

### In this article...

- A review of dehydration in older hospital patients and care home residents
- Factors affecting risk of dehydration
- Recommendations for reducing the prevalence of dehydration in this group

# Why is dehydration a problem in older patients and care home residents?

## Key points

Older people in hospital or care homes are at increased risk of dehydration

Dehydration can have serious health consequences and cause increased use of healthcare resources

A range of physical and cognitive factors influence an individual's risk of dehydration

Lack of awareness and understanding of dehydration and its consequences among care staff is a significant factor in its prevalence

Structured education is needed to improve dehydration prevention practice

**Author** Merin Thomas is clinical research nurse, the Jenner Institute, University of Oxford.

**Abstract** Older people in hospital or other care environments are at increased risk of dehydration, which has potentially serious health consequences and can lead to unnecessary admission to hospital and increased length of stay. This article reports on a systematic review of the literature on dehydration in older hospital patients and care home residents; it discusses factors that increase their risk of dehydration and its potential consequences, and makes recommendations for how to improve practice to reduce prevalence.

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**O**n average, fluid makes up 50-65% of the body in healthy males and 45-60% in healthy females (Royal College of Nursing and National Patient Safety Agency, 2007). Hydration plays a vital role in maintaining a range of bodily functions including cognitive function and bowel and bladder health. However, dehydration – depletion in total body water content due to fluid losses, diminished fluid intake, or a combination of both (Begum and Johnson, 2010) – is becoming a significant factor in the development of a range of short-term and long-term conditions (Box 1).

In the UK, dehydration is a major public health concern in people aged >65 years (Health Service Ombudsman, 2011). This was affirmed by the former chief nursing officer for England, Jane Cummings, who stressed that nutrition and hydration are fundamental aspects of nursing practice for all ages (NHS England, 2014). Although dehydration is an easily preventable condition, staff shortages and inadequate staff education can lead to dehydration-related morbidity, mortality and impaired quality

of life in institutional care settings such as hospitals, nursing homes and care homes (Begum and Johnson, 2010).

This article reports the results of a literature review on dehydration in older hospital patients and residents of nursing and care homes. It highlights the factors that increase the risk of dehydration in these groups, and makes recommendations for improving recognition and understanding of dehydration.

## Literature review

The public inquiry into care failings at Mid Staffordshire NHS Foundation Trust found that a range of factors can lead to dehydration in older patients (Box 2). Wilson (2014) stated that older patients have a higher probability of dehydration due to the physiological changes of ageing. Compounding this, Coe and Williams' (2011) concluded that, although health professionals have some awareness of the importance of hydration in clinical practice, a significant number lack knowledge of how to prevent dehydration.

To identify the relevant factors and make recommendations to improve

## Clinical Practice Discussion

### Box 1. Health consequences of dehydration in older people

- Increased mortality
- Increased risk of emergency admission to hospital or of repeated admissions
- Constipation
- Impaired cognitive function
- Increased risk of falls
- Orthostatic hypotension
- Salivary dysfunction
- Poor hyperglycaemic control in diabetes
- Hyperthermia

Source: Hydration for Health (2012)

practice, I conducted a systematic review in December 2016; this was updated in June 2017. Eleven papers were included in the final review, which consisted of six quantitative studies (Gaff et al, 2015; Jimoh et al, 2015; Rodrigues et al, 2015; Wolff et al, 2015; El-Sharkawy et al, 2014; Shimizu et al, 2012), one qualitative study (Godfrey et al, 2012), three mixed-method studies (Hooper et al, 2016; Vivanti et al, 2008; Mentés, 2006) and one non-systematic review (Scherer et al, 2016).

#### Thematic analysis

On analysis of the papers included in the review, three main themes emerged as factors influencing the development of dehydration in people aged >65 years in institutional care settings:

- Cognitive status;
- Individual preferences;
- Staff awareness.

#### Cognitive status

Four of the 11 papers (Gaff et al, 2015; Wolff et al, 2015; Godfrey et al, 2012; Mentés, 2006) identified cognitive status as a prominent risk factor for the development of dehydration.

In a retrospective observational study comparing dehydration levels in patients aged >65 years admitted to hospital from care homes with those admitted from home, Gaff et al (2015) found that those admitted from care homes were more likely to be dehydrated on admission, particularly if they had dementia. It was found that dehydration in older patients was a result of them forgetting to drink, despite adequate hydration being placed within reach. A higher consumption of fluids was noted in those with impaired cognition when drinks were placed directly into their hands (Gaff et al, 2015), which suggests

this group should be given additional encouragement and assistance with hydration. However, this is often difficult to achieve in institutional care settings due to inadequate staffing levels – this could explain why hydration levels were better in patients admitted from their own homes compared with those admitted from care homes (Wolff et al, 2015; RCN, 2012).

Mentes (2006) highlighted that family involvement increased fluid intake in some hospital patients, regardless of their cognitive status. However, Godfrey et al (2012) found that relatives of hospital patients and care home residents who were willing to help with hydration were not given sufficient guidance by staff. This is Me ([Bit.ly/ASThisIsMe](http://Bit.ly/ASThisIsMe)), a support tool developed by the Alzheimer's Society for carers or relatives of people with dementia to complete to facilitate person-centred care, informs nurses and care staff about patients' and residents' drink preferences.

#### Individual preferences

Godfrey et al (2012) emphasised the issue of drinking as a pleasurable activity rather than a mere routine; they found that many patients associated fluids with memorable events. Cue-dependent forgetting theory suggests this is due to the inability to access long-term memory stored in the hippocampus without external (environment) or internal (mood) retrieval cues (Tulving, 1974); the act of drinking can trigger memories of pleasurable events.

Reflecting on my own practice supports this finding: patients taken to the day room with other patients for meal times consumed more fluid and food than when they were served at their bedside. It should be noted, however, that this option is not available to patients who are confined to bed and need support to eat and drink.

Gaff et al (2015) found that hot beverages were often preferred to jug water,

demonstrating that providing patients or residents with a choice could increase their fluid intake. The British Nutrition Foundation recommends offering soup and puréed fruit to maintain hydration ([bit.ly/BNFDdehydrationElderly](http://bit.ly/BNFDdehydrationElderly)); this may be beneficial in patients aged >65 years, who may prefer these to water alone.

#### Staff education

Three of the 11 papers (Scherer et al, 2016; Jimoh et al, 2015; Godfrey et al, 2012) identified that patient fluid intake was repeatedly:

- Misreported;
- Underestimated;
- Inaccurately documented.

This was evident in practice as staff documented fluids given *before* patients had consumed them (Godfrey et al, 2012). Jimoh et al (2015) found that self-recording of the fluid intake by care home residents who were able to do so was more reliable. This suggests that encouraging patients and residents to document their fluid intake if they are able to do so can enhance patient empowerment and the accuracy of fluid balance charts (NHS England, 2014).

In a study of nursing home residents, however, Mentés (2006) found that some of those who were classified as 'able to drink' refused to do so due to the fear of incontinence and the inability to reach the toilet in time. This is supported by Gaff et al (2015) and Rodrigues et al (2015), who found a correlation between pain, impaired mobility and dehydration. It could be argued, therefore, that some who are cognitively stable may exaggerate their fluid intakes if they are allowed to self-record the data.

Wolff et al (2015) found that staff often provided insufficient fluids to prevent regular toileting, while Francis (2013), reported some patients were so thirsty they were found drinking out of flower vases. This signifies the importance of

### Box 2. Factors increasing the risk of dehydration in older people

- Visual impairments
- Inappropriate cup sizes
- Impaired physical and cognitive abilities
- Drinks being left out of reach
- Impaired mobility
- Reluctance to drink due to fear of incontinence
- Failure of care staff to take patient preferences into account
- Inability of care staff to recognise signs of dehydration
- Inadequate understanding among care staff of the consequences of dehydration
- Inaccurate documentation of fluid intake

Sources: Gaff et al (2015); Rodrigues et al (2015); Francis (2013); Godfrey et al (2012); Mentés (2006)

## Clinical Practice Discussion

staff education about adequate hydration and the detrimental consequences of neglecting it, such as confusion, hypotension and falls (Gaff et al, 2015), which can lead to increased length of hospital stay, limit safe discharges and increase patient dependency (El-Sharkawy et al, 2014).

Shimizu et al (2012) examined the physical signs and the biochemical differences in dehydration among hospital patients aged >65 years. They identified several signs and symptoms of dehydration, including:

- Dry mouth;
- Decreased skin turgor;
- Increased concentration of serum sodium and osmolality in the blood.

They stated these were the best indicators of dehydration in this patient group. However, Vivanti et al (2008) demonstrated that health professionals often underestimate the prevalence of dehydration in hospitals due to their lack of awareness of these presentations. The findings on staff awareness confirms that more educational interventions are needed to enable staff to accurately identify and assess dehydration in older patients and care home residents.



Taking residents' preferences into account can improve their fluid intake

to be discussed in relation to preventing constipation and enhancing palliative care; it is often overlooked and considered only when a patient deteriorates (Schub and Oji, 2016). This may explain why many patients from care homes are dehydrated on admission to hospital, resulting in an increased length of stay and failed discharges (Cornwell et al, 2012).

Clinical guidelines do not specify treatments for dehydration but include recommendations to treat hyponatraemia (sodium <35mmol/L) and hypernatremia (sodium >150mmol/L) in clinical practice (Queen Elizabeth Hospital Birmingham, 2016). This suggests that, although evidence-based guidance is available for assessing hyponatraemia, similar guidance is needed for assessing dehydration (Schub and Oji, 2016).

In their study, El-Sharkawy et al (2014) found that 37% of older people admitted to the emergency department were dehydrated and, of these, 62% were still dehydrated 48 hours after admission; this highlights the lack of priority given to patient hydration in hospitals.

My own clinical experience and liaising with clinical staff revealed that local dehydration-prevention strategies involved implementing fluid-balance charts in hospitals and care homes. Shepherd (2011) stated that fluid-balance charts enable health professionals to assess patients' fluid intake and output to identify whether they are overhydrated or dehydrated.

Smith and Roberts (2011) acknowledged that an efficient fluid-balance chart should be quantifiable and accurately recorded. However, Jimoh et al (2015) demonstrated

that staff failed to accurately document fluid-balance charts. Inaccurate charts can lead to misdiagnosis, resulting in severely dehydrated or overhydrated patients (Bennett, 2010). This highlights the need for a service improvement tool for nurses to understand and document accurate fluid balances.

The literature demonstrates that, although dehydration is prevalent among older hospital patients and care home residents, it is also found in patients of all ages – especially in those with physical or mental health impairments (NHS England, 2015), diabetes, pressure ulcers, urinary tract infections, incontinence, confusion and those who have had a fall (Bit.ly/DUKHHS) (RCN and NPSA, 2007).

### Recommendations for practice

Improving the quality of patient care is a key priority of the NHS (Health Foundation, 2013), and the framework for nursing, midwifery and care staff aims to develop the existing preventive measures to reduce the gaps in healthcare and quality and funding efficiency (NHS England, 2016).

The Nursing and Midwifery Council (2018) emphasises that nurses should incorporate evidence-based practice to reduce mistakes and promote patient health and wellbeing. In addition, the nursing and midwifery framework, published by NHS England in 2016, promotes the nurse's role as a change agent and aims to empower nurses to take leadership and challenge poor practices, regardless of their clinical status (Gage, 2013). This is in line with the RCN's (2012) guidance, which states that quality improvement is pivotal to developing nursing practice.

**QUICK FACT** **62%**  
Older people dehydrated on hospital admission and still dehydrated 48 hours later

### Clinical guidance

Despite Mentess' (2006) research on oral hydration, published 14 years ago, dehydration among older people remains a major global public-health concern (Palmer, 2017). Many initiatives and preventive programmes have been established to reduce this problem (NHS England, 2015), but dehydration is one of the main causes for avoidable hospital admissions in the UK and is often poorly assessed and managed by nurses (Morris et al, 2016).

Guidelines for fluid intake vary internationally; Scherer et al (2016) found that recommended fluid intake varied globally in adults and no specified guidelines were set for older people. In European countries, the European Food Safety Authority's (2010) guideline for fluid intake is commonly used as a standardised framework; this recommends that people aged >65 years should consume the same amount of fluids as younger adults – namely, 2L per day for women and 2.5L for men.

The UK has no national framework devised for quality standard regulators for hydration. At present, dehydration tends

**“Additional encouragement and assistance with hydration is often difficult to achieve in institutional care settings due to inadequate staffing levels”**

To effectively deliver change, it is important that a structured framework that incorporates the managerial team, clinical staff and patients is developed to improve patient outcomes (Bowers, 2011).

This systematic review revealed that staff education is the most effective strategy for improving dehydration in older patients. This was demonstrated in studies by Wolff et al (2015) and Rodrigues et al (2015): educational strategies that were simple, practical and easy to access reduced hospital admissions for care home residents as a result of dehydration.

A useful educational package should consist of face-to-face training for nurses using Lewin’s (1951) change management model. This requires that, before any initiative to change practice begins, those leading the change and those implementing it must understand why it is important and how it would benefit future practice. The proposed change and its importance must, therefore, be communicated effectively with supportive evidence-based research; any doubts and concerns should be discussed to ensure everyone involved fully understands the change.

As dehydration is prevalent in patients of all ages (NHS England, 2016), implementing the educational package in other clinical settings may be beneficial in reducing the number of emergency admissions and length of hospital stay due to inadequate hydration.

Implementing clinical audits of measuring dehydration could also promote better practice. Yorston and Wormald (2010) demonstrated that clinical audits enable staff to:

- Recognise strengths and weaknesses of current practice;
- Reduce errors;
- Encourage change;
- Help in the delivery of evidence-based practice.

As such, incorporating regular audits can help reduce the prevalence of dehydration in hospitals and care homes.

The literature review found there are no clear guidelines for recommended fluid intake in the UK for older adults. Developing a national guideline would provide

nurses with a protocol to follow to prevent dehydration in older patients in hospitals and care homes.

**Conclusion**

This review supports existing literature in that dehydration is a preventable condition and can, through adequate clinical management, be improved for hospital patients and care home residents. Three dominant themes that contribute to dehydration were: cognitive status, individual preferences and staff education. An educational package was proposed as a potential service improvement tool for nurses using Lewin’s (1951) change management model. It is hoped this will reduce the prevalence of dehydration in patients and care home residents aged >65 years, and in patients of all ages and from all institutions. **NT**

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- A protocol for assessing the risk of dehydration in older people  
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