the beginning to refresh knowledge and allow trainers to identify gaps in knowledge within groups. Given the timeframe for delivery and associated budget, the materials developed focused on three of the 12 Tier 2 subjects: (1) person-centred care (2) communication, interaction and behaviour (3) risk reduction and prevention.

Reasons for choosing these subjects were that: (1) is central to enabling staff to develop interpersonal skills pertinent to good dementia care (Kitwood, 1997); (2) is a low priority in acute care settings given workload and task-orientated care, meaning

that staff can lack the skills and knowledge to communicate properly with PWD which can lead to staff burnout (Downs and Collins 2015; Stans et al., 2013 cited Machiels et al., 2017); and (3) is currently topical and relevant given the importance of reducing global dementia prevalence (WHO, 2017). Whilst the original DEALTS programme focused on undertaking a diagnostic assessment of dementia, this was not included in DEALTS 2 as it is a Tier 3 subject in the DCSETF (Skills for Health et al, 2015).

### ***(3) Pilot of draft training materials***

Draft materials were piloted in a one day workshop with dementia experts from the health and social care field (n=11) employed in 1 of the 13 HEE regions. . This region was chosen as it had actively rolled out DEALTS, with significant experience in delivering dementia education. Throughout the day participants took part in activities and simulations and examined materials. Prior to delivery of the first TTT workshop, feedback from these experts was integrated into the programme design. This included amendments to wording used in activities and simulations to ensure best fit to target audience, reducing examples used in one simulation from four to one, and addition of pre-course reading list for trainers to prepare ahead of TTT workshops.

### ***(4) Delivery of training across England***

DEALTS 2 was delivered across England using a TTT model between May and July 2017. The aim was to conduct one TTT workshop in each of the 13 HEE regions

across England to enable easier access for trainers. Having already conducted the pilot in one region, the remaining 12 workshops were delivered using the same format: a one day workshop with 20 places, advertised by HEE to local NHS Trusts. Two places were assigned to each of the NHS Trusts in the region, and those interested in participating emailed an expression of interest to the Dementia Lead. Dementia Leads then approved applications based on entry requirements: training experience; completed Tier 1 dementia awareness training; organisational support to be released to deliver DEALTS 2 and contribute to evaluation. The learning outcomes for the TTT workshops were to: explore how simulated learning gives insight into the lived experience of dementia and how this can have a positive impact on practice; explore how to use a range of simulation activities and learn how these can be used in Tier 2 dementia training; understand how to adapt materials to suit local needs. The TTT workshops comprised of time to go over the PowerPoint slides which included discussion of the empirical evidence and theoretical underpinnings (approximately three hours), opportunities to participate in the simulations and debriefing group discussions (approximately three hours), and time to reflect on learning from the day and create an action plan to take DEALTS 2 back to their own Trust (approximately one hour).

Since delivering DEALTS in 2013-14, the need for structured debriefing in simulation education has been identified (ASPiH and HEE, 2016). Detailed debriefing information and questions were therefore included in the DEALTS 2 TTT sessions and the materials provided to trainers, to ensure clear links to learning outcomes

(Lateef, 2010). Trainers were encouraged to attend further debriefing training courses run by HEE.

Time for trainers to consider how they might use the materials in their own Trusts was set aside. The participants created an action plan outlining how they might adapt or adopt the materials in their own training based on local need and resources. Trainers were invited to share their email addresses as a way of establishing regional networks to provide peer support to each other and share resources. Trainers in all workshops were keen to be involved, some commenting that this was the first time they had met colleagues in their region undertaking similar roles to themselves. 196 trainers attended the 12 workshops. Feedback was collected by the facilitator on a flip chart. Trainers also completed a pre and post course evaluation forms, where they also had an opportunity to provide feedback. This feedback from trainers was integrated into the programme design after all 12 workshops had taken place. This included adding additional resources and references suggested by the trainers and the inclusion of the Humanising Care Toolkit (Pound et al, 2016) to support trainers in translating the HVF (Todres et al, 2009) into practice.

#### ***(5) Dissemination of training materials for implementation across England***

The intervention was implemented across England by the trainers that attended the TTT workshops. As part of the implementation process, the toolkit was emailed to all 196 trainers in August 2017. The toolkit includes session plans, session slides, notes and additional reading, simulation instructions for trainers and sheets to run the

simulations, and handouts. In addition, trainers were instructed to obtain feedback from the staff they are training through the pre and post evaluation forms emailed to them. Trainers were encouraged to email questions or concerns about implementation to the research team. The implementation instructions were that the materials should be used and adapted to meet local needs. Guidance was provided to trainers in the resource pack that four hours was considered appropriate for them to spend with up to a maximum of sixteen staff to cover the three DEALTS 2 topics (including time for breaks between the topics). This was a guide so that the trainers were aware of the depth of the subject they need go into at Tier 2 of the DCSETF (Skills for Health et al., 2015) and the session plans were developed with this in mind. Each of the three sessions are structured similarly, with staff spending approximately 60% of the session on group activities, simulations and debriefing group discussions, and 40% discussing the empirical evidence and theoretical underpinnings. Trainers were recommended to spend approximately 60 minutes focusing on risk reduction and prevention, 70 minutes on person-centred care, and 80 minutes on communication, interaction and behaviour.

## **Evaluation design**

### ***Design, participants and measures***

DEALTS 2 will be evaluated using a summative process evaluation combined with an impact evaluation. Data will be collected using a mixed methods approach underpinned by the Kirkpatrick Model for evaluating effectiveness of training; (Kirkpatrick, 1959). The Kirkpatrick model is a four level model, level one focuses on

reaction and measures how participants react to the training (e.g., satisfaction), level two looks at learning and analyses if the participants understood the training (e.g., increase in knowledge, skills or experience), level three examines behaviour to see if participants are using what they have learnt at work (e.g., change in behaviors), and level four assesses results which determines if the material had a positive impact on the organisation (Kirkpatrick, 1959). Evaluation starts at level one and proceeds through levels two, three and four respectively, depending on individual project time and budget. In the DEALTS 2 evaluation we will be assessing all four levels: reaction, learning, behaviour and results (Kirkpatrick, 1959). Quantitative and qualitative data will be collected from trainers who attended TTT workshops (n=196) and once implemented in individual Trusts, the staff that the trainers train. Data will be sought through evaluation forms and telephone interviews. The following research questions will be addressed:

- How has DEALTS 2 been implemented (adopted and/or adapted) by those attending Train the Trainer workshops across England?
- What are trainers' perceptions and experiences of DEALTS 2?
- What are barriers and enablers to the implementation of DEALTS 2 across England?
- What are health professionals' experiences of DEALTS 2?
- What is the impact of DEALTS 2 on trainers and health professional's knowledge of dementia and care approach?
- Are there wider impacts from DEALTS 2 in individual NHS Trusts, including integration of theory into practice and service improvement?

***Data collected from trainers***



Data will be collected over 14 months. Data from trainers has and continues to be obtained from 3 instruments: (1) pre and post TTT workshop evaluation forms (2) telephone interviews (3) online follow up evaluation forms at 12 months. Pre and post TTT workshop evaluation forms have already been collected and include a mixture of open and closed ended questions: including pre and post questions rating level of knowledge (learning); satisfaction with the workshop and toolkit (reaction); expected date to start implementation of materials in own Trust (behaviour).

Telephone interviews will be conducted with approximately 10% of trainers (n= 12-24), aiming for 1-2 trainers from each of the 12 HEE regions participating in the TTT workshops. The sample of trainers is a simple random sample (Thompson, 2012), randomly selected from those who opted in during TTT workshops. Opting in entails leaving contact details on a form asking about taking part in this stage. Telephone interviews are semi-structured and include a mixture of open and closed ended questions: including reflection on learning from TTT workshops (learning); satisfaction with the toolkit (reaction); facilitators and barriers to implementing in own Trust, adaption and/or adoption of toolkit (behaviour); number of staff trained (behaviour); self-reported impact on practice (own, staff, patients, service improvement) (results). Follow up evaluation forms will be created using Bristol Online Survey and sent to all trainers that attended TTT workshops (n=196), based broadly on the same questions as the telephone interviews unless new questions arise during analysis. Twelve months after the TTT workshops, a link will be emailed to trainers, followed by two reminder emails asking them to complete the evaluation form. This will facilitate an overview of the implementation of barriers and facilitators and impacts on practice over several months after the TTT workshops have taken

place. All trainers that attended the DEALTS 2 TTT workshops between May and July 2017 are eligible to participate in this part of the study (n=196).

### ***Data to be collected from staff who attended training***

Data from staff attending DEALTS 2 dementia training will be collected through 2 instruments: (1) pre and post training evaluation forms (2) online follow up evaluation form at 6 months. Pre and post training evaluation forms includes a mixture of open and closed ended questions: including the validated scale 'Dementia Knowledge Assessment Scale (DKAS)' which measures pre and post level of knowledge (learning) (Annear et al, 2017); satisfaction with programme (reaction); expected application of learning to own practice (behaviour); expected impact on own and organisational practice (results). Further validated scales measuring self-efficacy (learning), beliefs about dementia (learning), participant satisfaction (reaction), application of learning to own practice (behaviour) and impact on own and organisational practice (results) will also be included. These scales will be chosen after reviewing current practice in similar dementia education studies identified in three recent systematic reviews (Scerri et al, 2017; Surr et al, 2017a; 2017b). The online 6 month follow up evaluation forms will be created using Bristol Online Survey and sent to all staff that opted in. Opting in entails completing the pre and post evaluation form and leaving contact details to opt into this stage. A link will be emailed to them, followed by two reminder emails asking them to complete the evaluation form. Follow up evaluation forms will include the same validated scales and questions as the pre and post training evaluation form to capture after 6 months:

changes in knowledge, self-efficacy and beliefs about dementia (learning); satisfaction with the programme (reaction); application of learning to own practice (behaviour); impact on own and organisational practice (results). All staff that attend Tier 2 dementia training, where trainers have implemented DEALTS 2 in part, or whole, are eligible to participate in this part of the study. Trainers attending the TTT workshops were asked when they anticipated using the DEALTS 2 materials in their own training in one of the questions on the pre and post TTT workshop evaluation forms. Of the 183 who completed evaluation forms, 132 (72.14%) stated that they anticipated to be using the DEALTS 2 materials in the next one to six months, 5 (2.73%) stated in the next 12 months and 46 (25.14%) were unsure. However, at this point it is not possible to determine replication, as the number of staff that will participate in this part of the research is unknown.

### ***Data analysis plan***

Quantitative data from trainers will be input into SPSS (v25.0) and analysed using descriptive statistics. Level of knowledge will be the primary outcome variable. Trainer's reflections on learning will be assessed at three time points, a pretest prior to the workshop/training, a post test at the end of the workshop, and a follow up at 12 months. Changes in knowledge amongst participants will be assessed using the Wilcoxon Signed Rank Test. Secondary outcome variables will include number of staff trained, implementation facilitators and barriers including inter-trust workshop variance, trainer satisfaction with the toolkit, application of learning to own practice and the impact on practice (own, staff, patients, service improvement).. These will be assessed using correlation analysis, explanatory statistical analysis, Chi-square tests and data mining of open ended questions, as appropriate.

Quantitative data from staff will be input into SPSS (v25.0, Chicago, IL, USA). The appropriate analyses required to understand changes in outcome variables will be determined once the sample size is evident. This is likely to include a mixed model to take account of multiple time points and inter-trust heterogeneity. Level of knowledge will be the primary outcome variable. Secondary outcome variables will include self-efficacy, beliefs about dementia, satisfaction with programme, application of learning to own practice and impact on own and organisational practice. Participant changes in knowledge, self-efficacy and beliefs about dementia will be assessed at three time points, a pretest prior to the workshop/training, a post test at the end of the workshop, and a follow up at 12 months. The remaining outcome variables will be assessed at two time points, a post test at the end of the workshop and a follow up at 12 months.

Qualitative data from the telephone interviews will be inputted into NVivo (v11) and analysed thematically to draw out experiences and values of participants. Thematic analysis will be conducted in a six stage process: familiarisation with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and reporting on themes (Braun and Clarke, 2006). Identifiers will be anonymised or removed prior to analysis. One member of the research team will independently analyse the data; analysis will then be scrutinised by the other members of the research team until a consensus is reached (Lincoln & Guba 1985).

### ***Ethical considerations and dissemination***

This research was reviewed and approved in line with Bournemouth University Research Ethics Code of Practice (Reference ID 17647). Participants will be informed about the study (either in writing, verbally over the phone, or during TTT workshops) before providing feedback, completing evaluation forms or interviews. Evaluation forms contain a short overview about the study. Completing an evaluation forms or contributing to a prearranged discussion indicates agreement to participate and for anonymised data to be included. To ensure anonymity and confidentiality no identifying information will be stored about participants with evaluation forms. Trainers participating in telephone interviews will be emailed a participant information sheet and asked for their signed consent. Telephone interviews will be audio recorded and then transcribed, or will be transcribed by the researcher throughout the call. All identifiers will be removed from interview transcripts, each trainer instead being identifiable by a unique code.

### **Discussion**

Developing a TTT workshop to suit the needs of a range of participants with divergent experience in dementia is a challenge. To overcome this, we chose to ensure that content covered all aspects of DCSETF (Skills for Health et al., 2015) Tier 2 learning outcomes, and to test content with trainers in detail. Acute Hospital Trusts across England have been delivering a plethora of dementia education and training programmes to staff; however few have been evaluated in terms of

sustained impact on practice meaning it is difficult to know which, if any, are making a difference (Surr et al., 2017a). DEALTS 2 is designed to enhance consistency by providing a simulation toolkit for Tier 2 level training covering three topic areas (person-centred care; and communication interaction and behaviour risk reduction and prevention). These topics were chosen as they were considered central to enabling staff to develop the interpersonal skills pertinent to good dementia care (person-centred care and communication, interaction and behaviour) and which are currently topical and relevant given the global aim of reducing dementia prevalence (risk reduction and prevention). It is anticipated that developing and evaluating this toolkit will be beneficial for enhancing the quality of dementia training nationally and ensuring all staff achieve the desired learning outcomes. If the evaluation shows that it is effective, the toolkit could form the foundation of an approach to support the development of further learning materials and simulations covering the remaining topics at Tier 2, and more widely other subjects in healthcare.

Previous studies have reported that the TTT model has been an effective method for implementing training to health professionals where resources are limited (Wang, 2017; Pearce et al, 2012; Straus et al, 2009). The evaluation data will enable us to ascertain macro and micro level barriers and enablers to implementation and the effectiveness of TTT model for implementing DEALTS 2 across England.

Establishing regional networks of trainers is a potential wider benefit of this study and therefore investment in online discussion boards for each HEE region would enhance the development of these communities of practice (Lave and Wenger, 1991). The key strength of this study is that it is a large scale national study,

collecting data from all 13 HEE regions across England. However, the limitations are that data may not be generalizable as not all Trusts across England participated in TTT workshops. Trainers working in Trusts that were not able to take part in the TTT workshops are encouraged by HEE to contact their local HEE Dementia Lead to assist them in contacting colleagues in Trusts that were able to make the workshops. This is so that trainers who did take part in the TTT workshops can support trainers in the Trusts that did not take part to be able to deliver DEALTS 2 sessions. The toolkit and TTT aspect ensures that trainers can work together providing peer support to ensure that DEALTS 2 is implemented in all Trusts across England. However, we have no influence over the speed and spread of implementation of DEALTS 2 by individual trainers and/or Trusts and so this may limit the amount of evaluation data we can collect.

## **Conclusion**

The DEALTS 2 evaluation data will provide evidence of the effectiveness of Tier 2 training, which can be used in determining the suitability for simulation-based education and training materials across the healthcare sector. The intention of this study is to show that simulation-based education is effective in increasing staff knowledge of dementia and has a positive impact on practice, which will ultimately improve the quality of care for PWD in acute hospitals. However in this study we are not evaluating the impact of DEALTS 2 on PWD in hospitals and therefore further research is needed to explore this. Adaption and adoption of DEALTS 2 as appropriate to local need by the Trusts is equally as important and therefore creating a clear structured programme will aid dissemination and spread across England.

This was recognised by the collection of critical feedback from key stakeholders of the original DEALTS programme and participants in the TTT workshops, in order to inform the development process. Documenting the process of development and implementation is useful for those seeking to develop simulated education across a range of settings including academia, acute care, education, and health and social care more generally.

### **Conflict of interest**

No conflict of interest has been declared by the authors.

### **Authors' contributions**

All authors critically reviewed this paper and approved the final manuscript. MH contributed to the design of the intervention, conceived the study, attended and contributed to the pilot workshop, delivered train the trainer sessions and drafted the manuscript. MB contributed to the design of the intervention, led the pilot workshop, and provided review and feedback on the manuscript. AS contributed to the design of the intervention, attended and contributed to the pilot workshop, delivered train the trainer sessions and reviewed and feedback on the manuscript. JM led the project, attended and contributed to the pilot workshop, and provided review and feedback on the manuscript.

### **Acknowledgments**



The original Dementia Education And Learning Through Simulation (DEALTS) programme was developed as part of a 2013/14 Health Education Wessex (HEW) / Health Education Thames Valley (HETV) Francis Fellowship in Clinical Simulation (dementia) held by Sue Clarke. We would like to thank those who contributed to the development of DEALTS 2, with particular thanks to the following Health Education England (HEE) members of staff: Jan Zietara, Jacqueline Fairbairn-Platt, and Reena Valand. We appreciate the reflective feedback received from HEE staff about the original DEALTS programme as well as the comments on the DEALTS 2 materials from those who attended the pilot and the Train the Trainer (TTT) workshops, and Professor Claire Surr (Leeds Beckett University). Thanks also to the local HEE Dementia Leads across England and staff at Bournemouth University for their administrative support in setting up the TTT workshops. This project was funded by Health Education England (HEE). The views expressed are those of the authors and not necessarily those of HEE or any other organisations mentioned.

## References

- Alzheimer's Society. (2016) 'Fix Dementia Care: Hospitals', [https://www.alzheimers.org.uk/site/scripts/download\\_info.php?fileID=2907](https://www.alzheimers.org.uk/site/scripts/download_info.php?fileID=2907). Accessed 30/09/16.
- Alzheimer's Society. (2009) *Counting the cost: caring for people with dementia on hospital wards*. London, Alzheimer's Society.
- Annear, M., Toye, C., Elliot, K., McInerney, F., Eccleston, C., Robinson, A. (2017) Dementia knowledge assessment scale (DKAS): confirmatory factor analysis and comparative subscale scores among an international cohort. *BMC Geriatrics*, 17: 168. doi: 10.1186/s12877-017-0552-y
- Adefila, A., Graham, S., Clouder, L., Bluteau, P., Ball, S (2016) "myShoes – the future of experiential dementia training?", *The Journal of Mental Health*

*Training, Education and Practice*, 11(2): 91-101. doi.org/10.1108/JMHTEP-10-2015-0048.

ASPIH and HEE (2016) 'Standards Framework and Guidance on Simulation-Based Education in Healthcare' <https://worldspanmedia.s3.amazonaws.com/media/aspihdjango/uploads/documents/standards-consultation/standards-framework.pdf>. Accessed 09/02/2017.

Braun, V., Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3: 77–101. doi:10.1191/1478088706qp063oa

Care Quality Commission. (2014) *Cracks in the pathway*. Care Quality Commission.

Clarke, S. (2014) 'Dementia Education And Learning Through Simulation (DEALTS) - Course Resource File'. Health Education Wessex/ Health Education Thames Valley.

Clarke, S. (2015) 'Dementia Education And Learning Through Simulation (DEALTS) Train the Trainer Course - Project Report for National Roll out of DEALTS Course'. Health Education England.

Cook, D., Hatala, R., and Brydges, R. (2011) 'Technology-enhanced simulation for health professions education a systematic review and meta-analysis', *Journal of the American Medical Association*, 306(9): 978-988.

Cowdell, F. (2010) 'Care of older people with dementia in an acute hospital setting', *Nursing Standard*, 24(23): 42-8.

Department of Health (2009) *Living well with dementia: A national dementia strategy*. London: UK.

Dewing, J., and Dijk, S. (2014) 'What is the current state of care for older people with dementia in general hospitals? A literature review' *Dementia*, 15(1) 106–124. DOI: 10.1177/1471301213520172.

Downs, M., and Collins, L. (2015) 'Person-centred communication in dementia care', *Nursing Standard*, 30(11): 37-41.

Griffiths, A., Knight, A., Harwood, R. and Gladman, J. R. (2014). Preparation to care for confused older patients in general hospitals: a study of UK health professionals. *Age and Ageing*, 43, 521–527.

Handley, M., Bunn, F., and Goodman, C. 'Dementia-friendly interventions to improve the care of people living with dementia admitted to hospitals: a realist review'. *BMJ Open* 2017;7:e015257. doi:10.1136/bmjopen-2016-015257

Hemingway A, Scammell, J and Heaslip, V. (2012) Humanising values at the heart of nurse education. *Nursing Times*; 108: 41, 26-28.

- Kolb (1984) *Experiential learning: experience as the source of learning and development*. Prentice Hall: New Jersey.
- Kirkpatrick, D. (1959) 'Techniques for evaluating training programs', *Journal of ASTD*, 11: 1–13.
- Lateef, F. (2010) 'Simulation-based learning: Just like the real thing', *Journal of Emergency Trauma Shock*, 3(4): 348–352. doi: 10.4103/0974-2700.70743.
- Lave, J., and Wenger., E. (1991) *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
- Leah, V., Combes, J., McMillan, M., Russell, L., McCune, K (2017) 'Experiences of using simulation in dementia education', *Nursing Older People*, 29(8): 27-34.
- Lincoln, Y., and Guba, E. (1985) *Naturalistic Inquiry*. Sage Publications, Newbury Park, CA.
- Machiels, M., Metzelthin, S., Hamers, J., and Zwakhalen, S. (2017) 'Review: Interventions to improve communication between people with dementia and nursing staff during daily nursing care: A systematic review', *International Journal of Nursing Studies*, 66: 37-46.
- NHS Digital. (2018) 'Quality Outcomes Framework (QOF) Recorded Dementia Diagnoses', <https://digital.nhs.uk/data-and-information/publications/statistical/recorded-dementia-diagnoses/may-2018>. Accessed 15/08/18.
- Oliver, M., and Trigwell, K. (2005) 'Can 'Blended Learning' Be Redeemed?' *E-Learning*, 2(1): 17-26.
- Pearce, J., Mann, M., Jones, C., van Buschbach, S., Olf, M., and Bisson, J. (2012) 'The most effective way of delivering a train-the-trainers program: a systematic review', *Journal of Continuing Education in the Health Professions*, 32 (3): 215-226.
- Pound, C., Sloan, C., Ellis-Hill, C., Cowdell, F., Todres, L., Galvin, K. (2016) The Humanising Care Toolkit, [http://www.btfn.org.uk/library/directory\\_listings/337/Humanising%20Care%20Toolkit.pdf](http://www.btfn.org.uk/library/directory_listings/337/Humanising%20Care%20Toolkit.pdf). Accessed 09/02/2018.
- Prince, M., and Knapp, M. et al (2014). *Dementia UK: Update*. London: Alzheimer's Society.
- Reynish, E, Hapca, S, De Souza, N, Cvoro, V, Donnan, P, & Guthrie, B 2017, 'Epidemiology and outcomes of people with dementia, delirium, and unspecified

cognitive impairment in the general hospital: prospective cohort study of 10,014 admissions', *BMC Medicine*, 15(1): 140.

Royal College of Psychiatrists (2013). *National Audit of Dementia care in general hospitals 2012-13: Second round audit report and update*. Editors: Young J, Hood C, Gandesha A and Souza R. London: HQIP.

Ryall, T., Judd, B., Gordon, C. (2016) 'Simulation-based assessments in health professional education: a systematic review', *Journal of Multidisciplinary Healthcare* 9: 69–82. DOI: <http://dx.doi.org/10.2147/JMDH.S92695>

Sampson, E., Vickerstaff, V., Lietz, S., and Orrell, M.(2017) 'Improving the care of people with dementia in general hospitals: evaluation of a whole-system train-the-trainer model', *International Psychogeriatrics*, Volume 29, Issue 4: 605-614. DOI: <https://doi.org/10.1017/S1041610216002222>

Scerri, A., Innes, A., and Scerri, C. (2017) 'Dementia training programmes for staff working in general hospital settings – a systematic review of the literature', *Aging and Mental Health*, 21(8):783-796. DOI: 10.1080/13607863.2016.1231170

Skills for Health, Health Education England and Skills for Care. (2015) 'Dementia Core Skills Education and Training Framework', <http://www.skillsforhealth.org.uk/images/projects/dementia/Dementia%20Core%20Skills%20Education%20and%20Training%20Framework.pdf>. Accessed 30/08/2017.

Skills for Health, Health Education England, and Skills for Care. (2018) 'Dementia Training Standards Framework', <http://www.skillsforhealth.org.uk/services/item/176-dementia-core-skills-education-and-training-framework>. Accessed 15/08/18.

Straus, S., Kitson, A., Harrison, M., Graham, I., Fervers, B., Légaré, F., Davies, B., Edwards, N., and Majumdar, S. (2009) 'The knowledge-to-action cycle', *Knowledge Translation in Health Care*, Wiley-Blackwell, Hoboken.

Surr, C., and Gates, C. (2017a) 'What works in delivering dementia education or training to hospital staff? A critical synthesis of the evidence', *International Journal of Nursing Studies*, 75: 172-188. doi.10.1016/j.ijnurstu.2017.08.002

Surr, C., Gates, C., Irving, D., Oyebode, J., Smith, S., Parveen S., Drury, M., and Dennison, A. (2017b) 'Effective Dementia Education and Training for the Health and Social Care Workforce: A Systematic Review of the Literature', *Review of Educational Research*, 87(5): 966–1002. DOI: 10.3102/0034654317723305

Thompson, S. (2012) *Sampling: Third Edition*. Wiley: London.

- Todres, L., Galvin, K. & Holloway, I. (2009) 'The Humanisation of Healthcare: A value framework for Qualitative Research', *International Journal of Qualitative Studies on Health and Well-being*, 4(2): 68-77.
- Young, J., Hood, C., Woolley, R. J., Gandesha, A. and Souza, R. (2011). *Report of the National Audit of Dementia Care in General Hospitals*. Health Quality Improvement Partnership. London.
- Wang, Y., Dongxia Xiao, L., Ullah, S., He, G., De Bellis, A. (2017) 'Evaluation of a nurse-led dementia education and knowledge translation programme in primary care: A cluster randomized controlled trial', *Nurse Education Today*, Volume 49: 1–7.
- WHO. (2017) *Global action plan on the public health response to dementia 2017-2025*. World Health Organization: Switzerland.

**Table 1: Features of successful dementia education programmes identified in literature that shaped the design of DEALTS 2**

<b>Features of successful dementia education programmes identified in literature</b>	<b>How we incorporated these features in DEALTS 2</b>	<b>Reference</b>
Ensuring that materials are clear, easy to follow and not too long	PowerPoint slides and a resource pack with step by step instructions for simulations to ensure materials are clear, easy to follow and not too long	Surr et al, 2017a; 2017b
Not delivering too much content at once to allow participants time to absorb information	Breaks between each of the three topics to allow participants time to absorb information	Surr et al, 2017a; 2017b
Debriefing and reflection time after each activity or simulation	Time after activity or simulation for debriefing and reflection	ASPiH and HEE, 2016; Surr et al, 2017a; 2017b;
Use group based activities and discussion including case examples to form the basis of discussion	Several group activities, simulations and discussions throughout	Surr et al, 2017a; 2017b
Use experiential and active learning approaches	Utilised an experiential learning approach	Scerri et al, 2017; Surr et al, 2017a; 2017b
Combine in practice learning with theory/knowledge content	Included sessions slides with current evidence and theory including the Humanising Values Framework (Todres et al, 2009) to support the activities and simulations	Surr et al, 2017a; 2017b

