Effects of the Resident Assessment Instrument on the care process and health outcomes in nursing homes: a review of the literature

Authors' objectives
To assess the effects of the implementation of the Resident Assessment Instrument (RAI) on process measures, the quality of care plans, staff satisfaction and outcome measures in nursing homes.

Searching
MEDLINE, Online Current Contents, CINAHL and PsycLIT were searched using the keywords 'Resident Assessment Instrument' and 'Minimum Data Set'. Members of the group working on cross-national implementation of the RAI were contacted for further material and work in progress.

Study selection
Study designs of evaluations included in the review
The inclusion criteria were not defined in terms of the study design. The included studies were of a quasi-experimental repeated measures design, post-test design, and pre-test post-test design.

Specific interventions included in the review
Implementations of the RAI were eligible. Details of the RAI were given in an appendix to the review. The RAI contains the following elements: a minimum data set (MDS); identification of problem areas; specific resident assessment protocols (RAPs); and a user's manual. In some studies the RAI formed part of the Omnibus Budget Reconciliation Act (OBRA '87), and in some countries the use of the RAI was mandatory.

Participants included in the review
The review focused on nursing home populations and other elderly populations in long-term facilities. The studies were conducted in nursing homes, geriatric hospitals, health facilities for the elderly, and special homes for the aged.

Outcomes assessed in the review
The research question addressed process measures (quality of care plans and staff satisfaction) and outcome measures of health problems and patient quality of life. The actual outcomes assessed included: the accuracy and comprehensiveness of residents' care plans; the quality of care process indicators; selected health conditions and problems; transitions to hospital; mortality; home discharge; nine physical, mental, and social functional areas; the degree of satisfaction of Directors of Nursing with the RAI; and the staff and residents' perception of progress since implementation. The outcomes were assessed using the following instruments: analysis of patients' records; MDS items; RAPs; a cognitive performance scale; activities of daily living; telephone interviews; and structured and open-end interviews.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
Several aspects of study validity were considered in the text although no formal validity assessment was undertaken.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.
The following information were tabulated in the review: author and country where the study was conducted; study
design; details of the study sample; dependent variables; measuring instrument; and results.

Methods of synthesis
How were the studies combined?
A narrative synthesis was undertaken.

How were differences between studies investigated?
Differences between the studies were discussed in the text of the review.

Results of the review
Seven studies were included: 4 studies evaluated different outcomes at different time periods from a quasi-experimental
repeated measures study that enrolled 2,100 patients; one post-test study enrolled 236 Directors of Nursing; one post-
test study enrolled 191 staff and residents; and one pre-test post-test study enrolled 18 facilities.

The methodological deficiencies of the studies included: the use of non-controlled study designs; the standard by which
the care plans were assessed was derived from the MDS items or the RAPs; the potential selection bias and fall-out in
facilities participating in the research; the RAI training programmes offered to staff varied across facilities within
studies; and the perspective of residents was not addressed.

Process.
The most positive effects of the RAI were found in the comprehensiveness and accuracy of the residents’ care plans.

One quasi-experimental study found the implementation of the RAI was associated with the following: an increase in
the percentage of residents that had more than 90% of the 23 items accurately recorded (increased from 17.6% to
48.6%); a significant increase in the number of care plans addressing 12 of the 18 RAP areas; an increase in the use of
toletting programmes, behaviour management programmes, hearing aids, and the presence of advance directives; and a
decrease in the use of physical restraints and in-dwelling catheters. There was no significant change in preventative skin
care, the use of antidepressants and hypnotics, the number of residents with inadequate vision who did not have glasses,
toletting programmes for urine incontinency, and residents with mood problems receiving therapy. One pre-test post-
test study found that implementation of the RAI was associated with at least a 10% increase in the frequency with
which falls, nutritional status, and dental care were addressed. Psychosocial RAPs were less frequently addressed. The
quality of the contents of care plans was improved for a number of standards, which were selected by an expert panel.

Staff satisfaction with RAI.
In one post-test study, 63% of the 236 Directors of Nursing reported that the clinical staff were strongly opposed to the
RAI during the implementation phase, and that 43% were still resistant after implementation. Most Directors of
Nursing thought the RAI was an improvement. Sixty-eight per cent of the administrators thought the RAI caused an
excessive paperwork burden but most (64%) judged it worth the effort.

In one post-test study, 73% of 132 professionals reported that the MDS was the most useful element of OBRA ’97, and
65% of the professionals reported that working with RAPs had improved assessment, analysis and care plans. However,
few professionals (8%) indicated that the RAP represented a ‘major improvement’.

Outcome.
The RAI had the most positive effects on the health condition of nursing home residents with diminished physical and
mental functioning. Fewer positive effects were found in psychosocial areas of assessment.

One quasi-experimental study found that implementation of the RAI was associated with the following: a lower
prevalence of dehydration (2% to 1%); a decline in ‘static ulcers’ (4.5% to 3%); an increase in prevalence of daily pain
(13.4% to 17%); and no significant change in falls, malnutrition, decubitus, vision and poor teeth.
One pre-test post-test study found that, in general, the reductions in decline post-RAI outweighed the reductions in improvement, but that the changes were not the same for all groups. The RAI was not associated with any change in mortality or home discharge, though findings suggested that there was better selection of residents for hospitalisation.

Authors' conclusions
Positive effects of the RAI were found, based on pre-test post-test non-controlled designs.

CRD commentary
The aims were stated, and the objective was defined in terms of the participants, intervention and outcome. Several relevant sources were searched and experts working in the field were contacted for unpublished material. The methods used to select the studies were not described, the dates for which the search was conducted were not stated, and it was not reported whether any language restrictions were applied. Validity was not formally assessed but several aspects of study validity were commented upon in the text. Relevant information on the primary studies was tabulated, but the methods used to extract the data were not described. A narrative review was appropriate given the small number of identified studies with different outcomes and different populations.

The evidence presented supports the authors' conclusions.

Implications of the review for practice and research
Practice: The authors state that the RAI has been shown to be a promising scientific and practical instrument for improving quality of care and quality of life in long-term elderly care.

Research: The authors state that control-group evaluations are needed in future evaluations to determine if the positive results found in this review hold. In addition, the RAI needs to be considered from national and local perspectives, since cultural differences would make the generalisation of findings difficult.

The authors state that several post-RAI studies are in progress, with the first publications expected in 1999.

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