

A hands-free drinks system can help to reduce patient dehydration in acute settings

# Improving the hydration of hospital patients

## In this article...

- Why dehydration is a problem in acute care
- Conducting an audit of a hands-free drinks system
- How the system can help maintain fluid balance

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**Abstract** Wakeling J (2011) Improving the hydration of hospital patients. *Nursing Times*; 107: 39, 21-23.

Dehydration occurs when the body loses fluids at a greater rate than it takes in. For some patients, achieving a fluid balance is difficult without assistance and they rely on interventions by health professionals.

In 2009, a fluid balance audit was carried out in an acute hospital. The aim was to identify whether clinical practice could be improved, and if health professionals could assist their patients' hydration during their admission by using a hands-free drinks system.

There are many factors other than illness and disease that contribute to dehydration in patients in healthcare settings (National Institute for Health and Clinical Excellence, 2007; National Patient Safety Agency, 2007). These include: poor assessment of hydration, poor documentation on fluid balance charts, a lack of education and knowledge among health professionals, misdiagnosis, lack of time to monitor fluid intake, and a shortage of staff. These have been shown to increase the mortality of patients admitted to hospital (Water UK, 2005).

Nurses have a responsibility to ensure those at risk of dehydration or who become dehydrated during their admission are adequately hydrated and monitored appropriately (National Confidential Enquiry into Patient Outcome and Death, 1999). They must have the knowledge and competence to care for patients, which includes understanding hydration and fluid balance monitoring (Nursing and Midwifery Council, 2008), as dehydration can have serious consequences for patients (Bryant, 2007; Warren et al, 1994).

### Aims and objectives of the project

The aims and objectives of this project were to:

- » Identify the documentation and procedures for fluid balance monitoring and whether these could be improved;
- » Assess health professionals' knowledge of hydration;
- » Implement a teaching session and promote hydration by increasing awareness;
- » Identify if patients were becoming dehydrated and/or developing infections during their admission, and how this affected their length of stay;
- » Demonstrate how fluid balance monitoring could be improved by the use of the Hydrant drinking aid. The Hydrant is an independent

## 5 key points

**1** Dehydration among patients in hospital is a serious healthcare issue

**2** Nurses need to understand hydration and fluid balance monitoring

**3** Nurses have a responsibility to ensure those at risk of dehydration are hydrated and monitored

**4** Raising health professionals' awareness of the importance of hydration through training could reduce the risk of patients becoming dehydrated

**5** Selecting appropriate drinking aids can improve hydration



The Hydrant allows patients to drink from a tube; water flows when the patient bites

TABLE 1. EFFECT OF HYDRANT ON LENGTH OF STAY

	Maximum total number of days			
	Before fluid monitoring	Fluid monitoring	From stop date of fluid monitoring until discharge	Maximum length of stay
Pre-Hydrant	5	39	19	41
Post-Hydrant	0	31	8	33

TABLE 2. TOTAL NUMBER OF PATIENTS WHO BECAME DEHYDRATED AND DEVELOPED INFECTIONS (WOUND AND URINARY TRACT INFECTIONS) BEFORE AND AFTER INTERVENTION

	Assistance required with fluids	Dehydrated during admission	Infection during admission
Pre-intervention	48	31	28
Post-intervention	37	1	0

**Hydrant implementation**

The maximum total length of stay before the Hydrant was introduced was higher (n = 41) than after (n = 33). The total number of days of fluid chart monitoring was also reduced (n = 39) compared with post implementation (n = 31) (Table 1).

Many factors may have contributed to these results, such as increased awareness, which included identifying patients “at risk” from dehydration and/or infection. Length of stay may also have been reduced because fewer patients became dehydrated and/or developed infection while in hospital.

The Hydrant was effective for a variety of semi-dependent/dependent and independent patients (Table 2). The findings also suggest that dehydration and infections among patients whose fluid balance was being monitored were reduced during the implementation phase.

An increased awareness of hydration among clinical staff after they completed the hydration questionnaire, and attended a teaching session on hydration and fluid balance charts, may have contributed to these results.

Of the 142 questionnaires distributed to patients who had used the Hydrant, 44 were returned. Patient feedback suggested it was easy to use (Fig 1) and most patients felt the Hydrant assisted with their hydration while they were in hospital (Fig 2).

Most clinical staff found the Hydrant easy to assemble and use, and felt it was an effective device for patients, reducing their time in hospital and enabling more effective fluid balance monitoring (Fig 3). Fig 4 shows that fluid balance chart recording improved after the Hydrant had been introduced.

**Discussion and conclusion**

Following the audit, I identified that changes were required to improve fluid balance monitoring and the delivery of hydration care to patients.

Alarming, the audit revealed many were becoming dehydrated and developing infections while in hospital.

This audit adds to the published evidence that patients are at risk of becoming dehydrated and/or developing an infection unnecessarily. Simple factors, such as increasing clinical staff’s awareness, education and training may reduce these risks.

Although the Hydrant seems to be an effective tool for patients to use within a clinical environment, it cannot be identified as the sole means of reducing numbers

“hands-free” drink system that clips on to the patient’s bed frame and enables the user to “drink” from a long flexible hose by using bite valves that open under pressure and close when released (Fig 1). A sports bottle is available for more independent patients who are able to hold a bottle.

The Hydrant and Hydrant Sports have 100ml graduated scales printed on the bottles (available in 500ml to one litre sizes) so oral intake can be measured accurately or volumes limited.

The Hydrant is available via the NHS supply chain, and is one of the few products that have been approved for use in clinical settings. However, it was only being supplied to patients who were being monitored for fluid balance. The product was not used with patients who were experiencing difficulties swallowing and those who were unable to understand fully how to use it.

**Method**

The project was carried out in three stages over a period of 10 weeks and involved three specialist wards (an orthopaedic and trauma ward, a surgery ward and a urology ward).

The first month involved observing existing policies and procedures and auditing fluid balance charts. This included recording: the date patients were admitted to the hospital; the start date of fluid balance monitoring; the end date of fluid balance monitoring; the quality of fluid balance chart documentation, looking at matters such as accuracy and continuity; and the date of patient discharge.

Clinical staff on the three wards, including doctors, nurses and healthcare

assistants, were asked to complete a questionnaire to assess their knowledge of hydration. These included several open-ended questions, such as: “What are the clinical signs of hydration?” and “What complications can patients develop from dehydration?” A total of 44 questionnaires were sent out.

The second stage lasted for two weeks and involved providing training and education on procedures for fluid balance monitoring and documentation, using a PowerPoint presentation, as well as training staff on all three wards to use the Hydrant.

The third stage lasted for four weeks and included Hydrant implementation and repeat auditing of fluid balance charts. Patients and staff were given the opportunity to complete an evaluation form on the Hydrant.

**Results**

A total of 313 patients participated in this project – 171 pre-Hydrant over four weeks, and 142 during Hydrant implementation. Their ages ranged from 16 to 98 years.

**Staff knowledge**

Questionnaires were returned by 23 staff. These showed variation in staff knowledge and awareness of the basic signs of dehydration and of the physiology of hydration.

There was a lack of knowledge about the benefits of hydration, and why patients need to drink more while in hospital.

More than half of staff – 57% – could identify areas for improving fluid balance monitoring in their own clinical environment, and 70% could suggest how to encourage patients to drink more during their admission.

Fig 1. How easy did patients find the Hydrant to use?

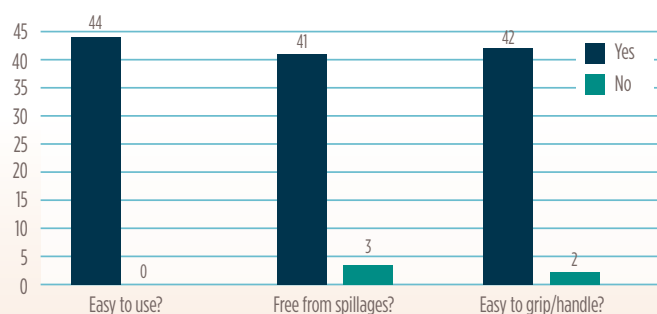


Fig 2. How effective did patients find the Hydrant? Would they use it again?

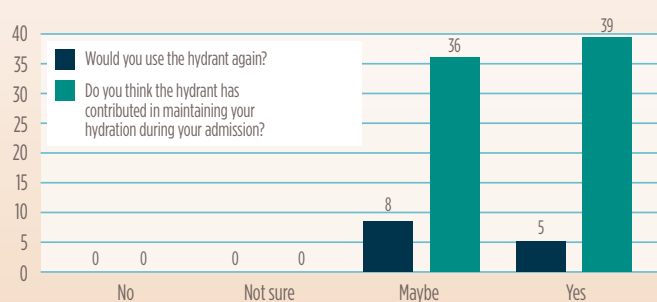


Fig 3. How easy did staff find the Hydrant to assemble? Did they find it effective for patients to use?

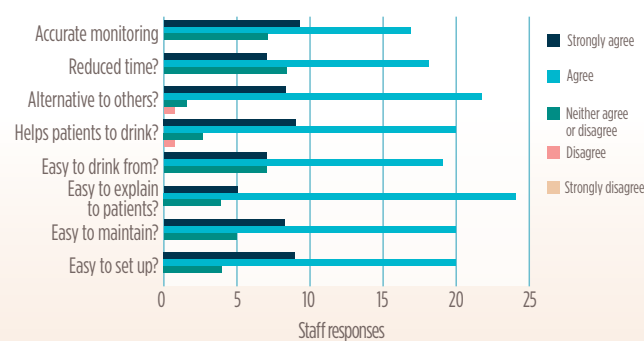
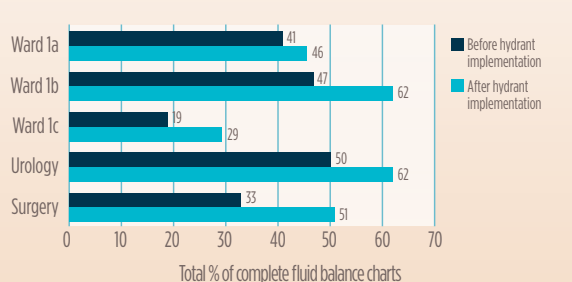


Fig 4. Fluid balance chart audit results for individual wards before and during Hydrant implementation



of patients who are dehydrated and develop infections during their admission.

The Hydrant gave health professionals the confidence to document patients' fluid input more accurately after the second fluid balance chart audit. It also reduced the time clinical staff spent with more dependent patients, because it helped them to drink independently, with no spillage.

The Hydrant was welcomed by patients. Comments in patient questionnaires included: "No hassle to get a drink"; "Comfortable bottle, easy to use"; "Enabled me to drink independently without disturbing staff"; and "Stopped me spilling water over myself."

The audit identified what appears to be a lack of standardisation and monitoring of fluid balance charts between individual wards in the hospital. For example, staff on some wards did not summarise input/output at regular intervals, or document their patients' input/output totals daily on a summary chart.

There were no records or evidence available within the clinical audit department of previous audits of fluid monitoring and documentation. This suggests regular auditing of fluid balance charts is required to identify whether the documentation is properly completed and patients receive appropriate care.

In their questionnaires, staff noted how they thought their patients' hydration could be improved in their own clinical environments. They wanted to document patients' fluid input more accurately, and

admitted they may not recognise early signs of dehydration, or the contributing factors that may put patients "at risk".

Although staff were aware of the need to improve the delivery of hydration care to patients, there appeared to be no action plans for doing this.

National programmes have been

developed to help healthcare settings to promote nutrition and hydration, such as *Water for Health* (Royal College of Nursing, 2007). However, there still appear to be inconsistencies between healthcare settings, with some adopting different approaches, while others have yet to take dehydration seriously and take part in such programmes.

Rather than categorising it as an aspect of nutrition, dehydration should be a standalone issue to help publicise its potentially serious impact on care. **NT**

### BOX 1. RECOMMENDATIONS

- There should be regular audits of fluid balance charts within all clinical areas, to ensure required standards are being achieved and patients are receiving appropriate care
- A fluid balance monitoring/hydration care plan should be developed to assist and direct clinical staff
- All clinical staff should be given achievable competencies in this area so they can be assessed on the required levels of knowledge and clinical practice
- Staff need a tool to help them assess and continually monitor patients' hydration accurately during their admission
- Resources should be made available to enable staff to monitor their patients' fluid balance more accurately
- Hydrants should be offered to all patients admitted to hospital, where appropriate, so they have access to water within reach of their bedside

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