Drink Up!

CAN CHANGING THE COLOUR AND DESIGN OF DRINKING CUPS ON AN ELDERLY MEDICAL WARD AFFECT THE LEVELS OF FLUID INTAKE?

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Contents

Background

Decreasing levels of fluid intake in the elderly is a concern for general health and well-being and can lead to dehydration and other medical problems including kidney injury. This is an increasing area of concern for a lot of elderly people, especially people with a diagnosis of dementia. This area of concern is often highlighted by care providers of the elderly and is a particular area of concern for hospital patients.

Age related changes & health problems put older people at risk of not drinking sufficient fluid to meet daily requirements:

- Changes to appetite or poor nutrition
- Impaired thirst mechanism
- Kidneys less efficient at conserving water
- Dementia – forget to drink
- Neurological disorders – difficulty swallowing
- Incontinence – reduced fluid intake to limit accidents and trips to the toilet
- Increasing frailty & dependence – need for assistance to drink

(http://www.continence.org.au/data/files/Events/Melbourne_EBB/WW_2.pdf)

One problem which affects people with Alzheimer's disease in particular is difficulty in seeing that there is a drinking vessel available. It is well established that those with Alzheimer's disease have poorer contrast sensitivity as well as poorer visual acuity (Cormack et al., 2000). Thus they may not be aware that there is a drink on the table in front of them, if, for example, the cup and the table are both pale-coloured. Perception of the colour red is better than for other colours e.g. blue.

The way fluids are delivered is believed to be very important when trying to encourage older people, especially hospital patients, to maintain or increase their level of fluid intake. The cups used to provide the drinks are believed to make a difference to the amount that elderly patients drink. This is especially important in patients with dementia. A report for the Alzheimer's Society stated:

"We had to help people with dementia drink more and enable them to recognise what is sitting on the table in front of them. Research has shown that recognition of coloured cups has led to 84 per cent more fluid intake. 'Nurses have told us they are filling the cups up three times as much, as the patients are drinking much more."

(http://www.alzheimers.org.uk/site/scripts/documents_info.php?documentID=1588)

There have been a number of studies around colour perception and elderly people, especially people with dementia and the benefits of using coloured crockery to motivate and encourage increasing nutritional intake. The research most often referred to in this field found an overall increase of 89% in fluid intake when high-contrast crockery was used (Dunne et al., 2004).
There may be a number of other reasons for the reduced intake of fluid, including worries about incontinence issues or lack of perception of thirst, but these are compounded by the patient simply forgetting to drink (Scherer, 1982).

Aim

To evaluate the effect of making changes to the colour and design of the drinking cups on a ward of 22 elderly patients on the overall level of fluid intake of the patients.

Research objectives

To compare the total fluid intake of 22 patients on an elderly care ward over a 28 day period

- 14 days when using the cups already in use on the ward
- 14 days when the cups have been changed in design and colour

Design

A pre-post test evaluation of a service improvement.

Setting

The project will be conducted on an elderly medical ward at Royal Preston Hospital (Lancashire Teaching Hospitals Trust). The ward has 22 beds, which are always occupied, and a high percentage of the patients have a diagnosis of some form of dementia. Coloured plates and cups are available to order via NHS Supplies, and are already used within the trust at the Chorley Hospital site on a rehabilitation ward, but no evaluation has been undertaken of their implementation.

Methods

The cups will be changed from white ceramic mugs to bright red plastic mugs. Similarly, clear plastic beakers with lids and no handles will be changed to bright red plastic beakers with optional lids and 1 or 2 handles.

The study will utilise routinely collected data. As standard practice, all patients on the ward already have a daily fluid balance chart for each day of their stay on the ward. This requires staff to record all oral or other fluid intake, fluid output (urine) and enables early identification of any patients whose fluid intake and/or urinary output is a cause for concern.

Total oral fluid intakes will be collated for two periods of two weeks: Period 1 - two weeks of recorded fluid intake before any changes are made. Period 2: two week period after all the drinking cups on the ward have been changed in design and to the colour red.

The method used will be quantitative, collecting four weeks total data from the fluid balance charts already routinely used on the ward. As standard practice, every patient on the ward has their input and output monitored through the completion of a fluid balance chart, this fluid balance chart is completed as part of the daily ward documentation. If there are any changes or concerns about a patient input or output this will be highlighted to the relevant team leader or nurse in charge of the shift.

Subjects and sampling

All 22 patients on the ward during the four week period of research will be included. All data collected will be anonymised, there will not be any identifiable patient data collected. The patients included will change as is the nature of a hospital environment, as people will continue to be admitted and discharged. This will not impact on the project as the data is collected as a whole, based on bed occupancy and not based on any individual patients.

Exclusion criteria will be any patients that are NBM (nil by mouth) for any day or part of a day during the four week period of data collection.

Plan of investigation

A data collection sheet will be completed each morning recording the previous day's fluid intake of all 22 patients on the ward, excluding any NBM patients. This information will be completed by the ward clerk, to ensure there is no bias. This will take place for 14 consecutive days prior to the intervention of changing the colour and design of the cups. The information entered on to the data sheet by the ward clerk is information that is already recorded as a daily routine for the ward daily documentation. The data will be the total of the daily fluid amounts and no other information will be entered onto the data collection sheet.

Seven days after the intervention has taken place, another 14 days of data recording the previous day's fluid intake will be collected. This will also be completed by the ward clerk. To avoid any bias, again only the total amount of fluid intake will be recorded on the data collection sheet, therefore this information will be completely anonymised as no identifiable patient information will be collected.

Assumptions

The ward staff will consistently accurately record the fluid intake of the patients, continuing usual daily routine practice of the ward. The Trust conducts regular auditing of the completion of fluid balance charts, and the ward has achieved a high standard of routine reporting.

There will be no other changes to the way fluids are given and available other than changing the cups.

Limitations/Bias

- Changes in patients' medical status that may affect their fluid intake
- Patients being 'nil by mouth' status at any time during the 4 week period of data collection
- Patients being discharged or admitted during the 4 week period, as this is a twenty two bedded hospital ward for elderly medical patients.
- Inaccurate recording of fluid intake

What data will be collected, when the data will be collected and how it will be collected

The data collected will be the aggregated recorded fluid intake of each patient from the routinely used 'Fluid Balance Chart' (appendix 1); this data will be transferred onto an anonymised data collection sheet (appendix 2) by the ward clerk. This will be done each morning, recording the

previous day's data, for the 2 x 14 day data collection period (28 days). There is weekend coverage by a ward clerk, which will enable the data to be collected for two consecutive 14 day periods; 14 days before the intervention of the change of cups, then after a 7 day settling in period the data will be collected for another 14 consecutive day period.

Data analysis

The data will be analysed as a comparison of data, before the intervention and after the intervention, to see if there has been a change in the fluid intake of the ward as a whole. We will not analyse individual patients' fluid intake as a 'before and after' comparison because, with the nature of the hospital environment, there will be patients discharged and admitted during the data collection period. We will collate individual data to enable calculation of the average and range of daily fluid intake over the two time periods.

Storage of data

The data collection sheets will be kept in a locked drawer in the ward manager's office. The office is only accessible with a code. The data collection sheets will be anonymised, with no identifiable data on them.

The data will also be transferred onto the computer and stored electronically. This will be password protected and again will be anonymised information. The data will be electronically stored and password protected for a period of 5 years, after which time all the stored data will be erased and destroyed from all storage.

At no time will any patient- identifiable information be collected.

Ethical considerations

The project will require approval from UCLAN ethics. Approval for a service evaluation has been given from the Research and Development Department at Lancashire Teaching Hospital Trust (LTHTR).

As there is not going to be any change to the patients' routines, and the only thing the intervention is changing is the colour and design of the cups, consent is not required.

At no time will any identifiable information be collected, and all data collected will be anonymised.

If at any time any member of staff has concerns about a patient's fluid intake or output, they will report this to the nurse in charge as per standard practice.

Responsibility/Sponsor

Lancashire Teaching Hospitals Trust (LTHTR) have confirmed their overall responsibility for the service evaluation/improvement project and the overall delivery of care. UCLan will act as a Sponsor for the data analysis only.

Project plan with timeline and milestones

Progress and Milestones	Mar/April 2015	May/June 2015	July/Aug 2015	Sept/Oct 2015	Nov/Dec 2015	Jan/Feb 2016
Introduction to internship and research question development						
Literature search and project design						
Designing research protocol and apply for ethics approval						
Conduct the research and analyse data						
Report writing						
Internship Showcase at UCLan						
Training days at UCLan						
Preparing publications & presentations GRADUATION!						

References

Cormack FK, Tovee M, Ballard C. (2000) Contrast sensitivity and visual acuity in patients with Alzheimer's disease. International Journal of Geriatric Psychiatry, Volume 15, Issue 7, pages 614–620, July 2000.
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Scherer, J. C. Introductory Medical-Surgical Nursing, 3rd ed. Philadelphia: J. B. Lippincott Co., 1982.)
http://www.medrounds.org/encyclopedia-of-aging/2006/01/fluid-intake.html

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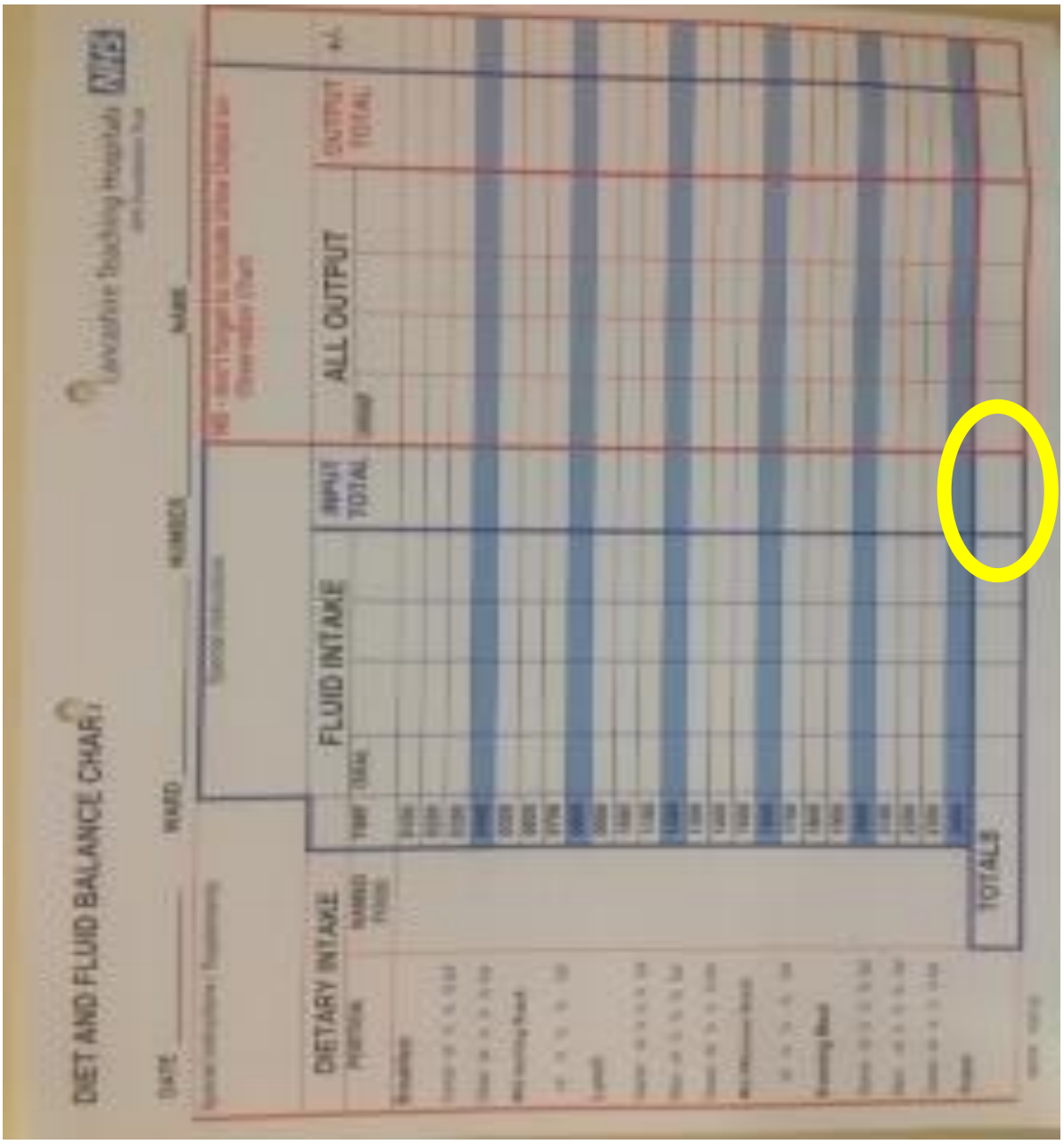
538).://www.nhs.uk/Services/hospitals/Services/Service/DefaultView.aspx?id=92977

Appendix 1_*Fluid Balance Chart*



This is an image of a Fluid Balance Chart, part of the documentation used daily for all patients on Ward 20 at Royal Preston Hospital. The only information collected from this for the purpose of this research is the total of fluid intake for that day, highlighted by the circle; no other information will be taken.

Appendix 2_*Data Collection Sheets*

Data Collection Sheet Week 1 (1 to 11)

												Daily total
Day 1												
Day 2												
Day 3												
Day 4												
Day 5												
Day 6												
Day 7												
No of NBM												

Data Collection Sheet Week 1 (12 to 22)

												Daily total
Day 1												
Day 2												
Day 3												
Day 4												
Day 5												
Day 6												
Day 7												
No of NBM												

Number of patients on ward

Day 1-7