University of York
Centre for Reviews and Dissemination
NHS National Institute for Health Research

PROSPERO International prospective register of systematic reviews

Effectiveness of external factors to reduce the risk of dehydration in older people living in residential care: a systematic review

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Review question(s)
Among elderly people living in residential care, what interventions or environmental factors have been shown to reduce dehydration prevalence as compared to those not exposed?

Searches
Searches of electronic databases using keywords, MeSH and other index terms, as well as combinations of these terms and appropriate synonyms.

Searches of trial registers.

Searches of reference lists, including those of included papers, relevant reviews, systematic reviews and meta-analyses

Databases and registers to be searched; MEDLINE, EMBASE, CINAHL, BNI, PsycInfo, The Kings Fund Library and Information Service Database, ProQuest, Open Thesis, CRD (Centre for Reviews and Dissemination), US National Institutes of Health Register of Clinical Trials, WHO International Registry of Clinical Trials.

Link to search strategy
http://www.crd.york.ac.uk/PROSPEROFILES/3100_STRATEGY_20120914.pdf

Types of study to be included
Study design: randomised (individual or clustering) controlled trials, non-randomised controlled studies, controlled before and after studies, case control studies, cohort studies and cross-sectional studies.

Condition or domain being studied
To investigate the current evidence for the effectiveness of interventions, or the impact of environmental conditions, on reducing the risk of, or reversing, impending water-loss dehydration for older people living in residential care.

Participants/ population
Participants should be >= 65 years of age at the time of entry to the study and living in residential care.

"Residential care": a permanent setting where older adults reside in an institution where at least 2 other people reside, all of whom are unrelated to each other. Residents share living facilities and require care, which is provided by staff. The institution is responsible for providing meals and beverages. These will include nursing homes, residential care homes, long-term geriatric wards in hospitals and other similar institutions. They will not include acute care settings (acute care is a temporary care setting, to provide specialist care in order to treat a condition or conditions, with a view to discharge to a more permanent setting).

Intervention(s), exposure(s)
Intervention: does the intervention aim to improve hydration status and/or reduce dehydration risk? Include administrative, educational, behavioural, social and environmental interventions.

"Interventions": a change in practice or an observation which has been linked to a change in hydration status.

"Dehydration": a deficit in the body's fluid balance, such that it has been clinically detected.

Studies should include an assessment of hydration status or an assessment of fluid intake, as the primary outcome measures, before and after the intervention.

Observational studies: has a link between the exposure and the outcome measure(s) been assessed?

Comparator(s)/ control

Comparators will be control groups or non-exposed groups.

Context

Participants should be >=65 years of age, living in residential care and be able to eat and drink orally, and should not be receiving fluids or nutrition by any other means (parenteral or enteral feeding).

Outcome(s)

Primary outcomes

Intervention studies: An assessment of dehydration which was applied before and after the intervention and/or an assessment of fluid intake which was applied before and after the intervention.

Case-control, cross-sectional and cohort studies should include: an assessment of dehydration or fluid intake AND an observation of at least one of the following: environmental factor or system of care or pattern of behaviour, with an assessment of the relationship between the environmental factor and the outcome.

Secondary outcomes

Secondary outcomes may be:

(i) an assessment of comorbidity which was applied before and after the intervention. The aspect of comorbidity assessed should have a known link to dehydration, such as stroke, urinary tract infection (UTI), upper respiratory tract infection (URTI), constipation, falls or death.

(ii). A measure of quality of life which was applied before and after the intervention.

(iii). In case-control, cross-sectional or cohort studies, if there is an assessment of correlation with quality of life, stroke, UTI, URTI, constipation, falls or death these will be noted.

Data extraction, (selection and coding)

Study selection. This will be conducted in two phases. Initial screening of titles and abstracts against the inclusion criteria will identify those studies where full papers will be required for the second part, and will be carried out by two reviewers independently, and papers identified by either reviewer collected in full text. An Inclusion form will be completed by each reviewer for each study, Assessment of inclusion will be made by two reviewers independently, and disagreements resolved by discussion. For those studies with missing or insufficient data, the corresponding author will be contacted for clarification. The selection of studies meeting the inclusion criteria will be duplicated by two independent reviewers, with differences discussed, and a third reviewer's opinion sought if required. The level of agreement between the reviewers will be assessed mathematically using the kappa statistic. The process will be piloted on a sample of papers.

Data extraction will include details of the authors, year and country of publication, funding source, participant information, study details and design, outcomes included, analyses, key results and whether any further information is required.

Risk of bias (quality) assessment

Bias: This refers to the validity of the study, both in asking an appropriate research question (external validity) and in addressing that question (internal validity). An inappropriate research question may affect the generalisability of the results, whereas the methodological quality of the research in which the risk of systematic deviations occurring has

not been effectively addressed, may result in either an over- or an under-estimation of the effects of the intervention. Bias may be due to: inappropriate choice of study design, poor selection of participants, poor methodological quality (performance and detection bias), attrition bias, and reporting bias. The Cochrane Collaboration's tool for assessing risk of bias in intervention studies and the Newcastle-Ottawa Scale for case-control and cohort studies will be used and the results presented in a Risk of Bias Table.

Quality: Included studies will be assessed for quality (study design) and risk of bias (due to selection, performance, attrition, reporting) as described in Chapter 8 of the Cochrane Handbook. The quality of the study will be assessed for the appropriateness of the design to address the research question; the risk of bias, choice of intervention, choice of outcome measure, choice and use of statistical analyses, quality of reporting and generalisability. The checklist created by Downs and Black as an assessment of study quality will be used as a guideline to ensure that the appropriate factors are addressed.

Strategy for data synthesis

Results will be described, as well as being presented in tabulated format, including a flow diagram demonstrating the results of the search.

The flow diagram will show:

•The number of unique records identified in the searches.

•The number of records excluded after preliminary screening.

•The number of records retrieved in full text.

•The number of records or studies excluded after assessment of the full text, with brief reasons.

•The number of studies meeting eligibility criteria for the review.

•The number of studies contributing to the main outcome.

Those studies included in the review will be grouped according to type of intervention (environmental, administrative, behavioural). The results will be displayed in a summary of characteristics table, which will summarise the location, setting, methods, participants, interventions and outcome measures. Any other important characteristics will be described, as well as any important differences between the studies. A table describing the reasons for exclusion of the excluded studies will be formatted.

The quality and bias of the included studies will be depicted in assessment of quality and risk of bias tables respectively.

A narrative synthesis of the results of the review process will identify any common themes as to why an intervention works, or does not work, for whom and in which setting. A summary of findings table will present the main findings concerning the quality of evidence, participants, magnitude of the intervention effects and the data on the main outcomes. If the similarities between included studies allow for a meta-analysis, then this will be undertaken in order to increase the power of the estimates of treatment effect, and assess whether treatment effects are similar in similar situations, using a RevMan forest plot to display the effect and confidence intervals of each included study. A summary characteristic will be calculated for each study to describe the observed intervention effect (risk ratios for dichotomous data and difference between means for continuous data). These will then be weighted to allow for differences, such as sample size and event rate. The relative risk of dehydration, or mean difference for continuous outcomes, will be calculated to compare the intervention group with the control group.

Analysis of subgroups or subsets

None planned.

Dissemination plans

Results will be reported according to PRISMA guidelines, and a paper submitted for publication in an appropriate

peer-reviewed journal.

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Diane Bunn: Research Assistant and Registered PhD Student at University of East Anglia. PhD training supported by NIHR grant, number: NIHR-CDF-2011-04-025.

Lee Hooper, Senior Lecturer in Research Synthesis and Nutrition, UEA. NIHR Career Development Fellow, Grant holder of NIHR grant: NIHR-CDF-2011-04-025

Conflicts of interest
None known

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English

Country
England

Subject index terms status
Subject indexing assigned by CRD

Subject index terms
Aged; Dehydration; Homes for the Aged; Humans; Primary Prevention; Risk Factors

Stage of review
Ongoing

Date of registration in PROSPERO

15 October 2012

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15 October 2012

Stage of review at time of this submission	Started	Completed
Preliminary searches	No	Yes
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No